

ATTACHMENT G.13
TECHNICAL AREA 54, AREA G, STORAGE SHED 8
INDOOR CONTAINER STORAGE UNIT
CLOSURE PLAN

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1.0 INTRODUCTION

This closure plan describes the activities necessary to close the indoor hazardous waste container storage unit called Storage Shed 8 which is located at Technical Area 54 (TA-54-8) Area G at the Los Alamos National Laboratory (Facility), hereinafter referred to as the permitted unit. The information provided in this closure plan addresses the closure requirements specified in Permit Part 9, the Code of Federal Regulations (CFR), Title 40, Part 264, Subparts G and I for hazardous waste management units operated at the Facility under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act.

Until closure is complete and has been certified in accordance with Permit Section 9.5, a copy of the approved closure plan or the hazardous waste facility permit containing the plan, any approved revisions, and closure activity documentation associated with the closure will be on file with hazardous waste compliance personnel at the Facility and at the U.S. Department of Energy (DOE) Los Alamos Site Office. Prior to closure of the permitted unit, this closure plan may be amended in accordance with Permit Section 9.4.8, as necessary and appropriate, to provide updated sampling and analysis plans and to incorporate updated decontamination technologies. Amended closure plans shall be submitted to the New Mexico Environment Department (Department) for approval prior to implementing closure activities.

2.0 DESCRIPTION OF UNIT TO BE CLOSED

A specific description of the permitted unit can be found in Permit Attachment A (*Technical Area Unit Descriptions*). Additional features and equipment located at the permitted unit and not discussed elsewhere within the Permit are described below.

The permitted unit is a steel-framed building with a concrete floor located on the north-central side of Technical Area 54, Area G which sits on a concrete supporting pad. It is rectangular-shaped and measures 40 feet (ft) by 16 ft, or approximately 640 square ft. The permitted unit is completely enclosed except for two garage-type, roll-up metal doors and a personnel door on the south wall. Along the inside perimeter of the permitted unit is a 2 inch (in)-high metal barrier on the floor along the west, north, and east walls and a rounded concrete barrier along the south wall. Centered between the two roll-up doors and 6 inches from the south wall is a sump in the floor with a wire mesh covering which measures 27.5 square inches. In the northwest inside corner of the permitted unit is a 6 in high by 6 in wide concrete barrier enclosing a rectangular area that measures 15 ft 5 in by 5 ft 11in. This area contains a cabinet labeled "Lead-Acid Batteries for Recycle" which has batteries to be recycled as well as fire extinguishers in it.

The waste typically stored at the permitted unit includes mixed waste in solid and liquid form. The permitted unit was constructed in 1979 and has been subject to hazardous waste management regulations under RCRA since July 25, 1990. Specific hazardous waste constituents that have been stored at the permitted unit are included in Table G.13-1 of this closure plan. Permit Part 3 (*Storage in Containers*), Permit Attachment A (*Technical Area Unit Descriptions*), Permit Attachment B (*Part A Application*), and Permit Attachment C (*Waste Analysis Plan*) include information regarding waste management procedures and hazardous waste constituents stored at the permitted unit.

3.0 ESTIMATE OF MAXIMUM WASTE STORED

Approximately 57,000 gallons of waste has been stored in the permitted unit. Throughout the life of this Permit it is estimated that a total of 71,300 gallons of waste will be stored in the permitted unit.

4.0 GENERAL CLOSURE REQUIREMENTS

4.1 Closure Performance Standard

As required by Permit Section 9.2, the permitted unit will be closed to meet the following performance standards:

- a. remove all hazardous waste residues and hazardous constituents;
- b. ensure contaminated media do not contain concentrations of hazardous constituents greater than the clean-up levels established in accordance with Permit Sections 11.4 and 11.5. For soils the cleanup levels shall be established based on residential use. The Permittees must also demonstrate that there is no potential to contaminate groundwater;
- c. control hazardous waste residues, hazardous constituents, and, as applicable, contaminated media such that they do not exceed a total excess cancer risk of 10^{-5} for carcinogenic substances and, for non-carcinogenic substances, a target Hazard Index of 1.0 for human receptors, and meet Ecological Screening Levels established under Permit Section 11.5;
- d. minimize the need for further maintenance;
- e. control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, groundwater, surface waters, or to the atmosphere; and
- f. comply with the closure requirements of Permit Part 9 (*Closure*) and 40 CFR Part 264, Subparts G and I for container storage units.

