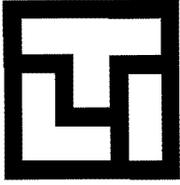


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300 UNION BOULEVARD, SUITE 600, LAKEWOOD, CO 80228

# TECHLAW INC.

PHONE: (602) 230-8000  
FAX: (602) 230-1799

April 12, 2002

Mr. James Bearzi  
Mr. David Cobrain  
State of New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East  
Building One  
Santa Fe, New Mexico 87505-6303



Reference: Work Assignment No. Y515, 06082.350; State of New Mexico Environment Department, Santa Fe, New Mexico; General Permit Support Contract; Research and Permitting Support for the Los Alamos National Laboratory, Permit Conditions and Schedule of Compliance for the Los Alamos National Laboratory Technical Area 55 Part B Permit Application, Task 9 Deliverable.

Dear Mr. Bearzi and Mr. Cobrain:

Enclosed please find the deliverable for the above-referenced work assignment. The deliverable consists of permit conditions and a schedule of compliance for the "Los Alamos National Laboratory (LANL) Technical Area 55 (TA-55) Part B Permit Application, Dated January 2002, herein referred to as the Application.

Since the Application was lacking in detail and was found to be severely deficient, most of the technical comments were incorporated into the schedule of compliance. We have provided this schedule at the request of NMED, but are somewhat concerned that several major deficiencies, which are addressed as compliance schedules, are of such a magnitude that the Application should be revised. In addition, it may be difficult to justify the number and magnitude of the compliance issues to an administrative hearing officer, as well as the general public. Most of the compliance schedules (calendar days) listed in section B of the compliance schedule are based on best technical estimates and engineering judgment. NMED may wish to modify the specified calendar days. Also, the final format for the permit is not clear, thus at some time in the future it may be necessary to modify the format or numbering of the permit conditions and compliance

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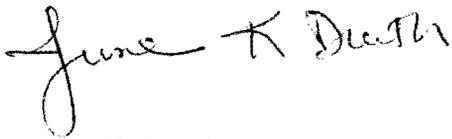
schedule.

For the container storage areas, text was included in the schedule of compliance for defining corrective actions. However, upon discussion with Mr. Carl Will (NMED), NMED may wish to remove these comments, applying the corrective action process to only historical SWMUs and not the active units. The cleanup of the active units, as included in this Application, would be addressed in closure.

The document is formatted in Word. The permit conditions were formatted in a module (Module #) format while the compliance schedule follows the format of an attachment to a module (Attachment X of Module II, General Facility Conditions). For each section, permit modifications are followed by the schedule of compliance.

The deliverable was emailed to each of you on Friday, April 12, 2002 at [James Bearzi@nmenv.state.nm.us](mailto:James_Bearzi@nmenv.state.nm.us) and [David Cobrain@nmenv.state.nm.us](mailto:David_Cobrain@nmenv.state.nm.us), respectively. If you have any questions, please call me at (303) 763-7188.

Sincerely,

A handwritten signature in cursive script that reads "June K. Dreith".

June K. Dreith  
Program Manager  
Enclosure

cc: Mr. Carl Will, NMED  
Mr. John Keiling, NMED  
Ms. Paige Walton, TechLaw  
Mr. B. Jordan, TechLaw Central Files  
Denver Files

**TASK 9 DELIVERABLE**

**PERMIT CONDITIONS AND SCHEDULE OF COMPLIANCE FOR THE  
LOS ALAMOS NATIONAL LABORATORY TECHNICAL AREA 55  
PART B PERMIT APPLICATION**

**NMED-HSW Corrective Action Chapter of the  
RCRA Permit Renewal for the Los Alamos National Laboratory**

**Submitted by:**

**TechLaw, Inc.  
300 Union Boulevard, Suite 600  
Lakewood, CO 80228**

**Submitted to:**

**Mr. David Cobrain  
Mr. James Bearzi  
State of New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East  
Building One  
Santa Fe, New Mexico 87505**

**In response to:**

**Work Assignment No. Y513, 06082.600**

**April 2002**

### **III. Module III – Container Storage**

#### **III.A. Designated Container Storage Units**

This module authorizes the storage and management of hazardous, mixed low-level and/or mixed TRU waste containers in the container storage areas of the Los Alamos National Laboratory's (LANL) Technical Area 55 (TA-55) described below. Specific facility and process information for the storage and management of these wastes is incorporated in the Application Container Storage Section 2.0, and Attachments F.1 and G.

#### **III.A.1. Designated Container Storage Areas**

TA-55 consists of eight container storage areas: B40, B05, K13, B45, FLO1, and the vault, which are located in Building 4 (TA-55-4); a storage pad located northwest of TA-55-4; and Building 185 (TA-55-185).

The Permittees shall store and manage hazardous, mixed low-level, and/or mixed TRU waste in the eight TA-55 container storage areas, provided the Permittees comply with the following conditions:

III.A.1.a. B40 Storage Containers – the Permittees shall store hazardous, mixed low-level, and mixed transuranic (TRU) waste, which may contain some liquids, in containers specified in the Application, Attachment G.1.1 and described in Section 2.1.2. These containers are limited to 15-, 30-, 55-, and 85-gallon drums, large waste boxes, and standard waste boxes (SWBs). Any other container must be identified and provided for approved use as outlined in the Module II, Attachment A, Container Storage Area Schedule of Compliance, B.2.a.

III.A.1.b. B05 Storage Containers - the Permittees shall store only solid (no liquids) hazardous, mixed low-level, and mixed TRU waste in containers specified in the Application, Attachment G.1.2 and described in Section 2.1.2. These containers are limited to 30-, 55-, and 85-gallon drums, large waste boxes, and SWBs. Any other container must be specifically identified and provided for approved use as outlined in the Module II, Attachment A, Container Storage Area Schedule of Compliance, B.2.a.

