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Title:	2007 Request for Four Class 2 Permit Modifications to the Los Alamos National Laboratory Hazardous Waste Facility Permit
Author(s):	Los Alamos National Laboratory Water Quality & RCRA Group
Intended for:	New Mexico Environment Department- Hazardous Waste Bureau

Clean Proposed Permit Modifications for Insertion into Permit

MODULE III STORAGE IN CONTAINERS

III.A. DESIGNATED STORAGE UNITS

1. Technical Area 54, Area L The Permittee may store for more than ninety days hazardous wastes in containers only in the following designated storage areas:

   a. Containers containing free liquids may be stored on the concrete containment structure, Facility Number 54-32 and 54-58.

   b. Containers containing free liquids may be stored in the packaging building, Facility Number 54-31.

   c. Containers not containing free liquids may be stored, on pallets or otherwise elevated four inches, in a single layer in cleared areas within the fenced portion of Area L, subject to the limitations of HWMR-5, as amended 1989, Part V, 40 CFR Sections 264.175(c) and 264.175(d). Such containers shall not be stored within five feet of the perimeter fence, nor five feet of any structure, nor five feet of the paved or unpaved roadway. Disposal unit covers designed to serve as storage areas are not subject to this exclusion. See Figure 6.

   d. Gas cylinders will be stored in cylinder racks, or on specially constructed pallets that provide support and restraint, under a self-supporting canopy located in cleared areas within the fenced portion of Area L, within the restrictions of permit paragraph II.G. above.

   e. The fence line around Area L as shown in permit Figure 6 shall not be altered without prior notice to the Secretary and permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.41 or 270.42 as appropriate.

   f. Containers containing free liquids may be stored in the modular storage buildings, Model 22 or equivalent, Facility Numbers 54-68 and 54-69, 54-70 for container storage located as shown in Figure 6.

2. Technical Area 50 The Permittee may store for more than ninety days hazardous wastes in containers only in the following designated storage areas:

   b. Building 50-37. Containers may be stored within storage room 115, 117, and 118 of the of TA-50-37 as shown in Figure 4.

   c. Containers containing free liquids may be stored in the modular storage buildings, Model 22 or equivalent, Facility Number 50-114.

3. Technical Area 50 The Permittee may store for more than ninety days hazardous and/or mixed wastes in containers only in the following designated storage areas:

b. Containers not containing free liquids may be stored on pallets, dollies, or otherwise elevated in Building 50-69, Indoor Container Storage Area (Rooms 102 and 103), and at the Building 50-69 Outdoor Container Storage Area (CSA). Containers containing suspect or known free liquids may be stored on self-containment pallets in Building 50-69, Rooms 102 and 103, and at the Building 50-69 Outdoor CSA. Containers will not be stacked at the Building 50-69, Rooms 102 and 103, storage areas. Containers may be stacked two high at the Building 50-69 Outdoor CSA. See Figure 12.

4. Technical Area 54 West The Permittee may store for more than ninety days mixed wastes in containers only in the following designated storage areas.

a. Building 54-38 Low Bay CSA. Containers not containing free liquids may be stored on pallets or dollies in the Low Bay CSA. Containers containing suspect or known liquids may be stored on self-containment pallets in the Low Bay CSA. Containers will not be stacked at this storage area. See Figure 13.

b. Building 54-38 High Bay CSA. Containers not containing free liquids may be stored on pallets or dollies or otherwise elevated in the High Bay CSA. Containers containing suspect or known liquids may be stored on self-containment pallets in the High Bay CSA. Containers will not be stacked at this storage area. See Figure 13.

c. Building 54-38 Loading Dock CSA. Containers may be stored on self-containment pallets in the Loading Dock CSA. Containers will not be stacked at this storage area. See Figure 13.

d. Building 54-38 Outdoor CSA. Drums of waste may be stored on self-containment pallets in the Outdoor CSA. Other types of waste containers that are elevated by design may be stored in the Outdoor CSA. Containers will not be stacked at this storage area. Containers will not be stored within five feet of the perimeter fence, within five feet of any structure, or within five feet of the paved or unpaved roadway. Waste stored in the outside storage area may be stored in transportainers or modular buildings. Drums stored in modular buildings or transportainers will be stored on wheeled drum dollies, steel pallets, or otherwise elevated. See Figure 13.

3. Technical Area 54, Area G The Permittee may store for more than ninety days wastes in containers only in the following designated storage areas:

a. Waste containers potentially containing free liquids may be stored at TA-54-230, TA-54-231, and on Storage Pads 9 and 10. Secondary containment will be used for containers with liquid items stored on the asphalt pads and in TA-54-231. See Figure 11.

b. Waste containers not containing free liquids may be stored at TA-54-226, TA-54-229, TA-54-230, TA-54-231, TA-54-232, and on Storage Pads 9 and 10. See Figure 11.

c. All Waste containers stored at TA-54-226, TA-54-229, TA-54-230, TA-54-231, and TA-54-232 will be placed on pallets or otherwise elevated four inches. Palletized 55-gallon

containers may be stored in groups of four and stacked three high. Palletized overpack containers may be stacked two high. Large containers (80-, 83-, 85-, and 99-gallon drums) will also be stored on pallets but will not be stacked. Fiberglass-reinforced plywood (FRP) boxes may be stacked two high, at a maximum. Within the modular units at Storage Pad 10, the drums will be elevated above the storage area floor on wheeled drum dollies or steel pallets. For waste stored outdoors on the pad, containers will be protected from storm water run-on/runoff through the use of pallets (or otherwise elevated four inches). Tarpaulins or covers will be used to protect containers and containment pallets from precipitation. Waste stored on Pad 9 will be stored in transportainers or modular buildings. The drums will be stored on wheeled drum dollies, steel pallets, or otherwise elevated.

III.B. AUTHORIZED WASTES

1. Identification Only hazardous and/or mixed wastes identified in Permit Attachment G. with the process code "S01" in column D.1. "Processes" shall be stored.

2. Quantities The cumulative quantity of individual hazardous and/or mixed wastes in storage at any one time at the facility shall not exceed the quantity indicated in Permit Attachment G. Column B. "Estimated Annual Quantity of Waste".

3. Land Ban The Permittee must also comply with the following regarding storage of its wastes in containers which are prohibited from land disposal. These restrictions are imposed on any waste as it becomes prohibited from land disposal. (New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart VIII, 268.50, revised November 1, 1995)

   a. A storage period of one year is permitted. A storage period beyond one year is permitted provided there is proof that such storage is solely for the purpose of accumulation of such quantities as are necessary to facilitate proper recovery, treatment or disposal.

   b. Each container must be clearly marked as to its contents and the date each period of accumulation begins.

   c. Hazardous wastes meeting the treatment standards in 20 NMAC 4.1, Subpart VIII, 268.41, 268.42, 268.43, revised November 1, 1995, are not subject to the storage prohibition. Hazardous wastes meeting the treatment standards specified under the variance in 20 NMAC 4.1, Subpart VIII, 268.44, revised November 1, 1995, are not subject to the storage prohibition.

III.C. CONTAINERS

1. Capacity

   a. Lab-packed wastes shall be stored in containers not to exceed 55-gallon nominal capacity.

   b. Bulk liquids may be stored in drums of a nominal capacity of 55-gallons or less.

c. Solidified hazardous and/or mixed wastes not containing free liquids may be stored in containers meeting U.S. Department of Transportation (DOT) requirements for transportation.

d. Compressed gases may be stored in any sized cylinder. Small cylinders may be packed in drums or crates complying with DOT shipping regulations.

e. Polyethylene containers of 220-gallon or 330-gallon capacity may be used in place of 55-gallon drums as long as secondary containment capacity criteria of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.175(b)(3) are not exceeded.

2. Type Containers must be of a type specified in the DOT hazardous materials regulations, 49 CFR parts 171 to 179, which specify authorized containers for the waste. As applicable, the containers shall be either: (1) previously unused or reused according to DOT requirements; (2) the original shipping containers in which the material was first marketed; or (3) any other suitable container which satisfies the requirements of permit paragraph III.C. If the hazardous and/or mixed wastes are to be received and stored in their original shipping containers, the Permittee must ensure that the requirements of permit paragraph III.C. are satisfied. Polyethylene bulk containers shall meet or exceed DOT requirements. Compressed gas cylinders not meeting DOT requirements shall be segregated in a safe area.

3. Quantity The following quantities include all stored liquid materials, whether regulated or not. Solid materials which do not displace containment capacity may be collocated without affecting these volumes. Solid materials which displace containment volume shall be included in calculating the stored volume as if they were liquids. The Permittee shall keep current accurate records of the quantity of waste in storage at each location below to ensure that these capacities are not exceeded.

a. No more than 440 gallons of liquid shall be stored at Technical Area 54, Area L, Building Number 54-31.

b. No more than 17,220 gallons of liquid shall be stored at each concrete containment structure: facility Number 54-32.

c. No more than 3600 containers of 55-gallon capacity or less, or the equivalent volume of 26,470 cubic feet, 980 cubic yards or 749 cubic meters, shall be used to store solidified wastes at Technical Area 54, Area L.

d. No more than 3,630 gallons of liquid shall be stored in Building 50-37, Rooms 115, 117, and 118 combined.

e. No more than 1,650 gallons of waste shall be stored in each modular storage unit.

h. No more than 1,500 gallons of waste shall be stored at the Building 50-69 Indoor CSA (Rooms 102 and 103). No more than 30,000 gallons of waste shall be stored at the Building 50-69 Outdoor CSA.

i. No more than 2,200 gallons of waste shall be stored at the Building 54-38 High Bay CSA. No more than 880 gallons of waste shall be stored at the Building 54-38 Low Bay CSA. No more than 660 gallons of waste shall be stored at the Building 54-38 Loading Dock CSA. No more than 7,920 gallons of waste shall be stored at the Building 54-38 Outdoor CSA.

g. No more than 970,000 gallons of waste shall be stored at TA-54-226. No more than a total of 3,160,000 gallons of waste shall be stored at the combined locations: TA-54-229, TA-54-230, TA-54-231, TA-54-232, and Storage Pad 9. No more than 93,995 gallons of potential liquid-bearing waste may be stored in TA-54-230. No more than 970,000 gallons of waste shall be stored at TA-54, Area G, Pad 10.

4. Condition

a. If a container holding hazardous or mixed waste is not in good condition (e.g. severe rusting, structural defects) or if it begins to leak, the Permittee shall transfer the hazardous or mixed waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

b. The Permittee may use overpack containers of more than 55-gallon capacity to manage defective waste storage containers. Each overpacked container shall be recorded in the facility record.

5. Compatibility of Waste with Containers

a. The Permittee shall assure, as required by 20 NMAC 4.1, Subpart V, 264.172, revised November 1, 1995, that the ability of the container to contain the waste is not impaired. When necessary, this shall include procedures for determining whether the hazardous or mixed waste is no longer compatible with the shipping container if it is to be stored in its original container (e.g. determination of container adequacy for chemicals that have a finite shelf life or may change in composition upon aging).

b. The Permittee shall not place into the polyethylene containers described in permit paragraph III.C.1.e. above, any material for which the manufacturer does not rate the container suitability as "Good" or "Excellent" in the current compatibility technical bulletin issued by the manufacturer. A copy of the current bulletin shall be available at the facility.

6. Management The Permittee shall manage containers as required by 20 NMAC 4.1, Subpart V, 264.173, revised November 1, 1995, and Permit Attachment F.

III.D. CONTAINMENT

The Permittee shall construct and maintain the containment systems for each storage unit in permit paragraphs III.A. above in accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.175, revised November 1, 1995.

III.E. IGNITABLE OR REACTIVE WASTES

The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility property line.

III.F. INCOMPATIBLE WASTES

The Permittee shall manage incompatible wastes or incompatible wastes and materials in accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.177, revised November 1, 1995.

III.G. CLOSURE

The Permittee shall comply with the Closure Plan, Permit Attachment E. and permit paragraph II.L. above, for closure of any permitted storage area.

III.H. INSPECTION

1. Inspection Plan The Permittee shall inspect the storage areas in accordance with Permit Attachment B.

2. Spill Kits The type, presence, location and quantity of spill kits shall be verified and annotated monthly. If spill kits are locked up, the location of access keys shall be verified.

3. Warning Signs The legibility and condition of warning signs shall be included in the weekly inspection. Missing or illegible signs shall be promptly replaced within 24 hours of discovery.

    a. Signs shall be at the entrances to the hazardous and mixed waste units. Collocated units may be included within one signed area.

    b. Signs shall say "Danger, Unauthorized Personnel Keep Out" and "Hazardous Waste Storage Area".

    c. Signs shall be in both English and Spanish.

    d. Signs on approachable perimeter fences shall be spaced no more than 50 feet apart.

MODIFIED
CLOSURE PLAN
PERMIT ATTACHMENT E.3
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.3
NM 0890010515-1

E.3 MODULAR STORAGE UNITS

Some containerized wastes are stored in prefabricated modular storage buildings or transportainers at various locations in TA-50; TA-54-38 West; TA-54 Area G; and TA-54, Area L. See Figures E.3.1, E.3.2, E.10-1 (Attachment E.10), and E.12-1 (Attachment E.12). These modular storage buildings are self-contained and are equipped with chemical resistant walls to provide separation of incompatible wastes, a corrosion resistant fiberglass floor grating, and a polypropylene building sump liner.

E.3.1 Estimate of Maximum Waste in Storage

Each storage unit can store a maximum of thirty 55 gallons drums or a total of 1650 gallons of liquid wastes. The maximum total inventory of waste in storage at any time in the TA-50-114 CSU is 1,210 gallons.