Closure of the permitted unit will be deemed complete when: 1) all surfaces and equipment have been decontaminated, or otherwise properly disposed of; 2) closure has been certified by an independent, professional engineer licensed in the State of New Mexico; and 3) closure certification has been submitted to, and approved by, the Department.

4.2 Closure Schedule

This closure plan is intended to address the closure requirements for the permitted unit within the authorized timeframe of the current Hazardous Waste Facility Permit (*see* Permit Section 9.4). The following section provides the schedule of closure activities (*see also* Table 13-2 in this closure plan).

Notification of closure will occur at least 45 days before the Permittees expect to begin closure (*see* 40 § CFR 264.112(d)(1)) and closure activities will begin according to the requirements of 40 § CFR 264.112(d)(2)). However, pursuant to 40 CFR §264.112(e), removing hazardous wastes and decontaminating or dismantling equipment in accordance with an approved closure plan may be conducted at any time before or after notification of closure. Notification of the structural assessment (assessment), as described in Section 5.2 of this closure plan, shall occur in accordance with Permit Section 9.4.6.2.

Within 90 days after the final receipt of hazardous waste, the permitted unit will be emptied of all stored waste. Within ten days of completing hazardous waste removal or within 100 days of the final receipt of

hazardous waste, the Permittees will complete the records review (review) and assessment and submit an amended closure plan, if necessary, to the Department for review and approval as a permit modification in accordance with Permit Section 9.4.8. Upon approval of the modified closure plan, if applicable, the Permittees will decontaminate unit surfaces and related equipment.

Soil sampling and decontamination verification wipe sampling activities will be conducted to demonstrate that surfaces, related equipment, and soils at the permitted unit meet the closure performance standards in Permit Section 9.2.

All closure activities, including submittal of a final closure certification report to the Department for review and approval, will be completed within 180 days after the final receipt of waste. In the event that closure of the permitted unit cannot proceed according to schedule, the Permittees will notify the Department in accordance with the extension request requirements in Permit Part 9.4.1.1.

5.0 CLOSURE PROCEDURES

Closure activities at the permitted unit will include: removal of hazardous wastes; proper management and disposal of hazardous waste residues and contaminated structures and equipment associated with the permitted unit; verification that the closure performance standards in Permit Section 9.2 have been achieved; and submittal of a final closure certification report. The following sections describe closure activities applicable to the permitted unit.

5.1 Removal of Waste

In accordance with Permit Section 9.4.2, all stored hazardous wastes will be removed from the permitted unit scheduled for closure. Depending upon their size, containers will be removed with forklifts, container dollies, air pallets, or manually. Containers will be placed on flat bed trucks, trailers, or other appropriate vehicles for transport. Appropriate shipping documentation will accompany the wastes during transport. Containers holding hazardous wastes will be moved to a permitted on-site storage unit or a permitted off-site treatment, storage, or disposal facility.

5.2 Records Review and Structural Assessment

After waste removal and before starting closure decontamination and sampling activities, the Facility Operating and Inspection Records for the permitted unit will be reviewed and a structural assessment will be conducted to determine any previous finding(s) or action(s) that may influence closure activities or potential sampling locations.

5.2.1 Records Review

The Facility Operating and Inspection Records shall be reviewed in accordance with Permit Section 9.4.6.1. The goals of the review will be to:

- a. confirm the specific hazardous waste constituents of concern; and
- b. confirm additional sampling locations (*e.g.*, locations of spills or chronic conditions identified in the Operating and Inspection Records).

5.2.2 Structural Assessment

An assessment of the permitted unit's physical condition will be conducted in accordance with Permit Section 9.4.6.2. The assessment will include inspecting the floor and walls of the permitted unit for any existing conditions that indicate a potential for release of constituents. If a crack, gap, or stained area is present, the Permittees will amend this closure plan in order to update the sampling and analysis plan (SAP) (*see* Section 6.0 of this closure plan) to add these sampling locations and the applicable sampling methods and procedures. This inspection will be documented with photographs and drawings, as necessary.

5.3 Decontamination and Removal of Structures and Related Equipment

In accordance with the procedures in Permit Section 9.4.3, all remaining hazardous waste residues and hazardous constituents will be removed from the permitted unit. The permitted unit's surfaces and related equipment will be decontaminated, removed, or both and managed appropriately. All waste material will be controlled, handled, characterized, and disposed of in accordance with Permit Attachment C (*Waste Analysis Plan*), Permit Section 9.4.5, and Facility waste management procedures. Decontamination activities will ensure the removal of all hazardous waste residues and hazardous constituents from the permitted unit to meet the closure performance standards outlined in Permit Section 9.2.