E.3.2 Description of Waste Handled

Three waste streams compose the bulk of the waste stored in the modular units at TA-50, although the system is flexible enough to allow storage of other wastes that may be generated through new Laboratory projects. These streams are an acid/base waste that contains copper, chromate plating waste, and waste cyanide plating solutions. These structures may also be used to store any regulated waste while awaiting lab packing.

The modular units at TA-54, Area L will be used primarily for the storage of lab-packed waste. Since six separate cells are available for storage, there may be up to six different categories of waste stored there while waiting treatment or disposal.

The modular unit at TA-54, Area L (TA-54-32) will be used primarily for:

(1) sorting, surveying, and decontaminating certain wastes currently in storage and labeled “suspect mixed waste.”, and;

(2) staging, inspecting, sampling, and analyzing specific mixed waste streams for which commercial treatment and/or disposal is currently available.

E.3.3 Closure Procedures and Decontamination

E.3.3.1 Partial Closure

Partial closure would consist of closure of one unit or more, while leaving other units in service. In such an event, the following procedures would apply to the unit(s) to be closed.

E.3.3.2 Unit Closure

Personnel involved in disassembly and handling of equipment will wear protective equipment, including: acid/solvent-resistant coveralls, head protection, neoprene coated gloves and boots. Wrists and ankles are to be taped to protect against upward and inward splash. As a minimum protection, face shields will be worn. Full face respirators will be used if specified by the Laboratory's industrial hygiene and safety personnel, following a field inspection.

The inside of the unit will be scrubbed and rinsed with a warm solution of Liquinox® or Alconox® in water. The cleaning solutions will accumulate in the internal sumps and will be pumped into drums with a small manually operated drum pump. Samples of this solution will be taken from the drum to verify decontamination. Washdown will be repeated until decontamination is verified. The drummed liquid will be transported to TA-54, Area L for sampling, analysis and off site treatment and/or disposal.

The unit will be disassembled by removing all removable walls, grates etc. and then visually inspected. Any residual matter found will be scraped or brushed off the area where the residue occurred, then washed and rinsed. Dry residues will be placed in drums for transport to TA-54, Area L, for storage, sampling and analysis prior to off site disposal at a permitted facility. Liquids from washing and rinsing will be placed in approved Department of Transportation (DOT) containers and transported to TA-54, Area L for sampling, analysis and off site disposal. Cleaned pieces will be removed from the unit and handled as an unregulated waste or reassembled into the unit after decontamination is verified.

Spills occurring during disassembly will be contained in the unit and will be picked up with mops. No decontamination of container handling equipment is anticipated during closure because the wastes are inside containers and no contact is expected between wastes and handling equipment. If breaching of any container of hazardous waste or hazardous material occurs, all contaminated equipment will be decontaminated by washing with appropriate cleaning solutions. Spills occurring outside the unit will be picked up with absorbent material such as vermiculite or commercial absorbent. The absorbed material will be swept up, placed in a DOT approved container and disposed of as hazardous waste. The area will be mopped or flushed with Liquinox® or Alconox® solution, the wash water picked up with absorbent material as above and placed in a container for disposal as a hazardous waste. Each container may be sampled and analyzed for hazardous constituents as listed in HWMR-5, Part II, Appendix VIII. Containers not containing hazardous constituents may be handled as unregulated waste.

Units emplaced over impervious surfaces, concrete or asphalt, need not have the surface sampled for spill residues from past handling practices. Units emplaced over absorbent surfaces will have a minimum of three soil samples to a depth of six inches taken in the area of each access door. The samples will be separately analyzed for the parameters in Table E.3.2. If contamination is discovered, a three foot grid centered on the locus of contaminated points will be sited and samples taken and analyzed to determine the extent of contamination. Analyses for this investigation can be made for the constituent(s) found in the initial survey. All contaminated soil to a depth of six inches will be removed and disposed of at a permitted facility.

Protective clothing, coveralls, face shields, and boots worn during the wash down will be rinsed in clean water while the items are within the unit. The rinse water will be handled with the dirty water from the external wash down. Following internal and external decontamination, the unit will be considered free from regulated wastes if the wash waters do not show any contamination from the constituents listed in Table E.3.2. Protective clothing will be worn by personnel disassembling the unit. The protective clothing and tools used during disassembly will be washed with detergent and water. The wash water will be collected and analyzed. If the wash water is nonhazardous, the water will be discharged to the industrial waste water sewer. If the wash water contains hazardous constituents, it will be transported off site to a permitted

disposal facility. Mops and rags used for cleanup will be placed in drums for transport to Area L, for ultimate off site disposal at a permitted facility. Nondisposable tools, equipment, etc. which come in contact with the dirty wash water will be decontaminated.

E.3.4 Decontamination Verification

Before the first wash down, two samples will be taken of the clean Liquinox® or Alconox® solution in water and analyzed for the constituents listed in table E.3.2.

One additional clean solution sample will be taken for each additional washdown event. These analytical results provide background data for decontamination verification.

Dirty washdown solutions will also be analyzed for the constituents listed in Table E.3.2. Analytical procedures will conform to methods found in SW-846. Equipment will be considered to be contaminated if the used wash solutions show a significant increase in the listed constituents over the clean wash solution.

The constituents listed in Table E.3.2. include regulated constituents normally stored in the units. A scan for volatile and semivolatile organics is performed to ensure that solvents commonly used within the Laboratory have not contaminated the unit.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused wash water or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.3.5 Closure Schedule

The year of closure for the modular storage units is 2003 for TA-50-114 and 2100 for the various units located at TA-54, Area L. Closure will observe the schedule given in Table E.3.1.

The contract for closure activities is expected to exceed $100,000. Because Laboratory policy requires that the work be put out for bid, 90 days are required to solicit and process the bids. The selection of a contractor will be made before closure begins. Closure is estimated to take 180 days.

E.3.6 Closure Certification

An independent registered professional engineer and the Permittee shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the

Secretary of NMED. One copy shall be maintained at the DOE office and one copy maintained by the Risk Reduction and Environmental Stewardship Division's Solid Waste Regulatory Compliance Group.

E.3.7 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 may be used if conditions or experience shows the alternate method to be more appropriate. All analytical procedures actually used will be annotated in the final closure report. Disposable samplers may be used.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

Sample containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-0 1 8 and/or SW-846.

E.3.7.1 Soil and Solid Residues Sampling

Under normal circumstances the following soil sampling information will be inapplicable. Should however, spills occur outside the modular unit, sampling of the area will be required to verify that no hazardous constituents remain upon closure. The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler. Drums of solid residues will be sampled with a core sampler or Veihmeyer soil sampler. Drums not capable of being sampled will be assumed to be hazardous waste.

E.3.7.1.1 Cleaning of sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox® or Alconox®solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. Prevention of cross contamination is of particular importance in these samples.

E.3.7.1.2 Sampling procedures

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.

- Combine the samples in a glass container.

- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.

- Insert the tapered handle (drive guide) of the drive hammer through the drive head.

- Place the sampler in a perpendicular position on the material to be sampled.

- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.

- Record the length of the tube that penetrated the material.

- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.

- Rotate the sampler at least two revolutions to shear off the sample at the bottom.

- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.

- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.

- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.

- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

E.3.7.2 Liquid Sampling

A COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water used in cleaning equipment. The recommended model of the COLIWASA is shown in Figure E.3.3, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross contamination.

E.3.7.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox® or Alconox®, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using the ramrod and fiber reinforced paper towels, the COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean and protected area.

E.3.7.2.2 Sampling procedures

- Assemble the COLIWASA-sampler.
- Make sure that the COLIWASA sampler is clean.
- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.
- Wear necessary protective clothing and gear and observe required sampling precautions.
- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
- Slowly lower the COLIWASA sampler into the liquid at a rate that permits the levels of the Liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.
- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.
- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.
- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.3.7.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample seal is shown in Figure E.3.4.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The "field information" in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.3.5.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in litigation. This is a two-page record with the original accompanying shipment and the "copy" retained by the Laboratory. An example of this form is shown in Figure E.3.6.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-1/2 by 11-inch format. Minimum entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and address of person making log entry;

d. Type of process producing waste;

e. Number and volume of sample;

f. Description of each sampling location, sampling methodology, equipment used, etc.;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc);

i. Map or photograph of the sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc);

l. Collector's sample identification number(s); and

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be completely by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be completed by the laboratory personnel when the sample is received.

E.3.8 Quality Assurance/Quality Control

The Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

E.3.9 Final Closure Report

Upon completion of the closure activities, the Permittee shall submit a Final Closure Report to the Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph E.3.6.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification,

2. Sampling location,

3. The datum reported,

4. Detection limit for each datum,

5. A measure of analytical precision (e.g. uncertainty, range, variance),

6. Identification of analytical procedure, and

7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and the decontamination determination.

E. The location of the file of supporting documentation:

1. Field log books,

2. Laboratory sample analysis reports,

3. The QA/QC documentation, and

4. Chain of custody records.

F. Disposal location of all regulated and nonregulated residues.

G. A certification of accuracy of the report.

TABLE E.3.1.
CLOSURE SCHEDULE

Activity	Maximum Time Required
Notify NMED of closure	-90 Days
Advertise for proposals	-90 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Begin closure activities	Day 0
Internal wash down complete	Day 30
External wash down complete	Day 50
Unit disassembly, as required	Day 80
Floor wash down	Day 100
Final clean up	Day 120
Decontamination verification	Day 150
Submit final report to NMED	Day 180

NOTES: The calendar days given above are completion dates for each activity. In some cases more than one activity may occur simultaneously.

This schedule is applicable to either partial or final closure.

TABLE E.3.2.
ANALYTICAL PARAMETERS

Metals	Organics	Other
Arsenic	Halogenated volatile organics	Cyanides
Barium	Nonhalogenated volatile organics	Ignitability
Cadmium	Acid-extractable semivolatile organics	Reactivity
Selenium	Base-neutral extractable semivolatile organics	pH
Lead	Phenols	
Mercury	Organochlorine pesticides	
Nickel	Chlorinated herbicides	
Beryllium		
Chromium		
Silver		

NOTES: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW-846, and may be superseded by more current methods from SW-846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for the toxicity characteristic shall be analyzed by the Toxicity Characteristic Leaching Procedure. Both data shall be reported in the final report.

TABLE E.3.3.
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
Soil sampling[a]	X	X	X
Solid wastes & residues	X	X	X
Wash water before use	X	X	X
Wash water after use	X	X	X
Protective clothing wash water		X	

NOTES: Analytical parameters are given in Table E.3.2.

[a]For units placed over permeable surfaces.