5.3.1 Removal of Structures and Related Equipment

All surfaces and related equipment that are removed will not require decontamination, will be considered solid and potentially hazardous waste (as defined by this Permit) when removed, and will be disposed of in accordance with Permit Section 9.4.5 and Section 7.0 of this closure plan. The metal walls and the metal roof will be removed before the structural assessment. The materials making up the concrete floor, the sump, the concrete supporting pad, as well as any materials associated with the concrete pad (*e.g.*, asphalt, curbing, base course) will be removed after the structural assessment.

5.3.2 Decontamination of Surfaces, Structures, and Related Equipment

All surfaces and related equipment that will be reused by the Facility will be decontaminated in accordance with Permit Section 9.4.3.1. At this time, there is no equipment located at the permitted unit that is expected to be left in place; however, if equipment is identified during the assessment that is expected to be left in place, it will be decontaminated in accordance with this section.

Decontamination of the permitted unit will be conducted by first removing loose material through sweeping then by steam cleaning or pressure washing with a solution consisting of a surfactant detergent (*e.g.*, Alconox[®]) and water and mixed in accordance with the manufacturer's recommendations. Decontamination of the interior surfaces of the permitted unit will include all features located within the unit.

The entirety of the unit's floor will be decontaminated. Waste at the permitted unit is no longer stacked; however, past activities have allowed the stacking of 55-gallon drums. Including the height of any pallets that may have been used, two stacked 55-gallon drums measure just over eight feet high. Therefore, to ensure that decontamination of the walls is conducted to a sufficient height, all walls in the permitted unit will be decontaminated to a height of ten feet. Section 5.3.1 above says that the metal roof and walls will be removed; if things are removed, then they do not need decontamination because they will be managed as waste (*see first sentence.*) Then why are they decontaminating?

Ceilings of the permitted unit and walls above ten feet will be presumed to be free of contamination unless there is some physical indication of contamination (*e.g.*, staining), the records review reveals that large amounts of liquid volatile or semi-volatile organic waste was stored in the permitted unit, or a spill or release occurred within the permitted unit that could have affected the ceiling or the walls above height of ten feet.

Portable berms or other such devices (*e.g.*, absorbent socks, plastic sheeting, wading pools, existing secondary containment) will collect excess water and provide containment during the decontamination process. The floor sump will be plugged, through the use of temporary curbing or portable berms, during decontamination to ensure that none of the wash water solution enters the sump located on the floor.

5.4 Equipment Used During Decontamination Activities

Reusable protective clothing, tools, and equipment used during closure decontamination activities will be cleaned with a wash water solution. Residue, disposable equipment, and small reusable equipment that cannot be decontaminated will be containerized and managed as waste in accordance with Permit Section 9.4.5 and Section 7.0 of this closure plan.

6.0 SAMPLING AND ANALYSIS PLAN

This sampling and analysis plan addresses the specific closure sampling and analysis requirements in Permit Section 9.4.7 and describes the sampling, analysis, and quality assurance/quality control (QA/QC) methods that will be used to demonstrate that the Permittees have met the closure performance standards outlined in Permit Section 9.2.

6.1 Soil Sampling and Decontamination Verification Wipe Sampling Activities

Soil sampling and decontamination verification wipe sampling activities will be conducted at the permitted unit in order to verify that surfaces, related equipment, and soils at the permitted unit meet the closure performance standards in Permit Section 9.2. All samples will be collected and analyzed in accordance with the procedures in Sections 6.2, 6.3, and 6.4 of this closure plan.

One wipe sample will be collected from each piece of decontaminated equipment. In compliance with Permit Section 9.4.7.1.i, this closure plan will ensure the collection of at least one verification wipe sample from the floor, one from each of the walls (four total), and one from the sump of the permitted unit for a total of six wipe samples (*see* Figure G.13-1). The precise locations for these wipe samples will be randomly determined at the time of sampling within the area of each surface. If there is liquid found in the sump at the time of sample collection, at least one liquid sample will be collected in accordance with Section 6.2.1 of this closure plan.