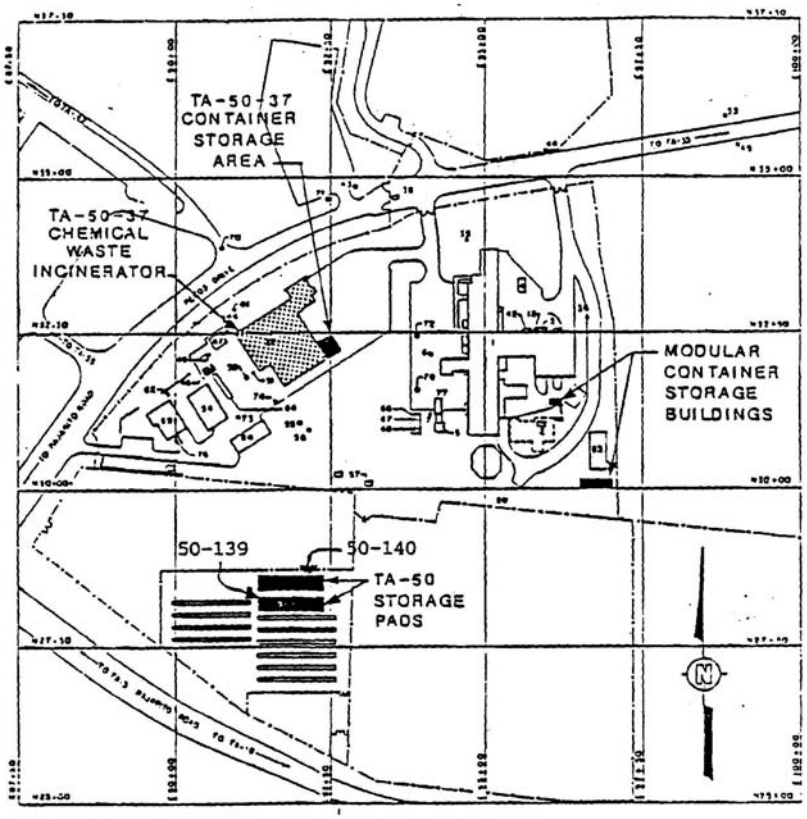

FIGURE E.3.1

LOCATIONS OF TA-50
CHEMICAL WASTE INCINERATOR
AND CONTAINER STORAGE
UNITS

PREPARED FOR

LOS ALAMOS
NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO

INTERNATIONAL
TECHNOLOGY
CORPORATION

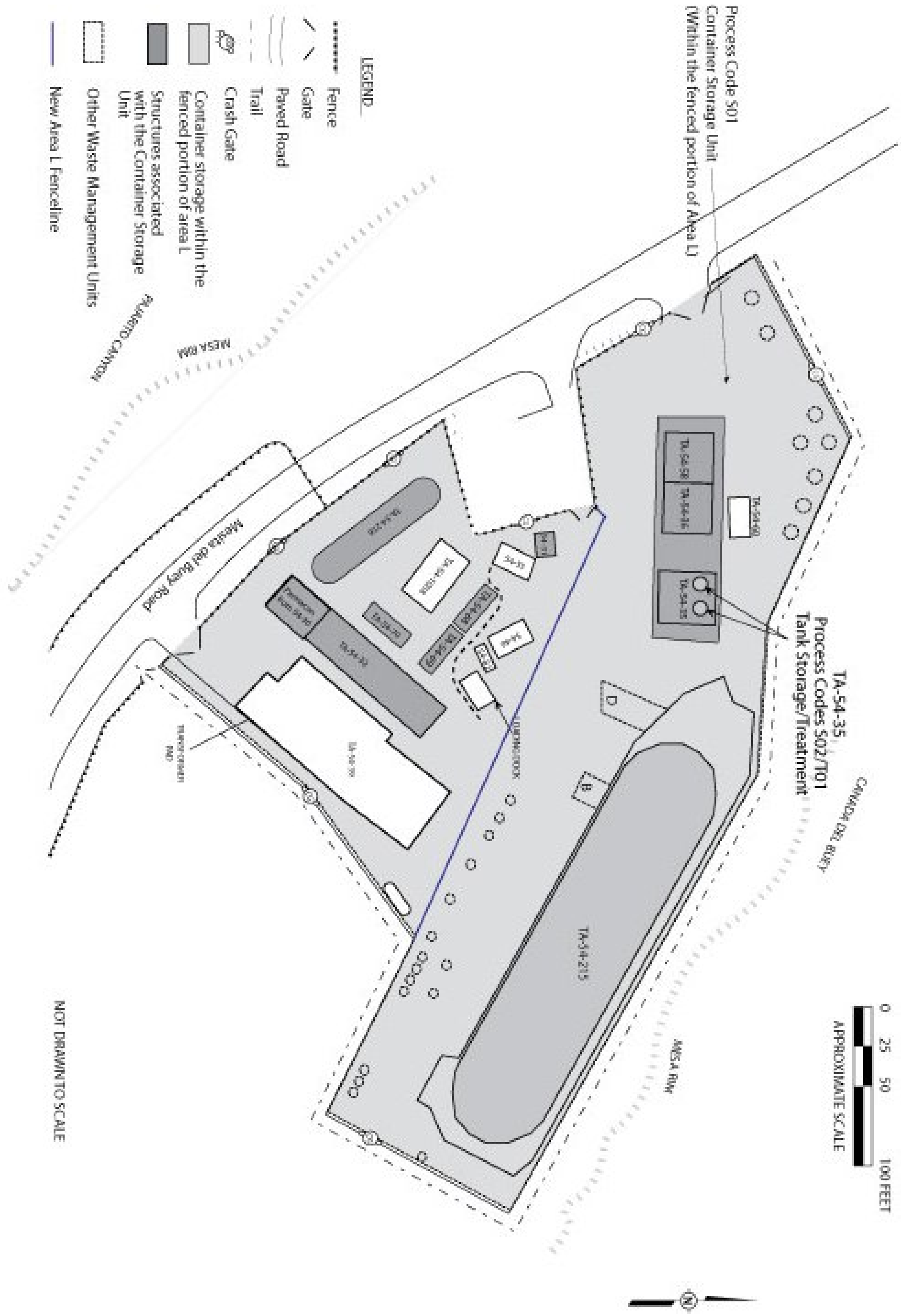

Figure E.3.2
TA-54 Area L Map

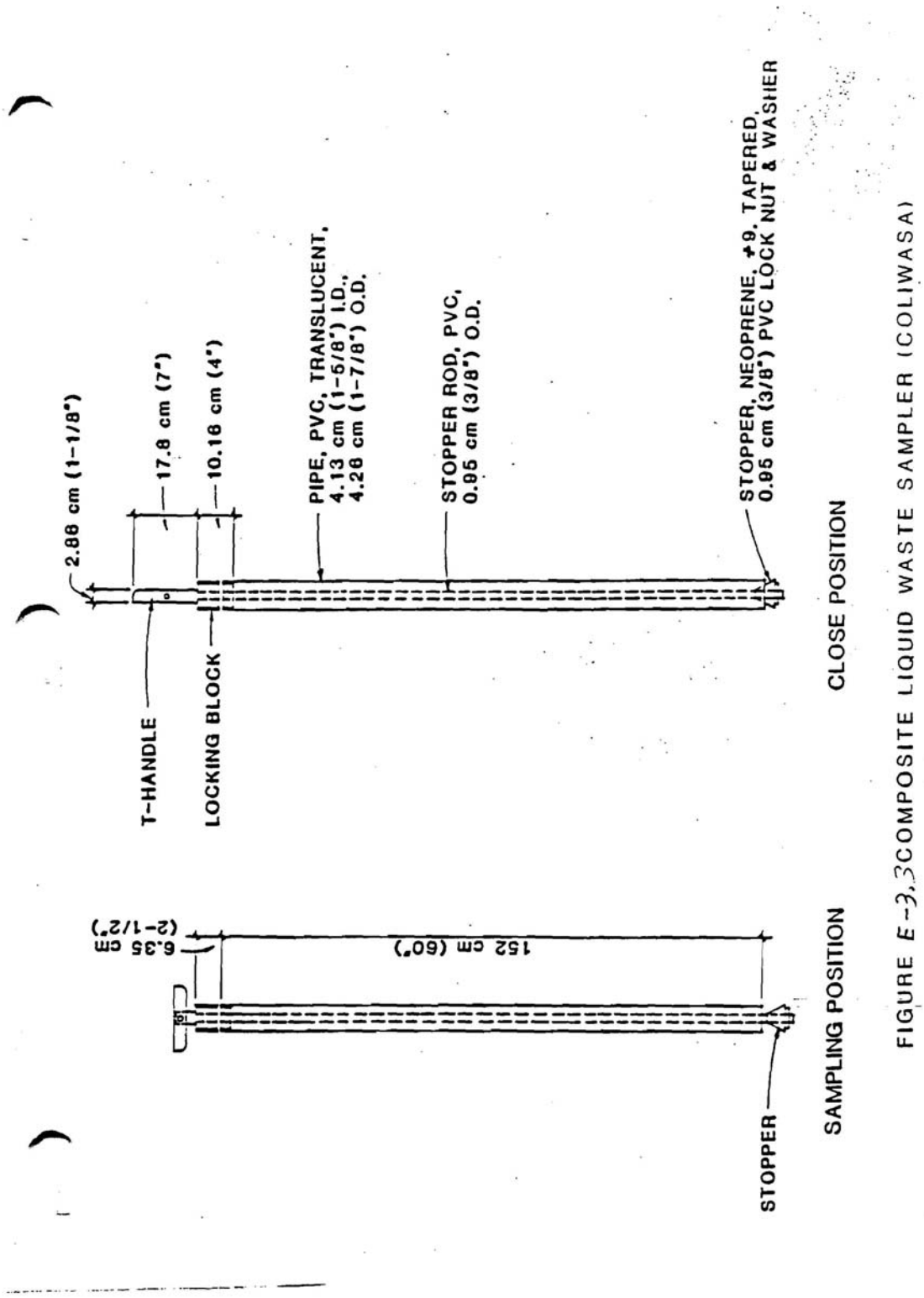

FIGURE E-3.3 COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE E.3.4
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE E.3.5
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE E.3.6
EXAMPLE CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.___

Location of Sampling: Producer Hauler
Disposal Site Other: _____

Company's Name_____ Telephone (___)_____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (___)_____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Date

CLOSURE PLAN
PERMIT ATTACHMENT E.10
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.10
NM0890010515-1

E.10 TECHNICAL AREA 54, AREA G, CONTAINER STORAGE AREAS TA-54-226, -229, -230, -231, -232, AND PADS 9 & 10

The container storage areas (CSA) addressed in this closure plan include TA-54-226, -229, -230, -231, -232, and Pads 9 & 10 at Technical Area (TA) 54, Area G. These CSAs are located at the east end of Area G and will be used to store containerized transuranic (TRU) mixed waste retrieved from under earthen cover. The existing asphalt pad at TA-54-226 is approximately 43 feet wide and 300 feet long. A 6- to 8-inch-high asphalt berm surrounds the perimeter of the pad. Once all of the drums are retrieved for characterization and subsequent drum venting operations, the existing pad will either be retrofitted or replaced to fit the dome currently covering the pad. The dome is 88 feet, 7 inches wide and 286 feet long, with a maximum design capacity of 970,000 gallons. Pad 10 is also constructed of asphalt. TA-54-229, -230, -231, and -232 are being constructed on Pad 9 an approximately 275 feet wide by 570 feet long asphalt pad, which is gently sloped (from 1 to 1.5 percent). TA-54-230 and TA-54-231 will store containers of potential liquid-bearing TRU mixed waste whereas TA-54-229, and -232 will be used solely to store solid TRU mixed waste. TA-54-229, -230, -231, and -232, are 88 feet, 7 inches wide and 246 feet long, with a maximum design storage capacity of 790,000 gallons each.

E.10.1 Estimate of Maximum Waste in Storage

The maximum total inventory of waste in storage at any time at the CSAs mentioned above is estimated at 5,530,045 gallons. A breakdown of the maximum inventories for each of these areas is as follows:

- TA-54-226 - 970,000 gallons
- TA-54-229, -230, -231, -232, and Pad 9 - 3,160,000 gallons
- Pad 10 - 970,000 gallons

E.10.2 Description of Waste

TRU mixed waste stored in the TA-54, Area G, CSAs mentioned above was generated during research activities, processing and recovery operations, and decontamination and decommissioning operations primarily at TA-3, TA-21, TA-50, and TA-55. These wastes are classified as mixed wastes because Resource Conservation and Recovery Act (RCRA) characteristic and/or listed wastes[1] are or may be present in the waste, along with a radioactive component.

[1]Use of the terms, "RCRA characteristic and/or listed waste" or "RCRA constituents" refers to hazardous wastes or hazardous constituents as defined in 20 NMAC 4.1, Subpart II, Part 261, revised November 1, 1995.

E.10.3 Closure Procedure and Decontamination

E.10.3.1 Partial Closure

Partial closure would consist of closing one or more of the regulated hazardous/mixed waste management units or subunits at the LANL facility, while leaving the other regulated hazardous/mixed waste management units at LANL in service. In the event of a partial closure, the following procedures would apply to the unit(s) being closed.

E.10.3.2 Unit Closure

To the extent possible, all contaminated structures and equipment at the CSAs addressed in this closure plan will be decontaminated. Structures, equipment, and media that cannot be decontaminated will be containerized and managed in compliance with appropriate regulations. All sampling conducted during closure and decontamination will be done in accordance with quality assurance/quality control (QA/QC) procedures (see Section E.10.7).

Before proceeding with any closure activities, the CSAs will be surveyed for radiological contamination. Personal protective equipment (PPE) and monitoring requirements will be determined by LANL's health physics and industrial hygiene and safety personnel following a field inspection. Radiation and chemical monitoring will occur throughout closure activities. If any contamination is found, the contaminated materials, equipment, and/or structures will be decontaminated (if possible) or containerized and taken to an approved storage location at LANL appropriate for the waste type.

Personnel involved in closure activities will wear appropriate PPE, specified by health physics an industrial hygiene and safety personnel, and will follow good hygiene practices to protect employees from exposure to hazardous and/or mixed waste. The level of PPE that will be required will depend upon the levels of radiological and/or chemical contamination that are detected, if any. If health physics an industrial hygiene and safety personnel surveys do not indicate detectable contamination levels, minimum PPE requirements will consist of coveralls, steel-toed boots, and safety glasses or face shields. If an overhead danger is present, a hard hat will be worn. All workers involved in closure activities will be required to have training and medical monitoring. Contaminated PPE will either be decontaminated or managed in compliance with appropriate regulations.

All wastes will be removed from the CSA scheduled to be closed prior to the initiation of closure activities. Containers will be removed from each storage area primarily with forklifts. Small containers may be handled manually or with dollies. All containers will be placed onto flatbed trucks or trailers for transport. All appropriate shipping papers will accompany the wastes during transport. Containers holding regulated hazardous/mixed wastes will be moved to an approved on-site facility or permitted off-site disposal facility.

Before decontamination activities begin, samples of the clean water and detergent (wash water) solution squeezed from mops and/or sponges prior to use will be collected for analysis of the parameters listed in Table E.10-1. The analytical results from these samples will be used to provide a baseline for decontamination verification.

Prior to decontamination of a dome, any portable equipment to be removed from the area will be wiped

down with wash water solution. This may include items such as wooden pallets and miscellaneous equipment. The dome walls will be wiped down with mops and sponges to minimize the amount of liquid waste generated as a result of decontamination activities. A portable berm will be used to collect used wash water from the dome walls. The berm will be placed along the exterior perimeter of the dome so that wash water collects between the portable berm and the curb surrounding the dome's interior perimeter. After the washdown process, the used wash water will be collected, transferred to containers, sampled, and analyzed for the parameters in Table E.10-1. If the used wash water is nonhazardous and nonradioactive, it will be managed appropriately in accordance with LANL policy. Otherwise the used wash water will be managed at an appropriate on-site facility. Used wash water samples may exhibit anomalously high levels of organic compounds due to leaching of the dome walls during washdown. If this is the case, record reviews (e.g., manufacturer's specifications, material safety data sheets [MSDS]) and additional analyses may be performed to determine if leaching of organics from dome walls contributed to the organic compound concentration in used wash water. If this additional evaluation confirms the dome walls as the source of contamination, baseline concentrations of clean washwater will be adjusted accordingly. If sampling and analysis indicate that radioactive and/or hazardous constituents are present, which are not attributed to leaching of organics from dome walls, the wash cycles and analyses will continue until the structure or equipment has been decontaminated or the decision is made to manage it appropriately as contaminated waste. This material may be transported to and stored at other waste management facilities to facilitate the closure process.