In compliance with Permit Section 9.4.7.1.ii.a, this closure plan will ensure the collection of three soil samples at the permitted unit from the following locations:

- a. immediately off the concrete pad in front of each roll-up door (*see* Permit Section 9.4.7.1.ii.a(1)); and
- b. every 900 square feet beneath the permitted unit after it, and the concrete pad, are removed (*see* Permit Section 9.4.7.1.ii.a(2)).

These sample locations are illustrated in Figures G.13-1 and G.13-2.

6.2 Sample Collection Procedures

Samples will be collected in accordance with Permit Section 9.4.7.1 and the procedures identified in this sampling and analysis plan which incorporates guidance from the United States Environmental Protection Agency (USEPA) (EPA, 2002), DOE (DOE, 1995), and other Department-approved procedures.

6.2.1 Liquid Sampling

Liquid samples will be collected and analyzed to determine if residual hazardous constituents remain in the sump at the permitted unit. Liquid samples will be collected using glass or plastic tubes, a composite liquid waste sampler, a bacon bomb, a bailer, or by pouring liquid into sample containers.

6.2.2 Wipe Sampling

Surface wipe samples will be collected and analyzed to determine if residual hazardous constituents remain on surfaces and related equipment at the permitted unit. Samples will be collected in accordance with the National Institute of Occupational Safety and Health (NIOSH) *Manual of Analytical Methods*, (NIOSH, 1994). The appropriate wipe sample method will consider the type of surface being sampled, the type of constituent being sampled for, the solution used, and the desired constituent concentration detection limit.

The NIOSH method includes wiping a 100 square centimeter area at each discrete location with a gauze wipe wetted with a liquid solution appropriate for the desired analysis (*e.g.*, deionized water for lead). For wipe sampling, guidance from the analytical laboratory must be obtained prior to wipe verification sampling to confirm that the solution chosen for each analysis is appropriate for the analysis to be conducted and that wipe sampling is a proper technique for the analysis.

6.2.3 Soil sampling

Soil samples will be collected and analyzed to determine if hazardous constituents are present in soils at the permitted unit. Soil samples will be collected using a spade, scoop, auger, trowel, or other equipment as specified in approved methods for the type of analyte (*i.e.*, EPA 1996 or 2002) and from the appropriate depths as directed in Permit Section 9.4.7.1.ii. Samples will be kept at their at-depth temperature or lower, protected from ultraviolet light, sealed tightly in the recommended container, and analyzed within the specific holding times listed in Table G.10-5.

6.2.4 Cleaning of Sampling Equipment

Reusable sampling equipment will be cleaned and rinsed prior to use. Sampling equipment rinsate blanks will be collected and analyzed only if reusable sampling equipment is used. Reusable decontamination equipment, including protective clothing and tools, used during closure activities will be scraped as necessary to remove residue and cleaned with a wash water solution. Sampling equipment will be cleaned prior to each use with a wash solution, rinsed several times with tap water, and air-dried to prevent cross-contamination of samples. A disposable sampler is considered clean if still in a factory-sealed wrapper. Residue, disposable decontamination equipment, and reusable decontamination equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility.

6.3 Sample Management Procedures

The following sections provide a description of sample documentation, handling, preservation, storage, packaging, and transportation requirements that will be followed during the sampling activities associated with closure.

6.3.1 Sample Documentation

Sampling personnel will complete and maintain records to document sampling and analysis activities. Sample documentation will include sample identification numbers, chain-of-custody forms, analysis requested, sample logbooks detailing sample collection activities, and shipping forms (if necessary).

6.3.1.1 Chain-of-Custody

Chain-of-custody forms will be maintained by sampling personnel until samples are relinquished to the analytical laboratory. This will ensure the integrity of the samples and provide for an accurate and defensible written record of the sampling possession and handling from the time of collection until laboratory analysis. One chain-of-custody form will be used to document all of the samples collected from a single sampling event. The sample collector will be responsible for the integrity of the samples collected until properly transferred to another person. The EPA considers a sample to be in a person's custody if it is:

- a. in a person's physical possession;
- b. in view of the person in possession; or
- c. secured by that person in a restricted access area to prevent tampering.

The sample collector will document all pertinent sample collection data. Individuals relinquishing or receiving custody of the samples will sign, date, and note the time on the analysis request and chain-of-custody form. A chain-of-custody form must accompany all samples from collection through laboratory analysis. The analytical laboratory will return the completed chain-of-custody form to the Facility and it will become part of the permanent sampling record documenting the sampling efforts.

6.3.1.2 Sample Labels and Custody Seals

A sample label will be affixed to each sample container. The sample label will include the following information:

- a. a unique sample identification number;
- b. name of the sample collector;
- c. date and time of collection;
- d. type of preservatives used, if any; and
- e. location from which the sample was collected.

A custody seal will be placed on each sample container to detect unauthorized tampering with the samples. These labels must be initialed, dated, and affixed by the sample collector in such a manner that it is necessary to break the seal to open the container.

6.3.1.3 Sample Logbook

All pertinent information on the sampling effort must be recorded in a bound logbook. Information must be recorded in ink and any cross-outs must be made with a single line and the change initialed and dated by the author. The sample logbook will include the following information:

- a. the sample location;
- b. suspected composition;
- c. sample identification number;
- d. volume/mass of sample taken;
- e. purpose of sampling;
- f. description of sample point and sampling methodology;
- g. date and time of collection;
- h. name of the sample collector;
- i. sample destination and how it will be transported;
- j. observations; and,
- k. name(s) of personnel responsible for the observations.

6.3.2 Sample Handling, Preservation, and Storage

Samples will be collected and containerized in appropriate pre-cleaned sample containers. Table G.13-5 presents the requirements in SW-846 (EPA, 1986) for sample containers, preservation techniques, and holding times. Samples that require cooling to 4 degrees Celsius will be placed in a cooler with ice or ice gel or in a refrigerator immediately upon collection.

6.3.3 Packaging and Transportation of Samples

All packaging and transportation activities will meet safety expectations, QA requirements, DOE Orders, and relevant local, state, and federal laws (including 10 CFR and 49 CFR). Appropriate Facility documents establish the requirements for packaging design, testing, acquisition, acceptance, use, maintenance, and decommissioning and for on-site, intra-site, and off-site shipment preparation and transportation of general commodities, hazardous materials, substances, wastes, and defense program materials.

Off-site transportation of samples will occur via private, contract, or common motor carrier; air carrier; or freight. All off-site transportation will be processed through the Facility packaging and transportation

organization, unless the shipper is specifically authorized through formal documentation by the packaging and transportation organization to independently tender shipments to common motor or air carriers.

6.4 Sample Analysis Requirements

Samples will be analyzed for all the hazardous constituents listed in Appendix VIII of 40 CFR Part 261 and in Appendix IX of 40 CFR Part 264 that have been stored at the permitted unit over its operational history. Samples will be analyzed by an independent laboratory using the methods outlined in Table G.13-4. Analytes, test methods and instrumentation, target detection limits, and rationale for metals and organic analyses are presented in Table G.13-4. If any of the information from these tables has changed at the time of closure, the Permittees will amend this closure plan to update all methods in this SAP.

6.4.1 Analytical Laboratory Requirements

The analytical laboratory will perform the detailed qualitative and quantitative chemical analyses specified in Section 7.4.2. The analytical laboratory will have:

- a. a documented comprehensive QA/QC program;
- b. technical analytical expertise;
- c. a document control/records management plan; and,
- d. the capability to perform data reduction, validation, and reporting.

The selection of the analytical testing methods identified in Table G.13-4 is based on the following considerations:

- e. the physical form of the waste;
- f. constituents of interest;
- g. required detection limits (*e.g.*, regulatory thresholds); and,
- h. information requirements (*e.g.*, waste classification).

6.4.2 Quality Assurance/Quality Control

All sampling and analysis will be conducted in accordance with QA/QC procedures defined by the latest revision of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) (EPA, 1986) or other Department-approved procedures. Field sampling procedures and laboratory analyses will be evaluated through the use of QA/QC samples to assess the overall quality of the data produced. QC samples evaluate precision, accuracy, and potential sample contamination associated with the sampling and analysis process, and is described in the following sections, along with information on calculations necessary to evaluate the QC results. QA/QC samples will be collected in accordance with the most recent and appropriate Facility sampling plan incorporating guidance from the EPA (EPA, 2002), DOE (DOE, 1995), or other Department-approved procedures.

6.4.2.1 Field Quality Control

The field QC samples that will be collected include trip blanks, field blanks, field duplicates, and equipment rinsate blanks. Table G.13-6 presents a summary of QC sample types, applicable analyses, frequency, and acceptance criteria. QC samples will be given a unique sample identification number and submitted to the analytical laboratory as blind samples. QC samples will be identified on the applicable forms so that the results can be applied to the associated sample.