The same procedure will be used to decontaminate asphalt pads/floors. Before the first washdown, two samples of the clean washdown solution will be collected and analyzed for the parameters listed in Table E.10.1 to provide a baseline for decontamination verification. Portable berms will be used to collect and provide containment for the used wash water. After the washdown process, the used wash water will be collected, stored in containers at the site, sampled, and analyzed for the parameters in Table E.10-1. If the used wash water is nonhazardous and nonradioactive, it will be managed appropriately in accordance with LANL policy. Otherwise, the used wash water will be managed at an appropriate on-site facility, depending on the regulated constituents present. Each asphalt pad may undergo up to two wash cycles. If decontamination verification cannot be demonstrated after two wash cycles, the asphalt pads will be removed from the site and managed as appropriate for the waste type. Used wash water samples may exhibit anomalously high levels of organic compounds due to leaching of the asphalt pads during washdown. If this is the case, record reviews (e.g. manufacturer's specifications, MSDS) and additional analyses may be performed to determine if leaching of organics from asphalt pads contributed to the organic compound concentration in used wash water. If this additional evaluation confirms the asphalt pad as the source of contamination, baseline concentrations for clean washwater will be adjusted accordingly. Decontamination verification is discussed further in Section E.10.3.3.

Soil sampling will also be conducted to determine if contaminants have migrated from the container storage areas. Prior to the initiation of closure activities, a background soil sample will be collected near each storage dome or pad and analyzed for the parameters listed in E.10-1. After dome and asphalt pad washdown activities are completed, discrete soil samples will be collected from the soil surrounding the asphalt pads. Samples will be collected 6 inches off the asphalt edge to a depth of 6 inches and equally spaced to cover the edge. Samples will be analyzed for the parameters in Table E.10-1. Due to the presence of disposal pits beneath the storage areas, there is a potential for subsurface contamination from these underlying units. If contamination is found in any of the soil samples as a result of the container storage subunits, the contaminated soil will be removed to levels equal to or less than concentrations in background soil samples from the site or below levels agreed upon with the New Mexico Environment Department

(NMED). If the contamination cannot be attributed to the storage activities, it will be addressed when the site undergoes corrective activities pursuant to conditions in Module VIII of this permit.

Prior to use, all decontamination equipment will be rinsed with distilled water. Decontamination equipment rinsate blanks will be collected and analyzed in accordance with QA/QC procedures (see Section E.10.7). Reusable protective clothing, tools, and equipment used during closure activities will be cleaned with a wash water solution and scraped as necessary to remove any residue. Residue, disposable equipment, and reusable equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility, depending on the regulated constituents present. Used wash water will be collected and analyzed for the parameters listed in Table E.10-1. If the used wash water is nonhazardous and nonradioactive, the water will be managed appropriately in accordance with LANL policy. Otherwise, it will be managed at an appropriate on-site facility, depending on the regulated constituents present.

E.10.3.3 Decontamination Verification

Sufficient sampling and analysis will be required to demonstrate that hazardous or mixed waste residue is not present at the site after closure. Two samples of clean wash water solution squeezed from mops and/or sponges prior to use will be collected before initial washdown of the CSAs. The samples will be analyzed for parameters listed in Table E.10-1 to provide baseline data for decontamination verification. Analytical procedures will conform to methods found in the most current version of "Test Methods for Evaluating Solid Waste," Physical/Chemical Methods (SW-846). Used washdown solutions will also be analyzed for the parameters listed in Table E.10-1. Washdown solutions will be considered contaminated if the used wash water solution shows a significant increase (i.e., determined using statistical methods defined in SW-846) in the analytical parameters over the clean wash water solution. If subsequent washdowns are deemed necessary, an additional sample of clean wash water solution squeezed from mops and/or sponges prior to use will be taken for each additional washdown event.

Successful decontamination meets one of the following criteria:

- No detectable hazardous waste or constituents from container storage activities are found in the final sample.

- Detectable hazardous waste or constituents from container storage activities in the final sample are removed to statistically significant levels based on baseline concentrations in the clean wash water or established background soil data.

- Detectable hazardous waste or constituents from container storage activities in the final sample are at or below levels agreed upon with the New Mexico Environment Department (NMED).

- Detectable hazardous waste or constituent concentrations from container storage activities do not significantly decrease after several washdowns.

E.10.4 Closure Schedule

Closure will not commence until all of the wastes have been removed from the CSA scheduled to be closed. Closure activities will begin in accordance with the approved closure plan, as required by the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, 264.113(a), revised November

1, 1995, within 90 days after final receipt of waste at the CSA. This timeframe will be met as long as facilities are available for disposal of these wastes. In the event that waste removal activities cannot be completed at the CSA within 90 days, LANL will notify the Secretary of the NMED in accordance with the extension requirements cited in 20 NMAC 4.1, Subpart V, 264.113(a), revised November 1, 1995. Closure activities and reporting requirements will be completed within 180 days of the receipt of the final volume of waste at the waste management area to be closed. Closure will be conducted in accordance with the schedule presented in Table E.10-2. In the event that closure of a CSA is prevented from proceeding according to schedule, LANL will notify the Secretary of the NMED in accordance with extension request requirements in 20 NMAC 4.1, Subpart V, 264.113(b), revised November 1, 1995. In addition, the demonstrations in 20 NMAC 4.1, Subpart V, 264.113(a)(1) and (b)(1), revised November 1, 1995, will be made in accordance with 20 NMAC 4.1, Subpart V, 264.113(c), revised November 1, 1995.

E.10.5 Closure Certification

Within 60 days after completion of closure activities for each of the CSAs, the U.S. Department of Energy (DOE) will submit to the Secretary of the NMED, via certified mail, a certification that the area has been closed in accordance with the specifications of the closure plan. The certification will be attested to by an independent, registered professional engineer and will be signed by the appropriate DOE and LANL officials, in accordance with 20 NMAC 4.1, Subpart V, 264.115, revised November 1, 1995. Documentation supporting the independent registered engineer's certification will be furnished to the Secretary of the NMED with the original certification. A copy of the certification and supporting documentation shall be maintained by both the DOE/Los Alamos Site Office and LANL's hazardous waste compliance personnel.

E.10.6 Sampling and Analytical Procedures

The following sections describe procedures and methods for sampling, analysis, and documentation applicable to closure activities. While the procedures and methods are specific, other applicable procedures or methods given in SW-846 may be used if conditions or experience show the alternate method to be more appropriate. All sampling and analytical procedures actually used will be annotated in the final closure report. Sampling will be conducted in accordance with procedures given in SW-846. Analysis will be conducted by a DOE certified analytical laboratory.

E.10.6.1 Soil Sampling

Soil samples will be collected at the CSAs at TA-54, Area G, to determine if contaminants have migrated from the CSAs and, if so, to determine the horizontal and vertical extent of such migration.

E.10.6.1.1 Cleaning of Samplers

To prevent cross contamination, it is important to clean the samplers after each sample is collected. An unused, disposable sampler may be presumed clean if still in a factory-sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a detergent and water solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry.

E.10.6.1.2 Sampling Procedures

The sampling procedures outlined below will be used to obtain samples to determine the amount of RCRA constituents,[2] if any, in soil associated with the units undergoing closure. Soil samples will be collected from the 6-inch depth with a trowel or scoop or with a Veihmeyer soil sampler. Sampling procedures will be performed as follows:

- Trowel or Scoop
  - Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
  - Combine the samples in a container appropriate for the required analysis.
  - Cap the container, attach a label and seal, and preserve as required (see Table E.10-3). Record in the field logbook, and complete the sample analysis request sheet and chain-of-custody form. Deliver the samples to to the laboratory for analysis.
- Veihmeyer Sampler
  - Assemble the sampler by screwing in the tip and drive head on the sampling tube.
  - Insert the tapered handle (drive guide) of the drive hammer through the drive head.
  - Place the sampler in a perpendicular position on the soil to be sampled.
  - With the left hand holding the tube, drive the sampler into the soil to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.
  - Record the length of the tube that penetrated the material.
  - Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
  - Rotate the sampler at least two revolutions to shear off the sample at the bottom.
  - Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.
  - Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a puller jack and grip.
  - Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

[2]Refer to Footnote 1.

- Store the sample in an appropriate sample container.

- Label the sample, affix the seals, preserve as required (see Table E.10-3), record in the field logbook, complete the sample analysis request sheet and chain-of-custody form, and deliver the samples to the laboratory for analysis.

E.10.6.2 Liquid Sampling

A composite liquid waste sampler (COLIWASA) or similar device will be used to sample unused wash water solutions before decontamination begins in order to determine baseline parameters. It will also be used to sample the wash water used in cleaning structures and equipment. As an alternative to the COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of appropriately after each sample is collected, thus eliminating the potential for cross contamination.

E.10.6.2.1 Cleaning of Samplers

The sampler must be clean before use. An unused, disposable sampler may be presumed clean if still in a factory-sealed wrapper. Unsealed samplers will be cleaned prior to use. Samplers will be washed with a detergent and water solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Improper cleaning of sampling equipment will cause cross contamination of samples. Clean samplers should be stored in clean polyethylene plastic tubes or bags in a clean and protected area.

E.10.6.2.2 Sampling Procedure

Liquid sampling with a COLIWASA will be performed as follows:

- Ensure that the COLIWASA is clean.

- Assemble the COLIWASA.

- Check that the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear, and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper-rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the COLIWASA into the liquid at a rate that permits the level of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand, while wiping the sampler tube with a disposable cloth with the other hand.

- Carefully discharge the sample into a sample container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block, while the lower end of the sampler is positioned in the sample container.

- Preserve as required (see Table E.10-4), cap the container, attach a label and seal, place immediately in an insulated container with ice (if required), record in the field logbook, and complete the sample analysis request sheet and chain-of-custody form.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site, or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.10.6.3 Sample Handling and Documentation

Samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and sample analysis request form. The chain-of-custody form is necessary to trace sample possession from the time of collection to the time of analysis and must accompany every sample. The original record accompanies shipment. The copy is retained by LANL. If samples are analyzed at LANL, the original will be maintained by LANL. The request for analysis form has two parts: field and laboratory. The field portion of this form must be completed by the person collecting the sample and must include most of the pertinent information noted in the logbook. The laboratory portion is intended to be completed by the analytical laboratory personnel when the sample is received. The analytical laboratory retains the original record and sends a copy to LANL.

Sample containers appropriate for the requested analyses will be used for all samples. Sample containers, preservation, and holding times will conform to those specified in SW-846 for the corresponding analyses. Samples will be collected, placed in bottles, sealed, and tagged. Sample container surfaces will be screened for radiological contamination and decontaminated, if necessary. Sample containers will then be immediately packed in vermiculite, sawdust, or if refrigeration is required, an insulated container with ice. Recommended sample containers, preservation, and holding times are presented in Tables E.10-3 and E.10-4.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. A sample label is necessary to prevent misidentification of samples and should include, if applicable, the grid number referenced to positions staked on the site perimeter. The sample label must be completed to include the project name, sample number, collection date/time, collector's name, sample location, sample media description, preservative, and analysis requested. In the case of soil sampling, field information shall include observations such as the soil texture and surface appearance, ambient temperature

and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling.

A field logbook will be kept and will contain all information pertinent to field surveys and sampling. The logbook shall have bound and consecutively numbered pages in 8 1/2 - by 11 inch format. Minimum entries should include:

- Purpose of sample (routine sampling, special sampling)
- Location of sampling (coordinates referenced to staked field points, if soil sample)
- Name and business address of person making log entry
- Type of process producing waste
- Number and volume of sample
- Description of each sampling location, sampling methodology, equipment used, etc.
- Date and time of sample collection
- Sample destination and transporter's name (e.g., name of laboratory, United Parcel Service, etc.)
- Map or photograph of the sampling site, if any
- Field observations, if applicable (e.g., ambient temperature, sky conditions, past 24-hour precipitation)
- Field measurements, if applicable (e.g., pH, conductivity)
- Collector's sample identification number(s)
- Signature of person responsible for the log entry.

Because sampling situations vary widely, no specific rule can be given as to the extent of information that must be entered in the logbook. It is recommended, however, to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

E.10.7 Quality Assurance/Quality Control

A qualified individual or individuals shall be designated to independently oversee the closure activities and to report directly to senior management on the quality of the closure performance. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed, and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the level of decontamination verification achieved.

E.10.8 Closure Report

Upon completion of the closure activities for each CSA addressed in this closure plan, a closure report shall be submitted to the Secretary of the NMED. The report shall document the closure and contain, at a minimum, the following:

- The certification described in Section E.10.5
- Any variance from the approved activities and the reason for the variance
- A tabular summary of all sampling results, showing:
  - Sample identification
  - Sampling location
  - The datum reported
  - Detection limit for each datum
  - A measure of analytical precision (e.g., uncertainty, range, variance)
  - Identification of analytical procedure
  - Identification of analytical laboratory.
- A QA/QC statement on analytical data validation and decontamination verification
- The location of the file of supporting documentation, including:
  - Field logbooks
  - Laboratory sample analysis reports
  - QA/QC documentation
  - Chain-of-custody forms.
- Disposition location of regulated closure materials
- A certification of accuracy of the report.

TABLE E.10-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 54, AREA G, CONTAINER STORAGE AREAS

Parameter	Test Method	Reference[b]
Ignitability	Pensky-Martens closed-cup method	(L) SW1010 (L) ASTM D93-80
Corrosivity	Electrometric (pH of aqueous solution)	(L) SW9040B
Toxicity characteristic	Toxicity characteristic leaching procedure (TCLP) extraction	(L, S) SW1311
Metals:	Graphite furnace atomic absorption (AA) spectroscopy, gaseous hydride AA, or direct aspiration AA	
Arsenic		(L, S) SW7060A, SW7061A
Barium		(L, S) SW7080A, SW7081
Cadmium		(L, S) SW7130, SW7131A
Chromium		(L, S) SW7190, SW7191
Lead		(L, S) SW7420, SW7421
Selenium		(L, S) SW7740, SW7741A
Silver		(L, S) SW7760A, SW7761
Mercury	Manual cold-vapor technique	(L)SW7470A, (S) SW7471A
Volatile organics	Gas chromatography (GC)/mass spectrometry (MS) GC/MS capillary column technique	(L, S) SW8240B (L, S) SW8260A

Refer to footnotes at end of table.

TABLE E.10-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 54, AREA G, CONTAINER STORAGE AREAS
(continued)

Parameter	Test Method	Reference[b]
Semivolatile organics	GC/MS	(L, S) SW8250A
	GC/MS capillary column technique	(L, S) SW8270B
Total metals[c]	Acid digestion	(L) SW3010A, (S) SW3050A
	Inductively coupled plasma atomic emission spectroscopy	(L, S) SW6010A
Arsenic		(L, S) SW6010A
Barium		(L, S) SW6010A
Beryllium		(L, S) SW6010A
Cadmium		(L, S) SW6010A
Chromium		(L, S) SW6010A
Lead		(L, S) SW6010A
Nickel		(L, S) SW6010A
Selenium		(L, S) SW6010A
Silver		(L, S) SW6010A
Thallium		(L, S) SW6010A
Zinc		(L, S) SW6010A
Mercury	Manual cold-vapor technique	(L) SW7470A (S) SW7471A

Refer to footnotes at end of table.

TABLE E.10-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 54, AREA G, CONTAINER STORAGE AREAS
(continued)

Parameter	Test Method	Reference[b]
Free liquids	Paint Filter Liquids Test	(L, S) SW9095

[a] At Los Alamos National Laboratory, current analytical capabilities include limited analyses of mixed waste samples. These analyses include, but are not limited to, gross alpha, beta, and gamma screening.

[b] "ASTM" refers to American Society for Testing and Materials standards.
"SW" refers to U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
(L) refers to liquid waste.
(S) refers to solid waste.

[c] See also atomic absorption methods.

TABLE E.10-2
SCHEDULE FOR CLOSURE ACTIVITIES AT TECHNICAL AREA 54, AREA G, CONTAINER STORAGE AREAS TA-54-226, -229, -230, -231, -232, PAD 9, AND PAD 10

Activity	Maximum Time Required[a]
Let contract request for proposals-90 Days	
Notify the New Mexico Environment Department (NMED)	-45 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Collect background samples	-5 Days
Final receipt of waste	Day 0
Begin closure activities - removal of wastes	Day 10
Washdown of structures	Day 20
Perform initial sampling of the waste management area	Day 25
Analyze samples	Day 55
Perform additional washdown (if necessary)	Day 60
Perform additional sampling (if necessary)	Day 70
Analyze samples (if necessary)	Day 100
Perform pad washdown and sampling	Day 110
Analyze samples	Day 140
Perform final cleanup (e.g., removal of decontaminated equipment and decontamination wastes)	Day 140
Verify decontamination	Day 150
Submit final report to NMED	Day 180

[a] The schedule above indicates calendar days from the beginning by which activities will be completed. Some activities may be conducted simultaneously.

TABLE E.10-3
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES
FOR SEDIMENT/SOIL/SLUDGE SAMPLES

Analyte Group	Container	Preservative	Holding Time[a]
Target compound volatile	8 ounce (oz.)	Cool 4°Celsius (C)	14 days from field collection to toxicity characteristic leaching organics[b] WM[c]-G[d] procedure (TCLP) extraction 14 days from preparative extraction to determinative analysis
Target compound semivolatile organics[b]	2 x 120 milliliter (ml) G vial Teflon™-lined cap	Cool 4°C	14 days from field collection to TCLP extraction 7 days from TCLP extraction to preparative extraction 40 days from preparative extraction to determinative analysis
Target analyte metals[b] (except mercury)	8 oz. WM-G	Cool 4°C	180 days from field collection to TCLP extraction 180 days from preparative extraction to determinative analysis
Mercury	1 liter P[e]	HNO_3[f] to pH <2	28 days from field collection to TCLP extraction 28 days from preparative extraction to determinative analysis
Radioactivity screening	120 ml G vial	None	Analyze upon receipt

[a] Holding time information was taken from the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart II, Part 261, Appendix II, revised November 1, 1995.
[b] Target compound volatile and semivolatile organics and target analyte metals are listed by respective test method numbers in U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[c] WM = Wide-mouth
[d] G = Glass
[e] P = Polyethylene
[f] HNO_3 = Nitric acid

TABLE E.10-4
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES
FOR LIQUID SAMPLES

Analyte Group	Container	Preservative	Holding Time[a]
Target compound volatile organics[b]	2 x 40 milliliter (ml) AG[c] septa vials	HCl[d], Cool 4°Celsius (C)	14 days from field collection to toxicity characteristic leaching procedure (TCLP) extraction 14 days from preparative extraction to determinative analysis
Target compound semivolatile organics[b]	2 x 1 liter AG	Cool 4°C	14 days from field collection to TCLP extraction 7 days from TCLP extraction to preparative extraction 40 days from preparative extraction to determinative analysis
Target analyte metals[b] (except mercury)	1 liter P[e]	HNO_3[f] to pH <2	180 days from field collection to TCLP extraction 180 days from preparative extraction to determinate analysis
Mercury	500 ml P	HNO_3 to pH <2	28 days from field collection to TCLP extraction 28 days from preparative extraction to determinative analysis
Radioactivity screening	40 ml G[g] vial, no septa	None	Analyze upon receipt

[a] Holding time information was taken from the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart II, Part 261, Appendix II, revised November 1, 1995.
[b] Target compound volatile and semivolatile organics and target analyte metals are listed by respective test method numbers in U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846.*
[c] AG = Amber glass
[d] HCl = Hydrochloric acid
[e] P = Polyethylene
[f] HNO_3 = Nitric acid
G = Glass

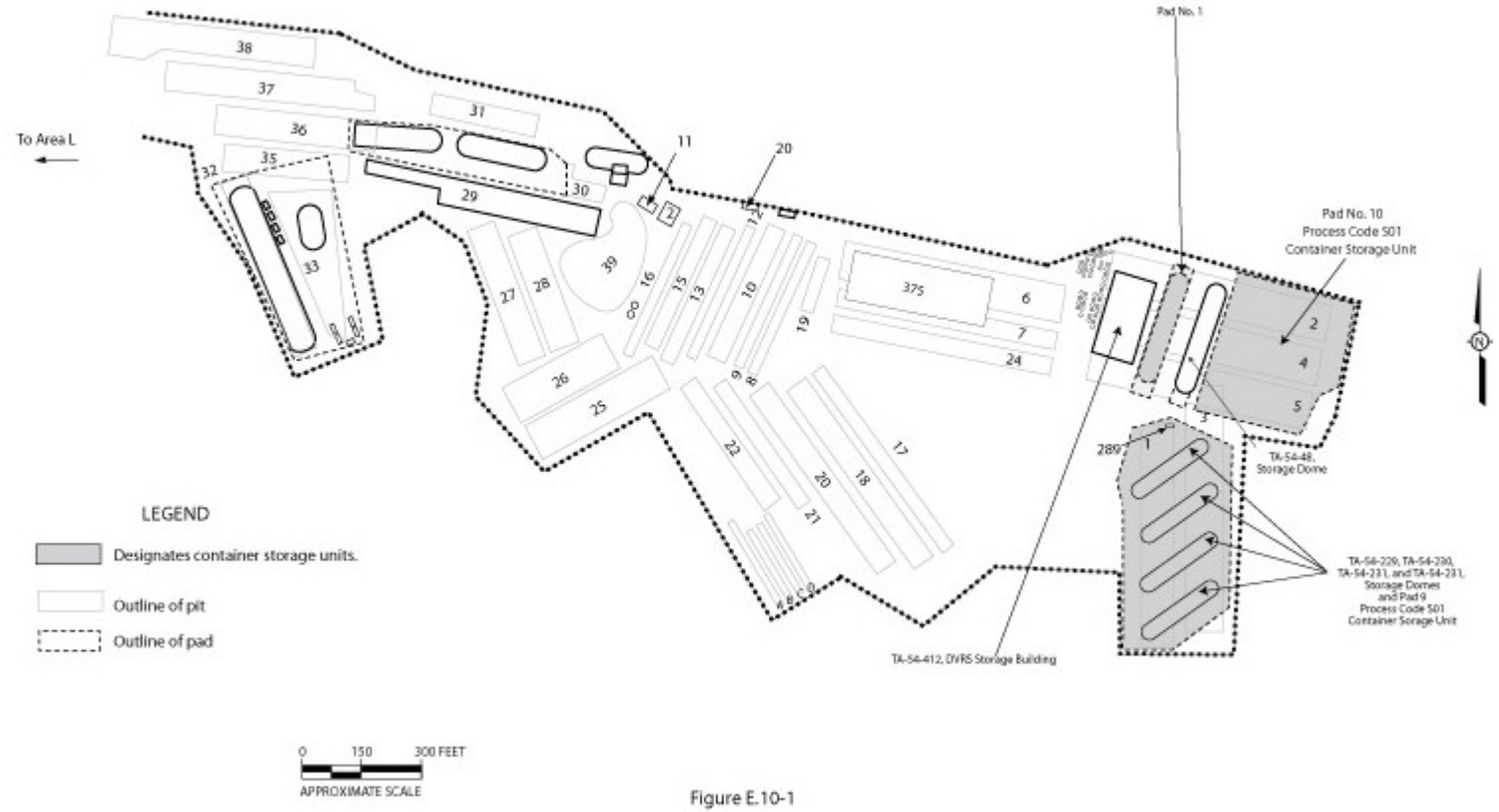

Figure E.10-1

Technical Area (TA) 54, Area G TA-54-226, TA-54-229, TA-54-230, TA-54-231, TA-54-232, and Storage Pads 9 & 10

CLOSURE PLAN
PERMIT ATTACHMENT E.12
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.12
NM0890010515-1

E.12 TECHNICAL AREA 54 WEST, BUILDING 38, RADIOASSAY AND NONDESTRUCTIVE TESTING (RANT) FACILITY CONTAINER STORAGE AREAS

The container storage areas (CSA) addressed in this closure plan include the Low Bay, the High Bay, the Loading Dock, and the Outdoor CSAs at the Technical Area 54 West, Building 38 (TA-54-38), Radioassay and Nondestructive Testing (RANT) Facility (Figure E.12-1). The CSAs are used to store transuranic (TRU) mixed waste and low-level mixed waste.

Waste drums of various sizes are stored in the Low Bay CSA and the Loading Dock CSA. The Low Bay CSA is approximately 11 feet (ft) square, and the low bay floor is 6-inch reinforced concrete slab coated with industrial grade enamel paint. The Loading Dock, located just east of the low bay, is approximately 16 ft wide and 39 ft long. It is constructed of cast-in-place concrete. A metal awning, which is not part of the Loading Dock CSA, runs perpendicular to the loading dock platform. The Loading Dock CSA is divided into two areas on the platform. One area at the north end of the loading dock is 16 ft by 10 ft. The second area at the south end of the loading dock is 16 ft by 12 ft.

The High Bay CSA stores drums of various sizes, fiberglass-reinforced plywood boxes, standard waste boxes (SWB), and B25 boxes. The High Bay CSA, located along the south side of the center wall, is approximately 11 ft wide and 34 ft long. The high bay floor is 6-inch reinforced concrete slab. It slopes gently toward a central 50-ft trench and a sump. The sump is locked out and a pipe plug has been installed.

Waste containers stored in the Outdoor CSA include drums of various sizes, SWBs, and B25 boxes. The Outdoor CSA, comprised of the storage pad surrounding the north, east, and south sides of the RANT Facility, is approximately 37,248 ft square. It is constructed of asphaltic concrete, is approximately 4 inches thick, and most of the yard (north and east side) slopes gently to the northeastern corner while the south side slopes towards the curbing south of the building toward the curbed edges.

E.12.1 Estimate of Maximum Waste in Storage

The maximum inventory of waste in storage at any time at the TA-54-38 RANT Facility is estimated at 11,660 gallons. A breakdown of the maximum inventories for each of these areas is as follows:

- Low Bay CSA - 880 gallons
- High Bay CSA - 2,200 gallons
- Loading Dock CSA - 660 gallons
- Outdoor CSA - 7,920 gallons

E.12.2 Description of Waste

TRU mixed waste stored in the TA-54-38 RANT Facility CSAs is generated during research activities, processing and recovery operations, and decontamination and decommissioning operations primarily at TA-3, TA-21, TA-50, and TA-55. Low-level mixed waste stored is generated during research activities, processing and recovery operations, decontamination and decommissioning operations, and environmental remediation/restoration activities at various TAs throughout Los Alamos National Laboratory (LANL). These wastes are classified as mixed wastes because Resource Conservation and Recovery Act (RCRA) characteristic and/or listed wastes are or may be present in the waste, along with a radioactive component.