6.4.2.2 Analytical Laboratory QC Samples

QA/QC considerations are an integral part of analytical laboratory operations. Laboratory QA ensures that analytical methods generate data that are technically sound, statistically valid, and that can be documented. QC procedures are the tools employed to measure the degree to which these QA objectives are met.

6.4.3 Data Reduction, Verification, Validation, and Reporting

Analytical data generated by the activities described in this closure plan will be verified and validated. Data reduction is the conversion of raw data to reportable units; transfer of data between recording media; and computation of summary statistics, standard errors, confidence intervals, and statistical tests.

6.4.4 Data Reporting Requirements

Analytical results will include all pertinent information about the condition and appearance of the sample-as-received. Analytical reports will include:

- a. a summary of analytical results for each sample;
- b. results from QC samples such as blanks, spikes, and calibrations;
- c. reference to standard methods or a detailed description of analytical procedures; and
- d. raw data printouts for comparison with summaries.

The laboratory will describe the analysis in sufficient detail so that the data user can understand how the sample was analyzed.

7.0 WASTE MANAGEMENT

All waste generated during closure will be controlled, handled, characterized, and disposed of in accordance with Permit Section 9.4.5, Permit Attachment C (*Waste Analysis Plan*), and Facility waste management procedures. Closure activities may generate different types of waste materials, which are listed with potential disposal options in Table G.13-3 of this closure plan. Subsequent disposition options for the decontaminated structures and equipment include reuse, recycling, or disposal. Reusable protective clothing, tools, and equipment used during decontamination will be cleaned with a wash water solution. Disposable equipment and other small equipment that cannot be decontaminated, as summarized in Table G.13-3, will be containerized and managed as waste.

8.0 CLOSURE CERTIFICATION REPORT

Upon completion of the closure activities at the permitted unit, a closure certification report will be prepared and submitted to the Department for review and approval in accordance with Permit Section 9.5.

9.0 REFERENCES

- DOE, 1995. "DOE Methods for Evaluating Environmental and Waste Management Samples," DOE/EM-0089T, Rev. 2. Prepared for the U.S. Department of Energy by Pacific Northwest Laboratory, Richland, Washington.
- EPA, 1986 and all approved updates. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA-SW-846, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.
- EPA, 2002. "RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment," EPA530-D-02-002, August 2002, Office of Solid Waste, U.S. Environmental Protection Agency, Washington, DC.
- LANL, 2003a. "Los Alamos National Laboratory General Part B Permit Renewal Application, Revision 2,0" LA-UR-03-5923, Los Alamos National Laboratory, Los Alamos, New Mexico.
- NIOSH, 1994. The National Institute for Occupational Health and Safety (NIOSH) *Manual of Analytical Methods*, 4th ed. Issue 1. 1994.

Table G.13-1
**Hazardous Waste Constituents of Concern at the Technical Area 54, Area G, Storage Shed 8,
Indoor Container Storage Unit**

Category	EPA Hazardous Waste Numbers	Specific Constituents^a
Toxic Metals	D008	Lead
Volatile Organic Compounds	F001	Trichloroethylene

^a Based on the permitted unit's Operating Record

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Table G.13-2
Closure Schedule for the Technical Area 54, Area G, Storage Shed 8, Indoor Container Storage Unit

Activity	Maximum Time Required
Notify the Department of intent to close.	-45 Days
Final receipt of waste.	Day 0
Complete waste removal.	Day 90
Complete records review and structural assessment.	Day 100
Complete all closure activities and submit final closure certification report to the Department.	Day 180

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Table G.13-3

Potential Waste Materials, Waste Types, and Disposal Options

Waste Materials	Waste Types	Disposal Options
Personal protective equipment (PPE)	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	The PPE will be treated to meet Land Disposal Restriction (LDR) treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Technical Area 54 (TA-54) Area G or off-site radioactive waste disposal facility
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or the Waste Isolation Pilot Plant (WIPP), as appropriate.
Decontamination wash water	Non-regulated liquid waste	Sanitary sewer
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Radioactive liquid waste	Radioactive Liquid Waste Treatment Facility (RLWTF)
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
Metal	Non-regulated solid waste	Subtitle D landfill or recycled
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	TA-54 Area G or off-site radioactive waste disposal facility
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, or WIPP, as appropriate.