E.12.3 Closure Procedure and Decontamination

E.12.3.1 Partial Closure

Partial closure would consist of closing one or more of the RCRA-regulated waste management units or subunits at the LANL facility, while leaving the other RCRA-regulated waste management units at LANL in service. In the event of a partial closure, the following procedures would apply to the unit(s) being closed.

E.12.3.2 Unit Closure

To the extent possible, all contaminated structures and equipment at the CSAs addressed in this closure plan will be decontaminated. Structures, equipment, and media that cannot be decontaminated will be containerized and managed in compliance with appropriate regulations. All sampling conducted during closure and decontamination will be done in accordance with quality assurance/quality control (QA/QC) procedures (see Section E.12.7).

Before proceeding with any closure activities, the CSAs will be surveyed for radiological contamination. Personal protective equipment (PPE) and monitoring requirements will be determined by LANL's health physics and industrial hygiene and safety personnel following a field inspection. Radiation and chemical monitoring will occur throughout closure activities. If any contamination is found, the contaminated materials, equipment, and/or structures will be decontaminated (if possible) or containerized and taken to an approved storage location at LANL appropriate for the waste type.

Personnel involved in closure activities will wear appropriate PPE, specified by health physics and industrial hygiene and safety personnel, and will follow good hygiene practices to protect employees from exposure to hazardous and/or mixed waste. The level of PPE that will be required will depend upon the levels of radiological and/or chemical contamination that are detected, if any. If health physics and industrial hygiene and safety personnel surveys do not indicate detectable contamination levels, minimum PPE requirements will consist of coveralls, steel-toed boots, and safety glasses or face shields. If an overhead danger is present, a hard hat will be worn. All workers involved in closure activities will be required to have training and medical monitoring. Contaminated PPE will either be decontaminated or managed in compliance with appropriate regulations.

All wastes will be removed from the CSA scheduled to be closed prior to the initiation of closure activities. Containers will be removed from each storage area primarily with forklifts. Small containers may be handled manually or with dollies. All containers will be placed onto flatbed trucks or trailers for transport. All appropriate shipping papers will accompany the wastes during transport. Containers holding RCRA-regulated wastes will be moved to an approved on-site facility or permitted off-site treatment and/or disposal facility.

Before decontamination activities begin, samples of the clean water and detergent (wash water) solution squeezed from mops and/or sponges prior to use will be collected for analysis of the parameters listed in Table E.12-1. The analytical results from these samples will be used to provide a baseline for decontamination verification.

The walls, floors, and equipment in the Low Bay, High Bay, and Loading Dock CSAs will then be wiped down with wash water solution. Portable berms will be used to collect and provide containment for the used wash water. After the washdown process, the used wash water will be collected, sampled, and analyzed for the parameters in Table E.12-1. If the used wash water is nonhazardous and nonradioactive, it will be managed appropriately in accordance with LANL policy. Otherwise, the used wash water will be managed at an appropriate on-site facility, depending on the regulated constituents present. If sampling and analysis indicate that hazardous and/or radioactive constituents are present, the wash cycles and analyses will continue until the area has been decontaminated or the decision is made to segregate contaminated portions of the storage area for subsequent management as contaminated waste. Decontamination verification is discussed further in Section E.12.3.3.

Under normal circumstances, the following soil sampling information will not be applicable for the Low Bay and High Bay CSAs because they are located inside a building with an impervious floor. However, if soil sampling is deemed necessary based on analytical evidence and the operational history of the unit, sampling of the area will be performed to verify that no hazardous constituents remain upon closure as a result of container storage. A grid will be sited over the area to be sampled, boreholes will be drilled through the floor material, and soil samples will be collected and analyzed to determine the horizontal and vertical extent of contamination.

Prior to use, all decontamination equipment will be rinsed with distilled water. Decontamination equipment rinsate blanks will be collected and analyzed in accordance with QA/QC procedures (see Section E.12.7). Reusable protective clothing, tools, and equipment used during closure activities will be cleaned with a wash water solution and scraped as necessary to remove any residue. Residue, disposable equipment, and reusable equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility, depending on the regulated constituents present. Used wash water will be collected and analyzed for the parameters listed in Table E.12-1. If the used wash water is nonhazardous and nonradioactive, the water will be managed appropriately in accordance with LANL policy. Otherwise, it will be managed at an appropriate on-site facility, depending on the regulated constituents present.

The Outdoor CSA asphaltic concrete pad will be washed down with a wash water solution. Portable berms or other containment structures will be used to collect the wash water from the pad. Before the first washdown, a sample of clean wash water solution will be collected and analyzed for the parameters listed in Table E.12-1 to provide a baseline for decontamination verification. The used wash water will also be

collected, transferred to DOT-approved containers, sampled, and analyzed for the parameters in Table E.12-1. If the used wash water is nonhazardous and nonradioactive, it will be discharged to the industrial wastewater sewer. Otherwise, the used wash water will be managed at an appropriate on-site facility, depending on the regulated constituents present.

Used wash water samples from the Outdoor CSA may exhibit anomalously high levels of organic compounds due to leaching of the asphaltic concrete pad materials during washdown. If this is the case, record reviews (e.g., manufacturer's specifications, MSDS) and additional analyses may be performed to determine if leaching of organic constituents from the pad contributed to the organic compound concentration in the used wash water. If this additional evaluation confirms the asphaltic concrete materials as the source of contamination, baseline concentrations for clean wash water will be adjusted accordingly. The pad area may undergo up to two wash cycles. If decontamination verification cannot be demonstrated after two wash cycles, the asphaltic concrete material will be removed from the site and managed as appropriate for the waste type. If the wash water is nonhazardous and nonradioactive, it will be managed appropriately in accordance with LANL policy. Otherwise, it will be managed at an appropriate on-site facility, depending on the regulated constituents present.

The RANT Facility Outdoor CSA is situated on an extensive asphalt area and container storage is not likely to result in soil contamination except in the case of a major spill that would initiate the cleanup conditions of the contingency plan and be recorded in the facility record. Therefore, after washdown activities at the CSA are complete, a statistically representative number of small area washdown samples will be collected from the asphalt surrounding the pad in a manner similar to the above washdown of the CSA. One-foot-square areas approximately 3 feet from the boundary of the CSA will be wiped down. This wash water will be collected and analyzed for the parameters listed in Table E.12-1. The baseline concentration asphalt leachate samples or information described above will also apply for these samples. The degree of contamination, if present, will be assessed for these areas. If the samples do not exhibit contamination, the area will be considered to be decontaminated. If contamination is found in these samples as a result of container storage on the pad, the asphalt area around the CSA may be subject to the same wash down or removal process described above for the asphalt inside the CSA.

E.12.3.3 Decontamination Verification

Sufficient sampling and analysis will be required to demonstrate that hazardous or mixed waste residue is not present at the site after closure. Two samples of clean wash water solution squeezed from mops and/or sponges prior to use will be collected before initial washdown of the CSAs. The samples will be analyzed for parameters listed in Table E.12-1 to provide baseline data for decontamination verification. Analytical procedures will conform to methods found in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846). Used washdown solutions will also be analyzed for the parameters listed in Table E.12-1. Washdown solutions will be considered contaminated if the used wash water solution shows a significant increase (i.e., determined using statistical methods defined in SW-846) in the analytical parameters over the clean wash water solution. If subsequent washdowns are deemed necessary, an additional sample of clean wash water solution squeezed from mops and/or sponges prior to use will be taken for each additional washdown event.

Existing background soil data for the RANT Facility CSAs may also be used to demonstrate that hazardous or mixed waste residue resulting from storage activities is not present at the site after closure. A comparison

of closure sampling data to existing background soil data will be used to establish the source of any hazardous waste or constituents present in the soil. If the data comparison indicates that contamination is from container storage activities, additional contaminated soil excavations will be performed until at least one of the decontamination criteria has been met successfully.

Successful decontamination meets one of the following criteria:

- No detectable hazardous waste or constituents from container storage activities are found in the final sample.

- Detectable hazardous waste or constituents from container storage activities in the final sample are removed to statistically significant levels based on baseline concentrations in the clean wash water or established background soil data.

- Detectable hazardous waste or constituents from container storage activities in the final sample are at or below levels negotiated with the New Mexico Environment Department (NMED).

- Detectable hazardous waste or constituent concentrations from container storage activities do not significantly decrease after several washdowns. In such an event, hazardous constituents will be allowed to remain that pose an acceptable risk as mutually agreed upon with NMED.

E.12.4 Closure Schedule

Closure will not commence until all of the wastes have been removed from the CSA scheduled to be closed. Closure activities will begin in accordance with the approved closure plan, as required by the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, 264.113(a), revised November 1, 1995, within 90 days after final receipt of waste at the CSA. This timeframe will be met as long as facilities are available for treatment and/or disposal of these wastes. In the event that closure activities cannot be completed at the CSA within 90 days, LANL will notify the Secretary of the NMED in accordance with the extension requirements cited in 20 NMAC 4.1, Subpart V, 264.113(a), revised November 1, 1995. Closure activities and reporting requirements will be completed within 180 days of the receipt of the final volume of waste at the waste management area to be closed. Closure will be conducted in accordance with the schedule presented in Table E.12-2. In the event that closure of a CSA is prevented from proceeding according to schedule, LANL will notify the Secretary of the NMED in accordance with extension request requirements in 20 NMAC 4.1, Subpart V, 264.113(b), revised November 1, 1995. In addition, the demonstrations in 20 NMAC 4.1, Subpart V, 264.113(a)(1) and (b)(1), revised November 1, 1995, will be made in accordance with 20 NMAC 4.1, Subpart V, 264.113(c), revised November 1, 1995.

E.12.5 Closure Certification

Within 60 days after completion of closure activities for each of the CSAs, the U.S. Department of Energy (DOE) will submit to the Secretary of the NMED, via certified mail, a certification that the area has been closed in accordance with the specifications of the closure plan. The certification will be attested to by an independent, registered professional engineer and will be signed by the appropriate DOE and LANL officials, in accordance with 20 NMAC 4.1, Subpart V, 264.115, revised November 1, 1995. Documentation supporting the independent registered engineer's certification will be furnished to the Secretary of the NMED with the original certification. A copy of the certification and supporting documentation shall be maintained by both the DOE/Los Alamos Site Office and LANL's hazardous waste compliance personnel.

E.12.6 Sampling and Analytical Procedures

The following sections describe procedures and methods for sampling, analysis, and documentation applicable to closure activities. While the procedures and methods are specific, other applicable procedures or methods given in SW-846 may be used if conditions or experience show the alternate method to be more appropriate. All sampling and analytical procedures actually used will be annotated in the final closure report. Sampling will be conducted in accordance with procedures given in SW-846. Analysis will be conducted by a DOE certified analytical laboratory.

E.12.6.1 Soil and Sediment Sampling

Soil samples will be collected only if evidence is found that hazardous constituents have migrated from the CSAs discussed in this closure plan. The soil samples will only then be collected to determine if contaminants have migrated from the CSAs and, if so, to determine the horizontal and vertical extent of such migration. Sediment samples from the sump associated with the High Bay CSA may also need to be obtained if evidence is found that hazardous constituents have migrated from this CSA.

E.12.6.1.1 Cleaning of Samplers

To prevent cross contamination, it is important to clean the samplers after each sample is collected. An unused, disposable sampler may be presumed clean if still in a factory-sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a detergent and water solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry.

E.12.6.1.2 Sampling Procedures

The sampling procedures outlined below will be used to obtain samples to determine the amount of RCRA constituents in soil associated with the units undergoing closure. Soil samples will be collected from the 6-inch depth with a trowel or scoop or with a Veihmeyer soil sampler. Sediment samples will be collected with a trowel or scoop. Sampling procedures will be performed as follows:

- Trowel or Scoop
  - Take small, equal portions of sample from the surface or near the surface of the material to be sampled.

  - Combine the samples in a container appropriate for the required analysis.

- Cap the container, attach a label and seal, and preserve as required (see Table E.12-3). Record in the field logbook, and complete the sample analysis request sheet and chain-of-custody form. Deliver the samples to the laboratory for analysis.

• Veihmeyer Sampler
  - Assemble the sampler by screwing in the tip and drive head on the sampling tube.
  - Insert the tapered handle (drive guide) of the drive hammer through the drive head.
  - Place the sampler in a perpendicular position on the soil to be sampled.
  - With the left hand holding the tube, drive the sampler into the soil to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.
  - Record the length of the tube that penetrated the material.
  - Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
  - Rotate the sampler at least two revolutions to shear off the sample at the bottom.
  - Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.
  - Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a puller jack and grip.
  - Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.
  - Store the sample in an appropriate sample container.
  - Label the sample, affix the seals, preserve as required (see Table E.12-3), record in the field logbook, complete the sample analysis request sheet and chain-of-custody form, and deliver the samples to the laboratory for analysis.

E.12.6.2 Liquid Sampling

A composite liquid waste sampler (COLIWASA) or similar device will be used to sample unused wash water solutions before decontamination begins in order to determine baseline parameters. It will also be used to sample the wash water used in cleaning structures and equipment. As an alternative to the COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is

that the tube will be disposed of appropriately after each sample is collected, thus eliminating the potential for cross contamination.

E.12.6.2.1 Cleaning of Samplers

The sampler must be clean before use. An unused, disposable sampler may be presumed clean if still in a factory-sealed wrapper. Unsealed samplers will be cleaned prior to use. Samplers will be washed with a detergent and water solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Improper cleaning of sampling equipment will cause cross contamination of samples. Clean samplers should be stored in clean polyethylene plastic tubes or bags in a clean and protected area.

E.12.6.2.2 Sampling Procedure

Liquid sampling with a COLIWASA will be performed as follows:

- Ensure that the COLIWASA is clean.
- Assemble the COLIWASA.
- Check that the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.
- Wear necessary protective clothing and gear, and observe required sampling precautions.
- Put the sampler in the open position by placing the stopper-rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
- Slowly lower the COLIWASA into the liquid at a rate that permits the level of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.
- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
- Slowly withdraw the sampler from the container with one hand, while wiping the sampler tube with a disposable cloth with the other hand.
- Carefully discharge the sample into a sample container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block, while the lower end of the sampler is positioned in the sample container.

- Preserve as required (see Table E.12-4), cap the container, attach a label and seal, place immediately in an insulated container with ice (if required), record in the field logbook, and complete the sample analysis request sheet and chain-of-custody form.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site, or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.12.6.3 Sample Handling and Documentation

Samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and sample analysis request form. The chain-of-custody form is necessary to trace sample possession from the time of collection to the time of analysis and must accompany every sample. The original record accompanies shipment. The copy is retained by LANL. If samples are analyzed at LANL, the original will be maintained by LANL. The request for analysis form has two parts: field and laboratory. The field portion of this form must be completed by the person collecting the sample and include most of the pertinent information noted in the logbook. The laboratory portion is intended to be completed by the analytical laboratory personnel when the sample is received. The analytical laboratory retains the original record and sends a copy to LANL.

Sample containers appropriate for the requested analyses will be used for all samples. Sample containers, preservation, and holding times will conform to those specified in SW-846 for the corresponding analyses. Samples will be collected, placed in bottles, sealed, and tagged. Sample container surfaces will be screened for radiological contamination and decontaminated, if necessary. Sample containers will then be immediately packed in vermiculite, sawdust, or if refrigeration is required, an insulated container with ice. Recommended sample containers, preservation, and holding times are presented in Tables E.12-3 and E.12-4.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. A sample label is necessary to prevent misidentification of samples and should include, if applicable, the grid number referenced to positions staked on the site perimeter. The sample label must be completed to include the project name, sample number, collection date/time, collector's name, sample location, sample media description, preservative, and analysis requested. In the case of soil sampling, field information shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling.

A field logbook will be kept and will contain all information pertinent to field surveys and sampling. The logbook shall have bound and consecutively numbered pages in 8 1/2 - by 11 inch format. Minimum entries should include:

- Purpose of sample (routine sampling, special sampling)

- Location of sampling (coordinates referenced to staked field points, if soil sample)

- Name and business address of person making log entry

- Type of process producing waste
- Number and volume of sample
- Description of each sampling location, sampling methodology, equipment used, etc.
- Date and time of sample collection
- Sample destination and transporter's name (e.g., name of laboratory, United Parcel Service, etc.)
- Map or photograph of the sampling site, if any
- Field observations, if applicable (e.g., ambient temperature, sky conditions, past 24-hour precipitation)
- Field measurements, if applicable (e.g., pH, conductivity)
- Collector's sample identification number(s)
- Signature of person responsible for the log entry.

Because sampling situations vary widely, no specific rule can be given as to the extent of information that must be entered in the logbook. It is recommended, however, to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

E.12.7 Quality Assurance/Quality Control

A qualified individual or individuals shall be designated to independently oversee the closure activities and to report directly to senior management on the quality of the closure performance. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed, and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the level of decontamination verification achieved.

E.12.8 Closure Report

Upon completion of the closure activities for each CSA addressed in this closure plan, a closure report shall be submitted to the Secretary of the NMED. The report shall document the closure and contain, at a minimum, the following:

- The certification described in Section E.12.5
- Any variance from the approved activities and the reason for the variance

- A tabular summary of all sampling results, showing:
  - Sample identification
  - Sampling location
  - The datum reported
  - Detection limit for each datum
  - A measure of analytical precision (e.g., uncertainty, range, variance)
  - Identification of analytical procedure
  - Identification of analytical laboratory.

- A QA/QC statement on analytical data validation and decontamination verification

- The location of the file of supporting documentation, including:
  - Field logbooks
  - Laboratory sample analysis reports
  - QA/QC documentation
  - Chain-of-custody forms.

- Disposition location of RCRA-regulated closure materials

- A certification of accuracy of the report.

TABLE E.12-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 54, BUILDING 38 (TA-54-38), RADIOASSAY AND NONDESTRUCTIVE TESTING (RANT) FACILITY CONTAINER STORAGE AREAS

Parameter	Test Method	Reference[b]
Ignitability	Pensky-Martens closed-cup method	(L) SW1010 (L) ASTM D93-80
Reactivity	Test method to determine hydrogen cyanide released from waste	(L, S) HCN Test Method, Section 7.3
	Test method to determine hydrogen sulfide released from waste	(L, S) H_2S Test Method, Section 7.3
Corrosivity	Electrometric (pH of aqueous solution)	(L) SW9040B
Toxicity characteristic	Toxicity characteristic leaching procedure (TCLP) extraction	(L, S) SW1311
Metals:	Graphite furnace atomic absorption (AA) spectroscopy, gaseous hydride AA, or direct aspiration AA	
Arsenic		(L, S) SW7060A, SW7061A
Barium		(L, S) SW7080A, SW7081
Cadmium		(L, S) SW7130, SW7131A
Chromium		(L, S) SW7190, SW7191
Lead		(L, S) SW7420, SW7421
Selenium		(L, S) SW7740, SW7741A
Silver		(L, S) SW7760A, SW7761
Mercury	Manual cold-vapor technique	(L)SW7470A, (S) SW7471A

Refer to footnotes at end of attachment.

TABLE E.12-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 54, BUILDING 38 (TA-54-38), RADIOASSAY AND NONDESTRUCTIVE TESTING (RANT) FACILITY CONTAINER STORAGE AREAS
(continued)

Parameter	Test Method	Reference[b]
Volatile organics	Gas chromatography (GC)/mass spectrometry (MS)	(L, S) SW8240B
	GC/MS capillary column technique	(L, S) SW8260A
Semivolatile organics	GC/MS	(L, S) SW8250A
	GC/MS capillary column technique	(L, S) SW8270B
Organochlorine pesticides	TCLP extraction and GC	(L, S) SW8080A
Chlorinated herbicides		(L, S) SW8150B
Total metals[c]	Acid digestion	(L) SW3010A, (S) SW3050A
	Inductively coupled plasma atomic emission spectroscopy	(L, S) SW6010A
Arsenic		(L, S) SW6010A
Barium		(L, S) SW6010A
Beryllium		(L, S) SW6010A
Cadmium		(L, S) SW6010A
Chromium		(L, S) SW6010A
Lead		(L, S) SW6010A
Nickel		(L, S) SW6010A

Refer to footnotes at end of attachment.

TABLE E.12-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 54, BUILDING 38 (TA-54-38), RADIOASSAY AND NONDESTRUCTIVE TESTING (RANT) FACILITY CONTAINER STORAGE AREAS
(continued)

Parameter	Test Method	Reference[b]
Selenium		(L, S) SW6010A
Silver		(L, S) SW6010A
Thallium		(L, S) SW6010A
Zinc		(L, S) SW6010A
Mercury	Manual cold-vapor technique	(L) SW7470A (S) SW7471A
Free liquids	Paint Filter Liquids Test	(L, S) SW9095

[a] At Los Alamos National Laboratory, current analytical capabilities include limited analyses of mixed waste samples. These analyses include, but are not limited to, gross alpha, beta, and gamma screening.

[b] "ASTM" refers to American Society for Testing and Materials standards.
"SW" refers to U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
(L) refers to liquid waste.
(S) refers to solid waste.

[c] See also atomic absorption methods.

TABLE E.12-2
SCHEDULE FOR CLOSURE ACTIVITIES AT THE TECHNICAL AREA 54, BUILDING 38 (TA-54-38), RADIOASSAY AND NONDESTRUCTIVE TESTING (RANT) FACILITY CONTAINER STORAGE AREAS

Activity	Maximum Time Required[a]
Let contract request for proposals-90 Days	
Notify the New Mexico Environment Department (NMED)	-45 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Collect background samples	-5 Days
Final receipt of waste	Day 0
Begin closure activities (perform washdown of structures)	Day 10
Perform initial sampling of the waste management area	Day 15
Analyze samples	Day 45
Perform additional washdown (if necessary)	Day 50
Perform additional sampling (if necessary)	Day 60
Analyze samples (if necessary)	Day 90
Perform pad washdown and sampling	Day 100
Analyze samples	Day 130
Perform final cleanup (e.g., removal of decontaminated equipment and decontamination wastes)	Day 130
Verify decontamination	Day 140
Submit final report to NMED	Day 180

[a] The schedule above indicates calendar days from the beginning by which activities will be completed. Some activities may be conducted simultaneously.

TABLE E.12-3
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES
FOR SEDIMENT/SOIL/SLUDGE SAMPLES

Analyte Group	Container	Preservative	Holding Time[a]
Target compound volatile	8 ounce (oz.)	Cool 4°Celsius (C)	14 days from field collection to toxicity characteristic leaching organics[b] WM[c]-G[d] procedure (TCLP) extraction 14 days from preparative extraction to determinative analysis
Target compound semivolatile organics[b]	2 x 120 milliliter (ml) G vial Teflon™-lined cap	Cool 4°C	14 days from field collection to TCLP extraction 7 days from TCLP extraction to preparative extraction 40 days from preparative extraction to determinative analysis
Target analyte metals[b] (except mercury)	8 oz. WM-G	Cool 4°C	180 days from field collection to TCLP extraction 180 days from preparative extraction to determinative analysis
Mercury	1 liter P[e]	HNO_3[f] to pH <2	28 days from field collection to TCLP extraction 28 days from preparative extraction to determinative analysis
Radioactivity screening	120 ml G vial	None	Analyze upon receipt

[a] Holding time information was taken from the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart II, Part 261, Appendix II, revised November 1, 1995.
[b] Target compound volatile and semivolatile organics and target analyte metals are listed by respective test method numbers in U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[c] WM = Wide-mouth
[d] G = Glass
[e] P = Polyethylene
[f] HNO_3 = Nitric acid

TABLE E.12-4
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES
FOR LIQUID SAMPLES

Analyte Group	Container	Preservative	Holding Time[a]
Target compound volatile organics[b]	2 x 40 milliliter (ml) AG[c] septa vials	HCI[d], Cool 4°Celsius (C)	14 days from field collection to toxicity characteristic leaching procedure (TCLP) extraction 14 days from preparative extraction to determinative analysis
Target compound semivolatile organics[b]	2 x 1 liter AG	Cool 4°C	14 days from field collection to TCLP extraction 7 days from TCLP extraction to preparative extraction 40 days from preparative extraction to determinative analysis
Target analyte metals[b] (except mercury)	1 liter P[e]	HNO_3[f] to pH <2	180 days from field collection to TCLP extraction 180 days from preparative extraction to determinate analysis
Mercury	500 ml P	HNO_3 to pH <2	28 days from field collection to TCLP extraction 28 days from preparative extraction to determinative analysis
Radioactivity screening	40 ml G[g] vial, no septa	None	Analyze upon receipt

[a] Holding time information was taken from the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart II, Part 261, Appendix II, revised November 1, 1995.
[b] Target compound volatile and semivolatile organics and target analyte metals are listed by respective test method numbers in U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[c] AG = Amber glass
[d] HCl = Hydrochloric acid
[e] P = Polyethylene
[f] HNO_3 = Nitric acid
[g] G = Glass

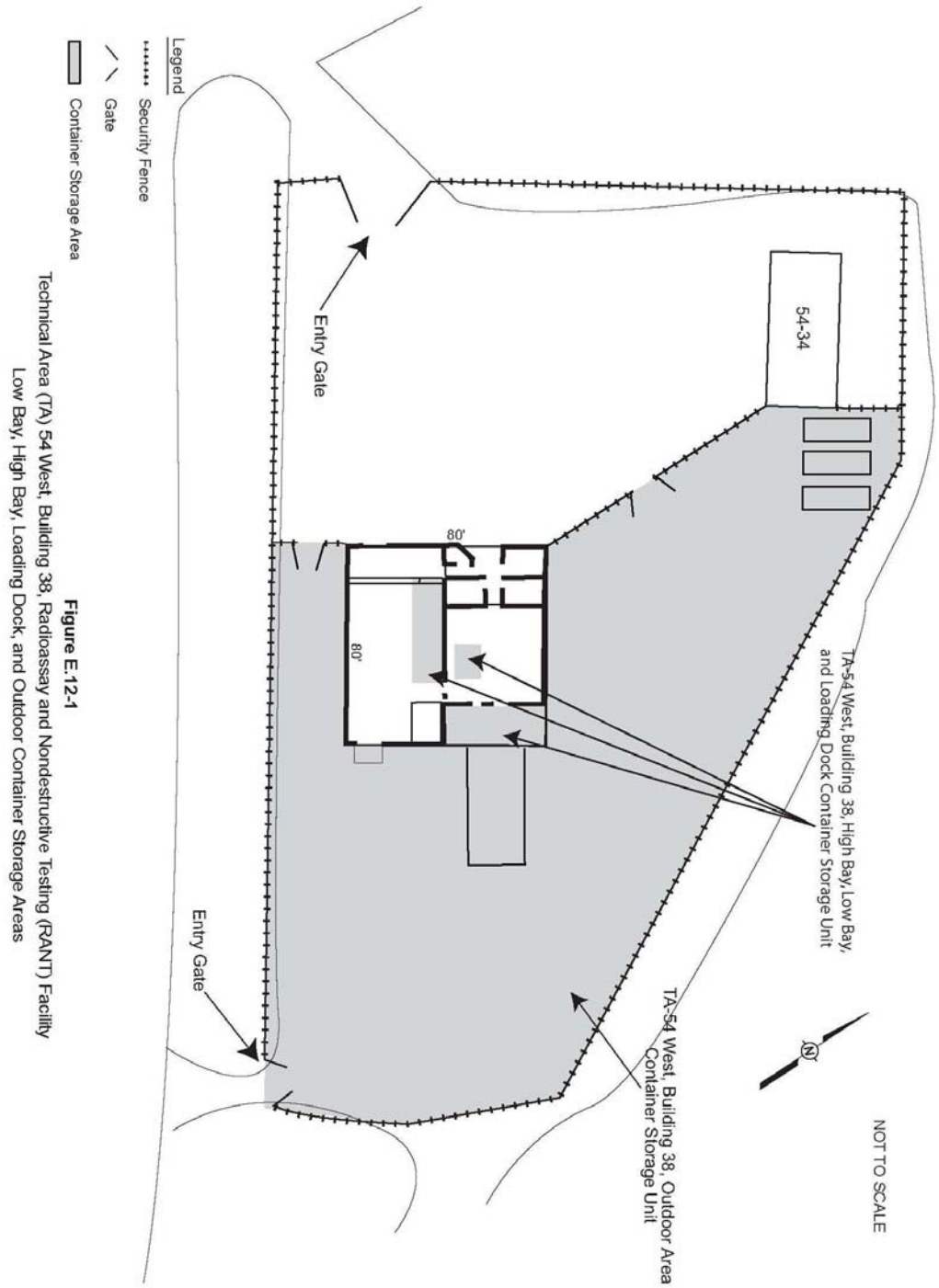

Figure E.12-1
Technical Area (TA) 54 West, Building 38, Radioassay and Nondestructive Testing (RANT) Facility
Low Bay, High Bay, Loading Dock, and Outdoor Container Storage Areas