Table G.13-3
Waste Materials, Waste Types, and Disposal Options

Waste Materials	Waste Types	Disposal Options
Discarded concrete	Low-level radioactive solid waste	TA-54 Area G or off-site radioactive waste disposal facility
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
	Non-regulated solid waste	Subtitle D landfill, recycled, or reused
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
Discarded management equipment waste	Low-level radioactive solid waste	TA-54 Area G or off-site radioactive waste disposal facility
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
Sampling equipment	Low-level radioactive solid waste	TA-54 Area G or off-site radioactive waste disposal facility
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.

Table G.13-4
Summary of Analytical Methods

Analyte	EPA SW-846 Analytical Method ^a	Test Methods/ Instrumentation	Target Detection Limit ^b	Rationale
<i>Metal Analysis</i>				
Lead	7420 ^d , 7421 ^c	FLAA, GFAA	5 ug/L	Determine the metal concentration in the samples.
<i>Organic Analysis</i>				
Target compound list VOCs plus ten tentatively identified compounds (TIC)	8260B	GC/MS	10 mg/L	Determine the VOCs concentration in the samples.

^a U.S. Environmental Protection Agency (EPA), 1986 and all approved updates, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.

^b Detection limits listed for metals are for clean water. Detection limits for organics are expressed as practical quantitation limits. Actual detection limits may be higher depending on sample composition and matrix type.

^c Method being integrated into Method 7010, per the May 1998 *SW-846* Draft Update IVA.

^d Method being integrated into Method 7000B, per the May 1998 *SW-846* Draft Update IVA.

FLAA = Flame atomic absorption spectroscopy
 GC/MS = Gas chromatography/mass spectrometry
 GFAA = Graphite furnace atomic absorption spectroscopy
 mg/L = milligrams per liter
 ug/L = micrograms per liter.

Table G.13-5
Sample Containers^a, Preservation Techniques, and Holding Times^b

Analyte Class and Sample Type	Container Type and Materials	Preservation	Holding Time
<i>Metals</i>			
TCLP/Total Metals: Lead	Aqueous Media: 500-mL Wide Mouth-Polyethylene or Glass with Teflon Liner	Aqueous Media: HNO ₃ to pH <2 Cool to 4 °C	180 Days
	Solid Media: 125-mL Glass	Solid Media: Cool to 4 °C	
<i>Volatile Organic Compounds</i>			
Target Compound Volatile Organic Compounds	Aqueous Media: Two 40-mL Amber Glass Vials with Teflon-Lined Septa	Aqueous Media: HCl to pH <2 Cool to 4 °C	14 days
	Solid Media: 125-mL Glass or Two 40-mL Amber Glass Vials with Teflon-Lined Septa	Solid Media Cool to 4 °C Add 5 mL Methanol or Other Water Miscible Organic Solvent to 40-mL Glass Vials	

^a Smaller sample containers may be required due to health and safety concerns associated with potential radiation exposure, transportation requirements, and waste management considerations.

^b Information obtained from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, U.S. Environmental Protection Agency, 1986 and all approved updates.

°C = degrees Celsius

HNO₃ = nitric acid

HCl = hydrochloric acid

mL = milliliter

TCLP = Toxicity Characteristic Leaching Procedure

Table G.13-6

Quality Control Sample Types, Applicable Analyses, Frequency, and Acceptance Criteria

QC Type	Sample	Applicable Analysis ^a	Frequency	Acceptance Criteria
Trip Blank		VOC	One set per shipping cooler containing samples to be analyzed for VOCs	Not Applicable
Field Blank		VOC, metals	One sample daily per analysis	Not Applicable
Field Duplicate		Chemical	One for each sampling sequence	Relative percent difference less than or equal to 20 percent
Equipment Rinsate Blank ^b		VOC, metals	One sample daily	Not Applicable

^a For VOC analysis, if blank shows detectable levels of any common laboratory contaminant (*e.g.*, methylene chloride, acetone, 2-butanone, toluene, and/or any phthalate ester), sample must exhibit that contaminant at a level 10 times the quantitation limit to be considered detectable. For all other contaminants, sample must exhibit the contaminant at a level 5 times the quantitation level to be considered detectable.