CONTAINER MANAGEMENT
PERMIT ATTACHMENT F
NM0890010515-1

ATTACHMENT F
CONTAINER MANAGEMENT

F.1 CONTAINER PACKAGING, SAMPLING and LABELING

F.1.1 Container Packaging and Transport

When chemical substances are declared to be in excess, the originating group completes Waste Profile Form (WPF, see Permit Attachments A.2 and A.3) and sends the form to the waste management services personnel. The WPF provides waste characterization information for subsequent management of material. The WPF is reviewed for adequacy of information and assignation of segregation codes, Department of Transportation (DOT) information, and Environmental Protection Agency (EPA) Hazardous Waste Numbers. When the WPF is approved, the waste generator submits a Chemical Waste Disposal Request (CWDR) to waste management services personnel. The CWDR lists the chemical waste the generating group needs to dispose of, the quantity of the wastes, and other pertinent information about the containers.

A uniform waste manifest is prepared for use when the waste is collected, packaged, and transported. All waste materials are packaged and transferred in accordance with DOT regulations and the Laboratory's On-Site Transportation Manual.

Waste management services personnel review the waste disposal request for adequacy of information and assignation of segregation codes, DOT information, and EPA codes. Waste management services personnel then use the waste disposal request to complete the shipping papers for waste collection. Also, waste management services personnel use the waste disposal request to create a second record as part of the Hazardous Waste Database. Waste management services personnel visit the generating site to package the waste and transport it to TA-54, Area L. All waste is transferred in accordance with DOT regulations and Laboratory procedures.

Containers will be visually inspected for integrity before transport. If the container is unacceptable, it will be repackaged or overpacked prior to transport. The wastes are transported by vehicles ranging from half-ton to trucks to semitrailers with maximum capacities of up to 80,000 pounds.

Upon arrival at a hazardous or mixed waste management unit, the wastes are unloaded from the transport vehicle and placed into appropriate storage areas. Lab pack waste will be temporary placed at the packaging building for labeling or compositing. Drums and Tuff-Tanks will be placed on either the sampling pad or storage pad for sampling and labeling.

F.1.2 Drum Labeling, Recording, and Sampling System

Each unique package of waste is labeled with the following information:

—chemical segregation group number

—unique record number

—date of generation

—either an EPA hazardous waste label or the words “hazardous waste.”

—DOT Hazard class and shipping information, as appropriate

— EPA hazardous waste code(s) or the hazardous constituent(s)

This information and the data from the CWDR are entered into a chemical and mixed waste database. All records are then maintained in accordance with the requirements of this permit.

Sampling of the waste is then performed as outlined in Permit Attachment A. The sampling pad at TA-54, Area L, is restricted to one compatibility group of chemicals at a time (e.g., organics). The group allowed at the time will be posted on the pad. This ensures that incompatible chemicals do not react in the containment basin of the pad. Before a new compatibility group of chemicals is placed on the pad, the containment area will be cleaned. For this reason, the main sampling pad will generally be used for organic waste and acid/base waste will be sampled at the appropriate storage cell.

After all packages are labeled and/or sampled, they are moved to one of the Laboratory’s storage areas. The permitted areas are defined in Permit Module III.

F.2 STORAGE AREA PRACTICES

F.2.1 Storage Areas at TA-50 and TA-54

The Laboratory has the following storage areas that are the subject of this permit: modular storage units and the main storage pad at TA-54, Area L; the modular storage unit at TA-50, the storage room; the TA-50-69 indoor and outdoor storage units; and the TA-54-38 storage units; and TA-54-226, -229, -230, -231, -232, and Pads 9 & 10 at TA-54, Area G. The usage of each of these units is discussed below.

F.2.1.1 Modular Storage Units, TA-54, Area L (TA-54-68 and -69 and -70)

The primary usage of the modular units will be for the storage of lab pack waste, particularly those in fiberboard containers. After labeling, the lab packs are placed directly in the appropriate storage cell. Each modular unit has two or three cells allowing single chemical family group to be stored in each cell at any one time. However, more than one cell may be used for the same chemical type. Each cell will be labeled as to the chemical family stored there. If at any time the cell designation changes, such as from organic to reactive, the cell will first be cleaned to ensure that no hazardous waste constituent residues remain that would create an incompatibility problem during a spill.

F.2.1.2 Storage Pad at TA-54, Area L (TA-54-32)

Material stored on the storage pad at TA-54, Area L, will generally be placed there after labeling and sampling. This may not be the case for acids and bases where the storage cell is also used as the sampling pad. The pad is divided into six cells allowing the storage of six chemical family groups. However, more than one cell may be used for the same chemical type. All cells will be labeled as to which chemical type is stored there. If at any time it is necessary to change the designation of a cell, it will first be cleaned to remove any residues that might produce an unfavorable reaction with the new chemical type.

Concrete containment structure TA-54-32 has a temporary modular containment structure constructed over it. This modular structure provides containment and protection for the sampling and repackaging activities. The sides of the modular structure have been equipped with slanted sheets of plywood to direct the snow and rain away from the secondary containment. The modular containment structure is secured to the beams supporting the "pole barn" with guy wires. Whenever this temporary structure is decommissioned, it will be decontaminated according to the procedures of Permit Attachment E.3, E.3.3 and E.3.4: Closure Procedures and Decontamination and Decontamination Verification.

F.2.1.3 Modular Storage Unit at TA-50 (TA-50-114)

The modular storage units at TA-50 will be used primarily to store acid and base wastes. Each cell will be labeled acid or base to indicate the type of waste stored there. If at any time the designation of a cell needs to be changed, the cell will first be cleaned to ensure that incompatible residues have been removed.

F.2.1.5 Storage Room at TA-50-37, Room 117

The storage room at TA-50-37 is divided into two areas, one for solids and one for liquids. The liquid side is further divided into two cells. Therefore, up to three chemical types may be stored at any one time. Cells will be labeled as to the chemical type stored there. If at any time the cell designation needs to be changed, the cell will be cleaned to remove any incompatible residues.

F.2.1.6 Storage Pads at TA-54, Area L (TA-54-36 and –58)

The primary activities at TA-54-36 and TA-54-58 will fall into two categories. The first is sorting, surveying, and decontaminating certain waste currently in storage and labeled "suspect mixed waste." All of the waste found to contain no radioactive component will be repackaged, shipped off-site, and disposed of at a permitted Hazardous Waste Treatment, Storage and Disposal Facility.

The second is typically associated with hazardous and mixed waste streams for which commercial treatment and/or disposal is currently available. These waste streams will be staged, inspected, sampled, and analyzed to provide complete hazardous waste and radiological characterization. When these steps are completed, the waste streams will be profiled into the commercial facilities and shipped for ultimate treatment and/or disposal.

The activities at pads #58 and #36 consist of opening the drums, surveying the contents for radiological content, decontaminating the material as warranted, repackaging the material for either return to storage, shipment off-site for disposal, or disposal as low level waste at TA-54, Area G.

Pads #58 and #36 consist of two cement pads that are sloped toward a dry containment sump at the centerline of the rear wall to facilitate pumping of any captured liquids. The walls encircling the pads vary from approximately 4 inches in height at the drive over entrance to the pad to approximately eleven and one-half inches in height at the edge of the dry sump. The "dry sump" in each pad is to provide secondary containment only, has no discharge and must be pumped in the event any liquid is captured. The pads are coated with an impermeable epoxy coating and are covered by a single, metal "pole barn."

F.2.1.6 TA-54, Area G, Container Storage Areas (TA-54-226, -229, -230, -231, -232, and Pads 9 & 10)

The container storage areas (CSAs) at TA-54, Area G (TA-54-226, -229, -230, -231, and -232) will be used for the storage of waste containers, including drums and fiberglass-reinforced plywood (FRP) boxes, will be segregated by LANL waste code prior to being placed in a storage dome. If any containers require overpacking or repackaging, the overpack or repackaging container will be labeled with barcodes that identify the original waste container. In the transportainers or modular units at Storage Pads 9 & 10, waste containers will be stored along the length of the walls of the storage units allowing a center aisle for inspection and passage of emergency equipment. Drums will not be stacked within the modular units. None of the wastes to be placed in the storage domes will be incompatible wastes and no wastes will be placed in containers that previously held incompatible wastes. TA-54-230, TA-54-231, and Storage Pads 9 & 10 will be used to store drums and FRP crates that potentially contain liquids. The remaining CSAs will store only solid waste.

F.2.1.7 TA-50-69 Indoor and Outdoor Container Storage Areas

The indoor and outdoor storage areas associated with TA-50-69 are used for storage of TRU mixed waste, low-level mixed waste, and hazardous waste. Potentially incompatible wastes will be segregated on self-containment pallets at both the indoor and outdoor storage areas. Potential liquid-bearing waste containers will be stored on self-containment pallets at both the indoor and outdoor storage areas.

F.2.1.8 TA-54-38 Container Storage Areas

The four container storage areas at TA-54-38 are used for storage of TRU mixed waste and low-level mixed waste. Potentially incompatible wastes will be segregated on self-containment pallets at each storage area. Potential liquid-bearing waste containers will be stored on self-containment pallets at each storage area.

F.2.2 General Container Management Practices

All hazardous recyclable materials are stored as hazardous waste until such time as they are recycled. They are placed in the same segregated storage areas as the other waste.

Any bulging drums are handled in accordance with accepted practice and Laboratory procedures. Generally this means that personnel will follow such practices as slowly venting the drum as it is being opened and personnel wearing protective clothing and splash guards.

Any spills resulting from the transfer/storage of waste will be cleaned up in accordance with Attachment D.

Inspections will be conducted and aisle space will be maintained in accordance with Permit Attachment B.

Off-site shipments of waste will occur at either the given storage area directly or from the transport pad at TA-54, Area L. This will avoid unnecessary transport on Pajarito Road.

Repackaging of waste will generally occur adjacent to the storage area the waste was removed from. Other possible areas include the TA-54, Area L, sampling pad (TA-54-36), and transport pad (TA-54-58); and the TA-50-69 indoor storage area. Repackaging can range from overpacking a leaking container to off-site contractors repackaging the lab pack waste to meet incinerator specifications.

Permit Module III provides additional requirements all container storage areas.

EPA I.D. Number (enter from Page 1): NM0890010515

Secondary ID Number (enter from Page 1): ☐☐☐☐☐☐☐☐☐☐☐☐

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes			
				(1) Process Codes (enter)			(2) Process Description (If a code is not entered in D[1])
Technical Area (TA) 54-226, -229, -230, -231, -232, and Storage Pad 9							
1	F001	1,301	P	S01			
2	F002						
3	THIS LINE INTENTIONALLY LEFT BLANK						
4	D007	406,940	P	S01			
5	D008						
6	THIS LINE INTENTIONALLY LEFT BLANK						
7	D006	311,765	P	S01			
8	D007						
9	D008						
10	THIS LINE INTENTIONALLY LEFT BLANK						
11	D001	101,995	P	S01			
12	THIS LINE INTENTIONALLY LEFT BLANK						
13	D003	71,062	P	S01			
14	THIS LINE INTENTIONALLY LEFT BLANK						
15	D008	96,700	P	S01			
16	THIS LINE INTENTIONALLY LEFT BLANK						
17	D008	190,691	P	S01			
18	THIS LINE INTENTIONALLY LEFT BLANK						
19	D008	434,743	P	S01			
20	THIS LINE INTENTIONALLY LEFT BLANK						
21	D004	2,413,802	P	S01			
22	D007						
23	D008						
24	D011						
25	F001						
26	F002						
27	F003						
28	F005						
29	THIS LINE INTENTIONALLY LEFT BLANK						

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes			
				(1) Process Codes (enter)			(2) Process Description (If a code is not entered in D[1])
30	D007	313,787	P	S01			
31	F001						
32	F002						
33	F005						