^b Collected only if reusable sampling equipment used

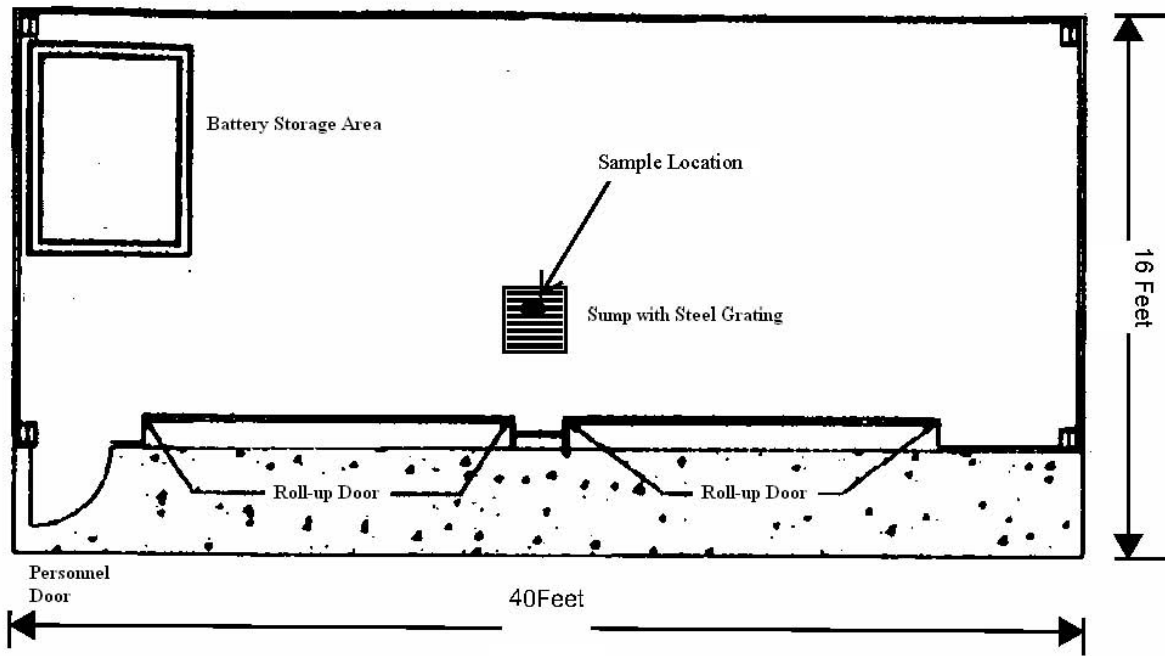


Figure G.13-1: Technical Area 54, Area G, Storage Shed 8, Indoor Container Storage Unit Dimension and Sump Sampling Location

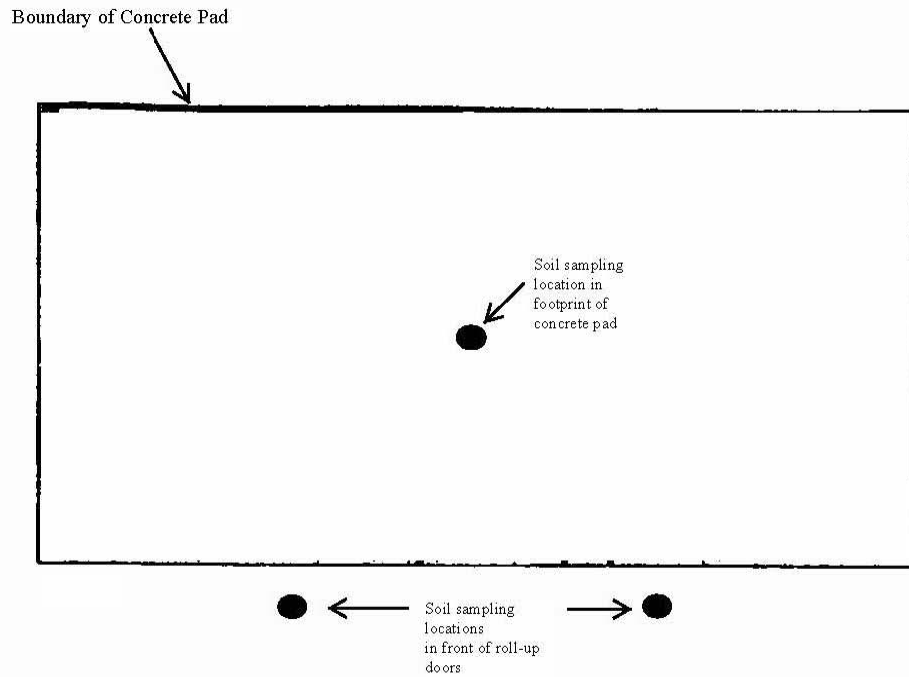


Figure G.13-2: Technical Area 54, Area G, Storage Shed 8, Indoor Container Storage Unit Soil Sampling Locations