III.A.1.c. K13 Storage Containers - the Permittees shall store hazardous, mixed low-level, and mixed TRU waste, which may contain some liquids, in containers specified in the Application, Attachment G.1.3 and described in Section 2.1.2. These containers are limited to steel cans, 30-, 55-, and 85-gallon drums, and large waste boxes. Any other container must be specifically identified and submitted for approved use as outlined in the Module II, Attachment A, Container Storage Area Schedule of Compliance, B.2.a.

III.A.1.d. B45 Storage Containers – the Permittees shall store only solid (no liquids) hazardous, mixed low-level, and mixed TRU waste in containers specified in the Application, Attachment G.1.4 and described in Section 2.1.2. These containers are

limited to steel cans, 55- and 85-gallon drums, and SWBs. Any other container must be specifically identified and submitted for approved use as outlined in the Module II, Attachment A, Container Storage Area Schedule of Compliance, B.2.a.

III.A.1.e. Vault Storage Containers – the Permittees shall store mixed low-level and mixed TRU waste, which may contain some liquids, in containers specified in the Application, Attachment G.1.5 and described in Section 2.1.2. These containers are limited to glass bottles, plastic bottles, steel cans, and 30- and 55-gallon drums. Any other container must be specifically identified and submitted for approved use as outlined in the Module II, Attachment A, Container Storage Area Schedule of Compliance, B.2.a.

III.A.1.f. FLO1 Storage Containers - the Permittees shall store hazardous, mixed low-level, and mixed TRU waste, which may contain some liquids, in containers specified in the Application, Attachment G.1.6 and described in Section 2.1.2. These containers are limited to 30-, 55- and 85-gallon steel drums. Any other container must be specifically identified and submitted for approved use as outlined in the Module II, Attachment A, Container Storage Area Schedule of Compliance, B.2.a.

III.A.1.g. Storage Pad Storage Containers – the Permittees shall store hazardous, mixed low-level, and mixed TRU waste, which may contain some liquids, in containers specified in the Application, Attachment G.1.7 and described in Section 2.1.2. These containers are limited to 30-, 55-, and 85-gallon drums, SWBs, and large waste boxes. Any other container, such as “various small containers”, must be specifically identified and provided for approved use as outlined in Module II, Attachment A, Container Storage Area Schedule of Compliance, B.2.a.

III.A.1.h. TA-55-185 Storage Containers – the Permittees shall store only solid (no liquids) hazardous, mixed low-level, and mixed TRU waste in containers specified in the Application, Attachment G.1.8 and described in Section 2.1.2. These containers are limited to 30-, 55-, and 85-gallon steel drums, large waste boxes, and SWBs. Any other container must be specifically identified and submitted for approved use as outlined in the Module II, Attachment A, Container Storage Area Schedule of Compliance, B.2.a.

III.A.1.i. Storage Container Emission Controls - all containers used to contain hazardous waste shall control air pollutant emissions from each container in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264 Subpart CC). Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.1086) all hazardous waste containers shall meet the appropriate container control, based on container capacity, of either Container Level 1, Container Level 2 or Container Level 3 standards.

All containers holding mixed TRU wastes shall be vented with high-efficiency particulate air (HEPA) filters to allow venting of gases, but preventing release of airborne particles.

### III.A.2 Storage Structures, Locations and Capacities

The Permittees may store hazardous, mixed low-level and/or mixed TRU waste in the designated areas within the fence line of TA-55: B40, B05, K13, B45, FLO1, Storage pad and TA-55-185. The Permittees may store quantities of hazardous, mixed low-level, and/or mixed TRU waste at these locations within TA-55 not to exceed the maximum capacities as provided in the Application, Section 2.1.1. Area B40 shall not exceed a capacity of 21,500 gallons of waste, which may contain some liquids. Area B-5 shall not exceed a capacity of 3,000 gallons of solid (no liquids) waste. Area K13 shall not exceed a capacity of 3,400 gallons of waste, which may contain some liquids. Area B45 shall not exceed a capacity of 3,400 gallons of solid (no liquids) waste. Area FLO1 shall not exceed a capacity of 666 gallons of waste, which may contain some liquids. The Storage Pad shall not exceed a capacity of 135,000 gallons of waste, which may contain some liquids. TA-55-185 shall not exceed a capacity of 55,000 gallons of solid (no liquids) waste.

The Permittees may store mixed low-level and/or mixed TRU waste in the Vault area of TA-55. The Permittees may store quantities of mixed low-level and/or mixed TRU waste at this location within TA-55 not to exceed the maximum capacity as provided in the Application, Section 2.1.1. The Vault shall not exceed a capacity of 4,000 gallons of waste, which may contain some liquids.

III.A.2.a Storage of Containers – containers shall be stored in a manner preventing contact with any free liquids. Containers at areas B40, K13, FLO1, the Vault and the Storage Pad, which may contain liquid and/or potentially liquid-bearing wastes, shall be placed on self-containment pallets/units or in a cabinet, as described in the Application, Attachment G.2. A tertiary containment system, consisting of a recessed concrete floor, shall be present for areas B40, K13, FLO1 and the Vault. Containers that are not elevated by design will be elevated to prevent contact with freestanding liquids, in accordance with the Application Attachment G.2.

III.A.2.b Minimum Aisle Space – the Permittees shall maintain a minimum aisle space of 3 feet between rows.

III.A.2.c Storage Configuration – the Permittees shall maintain storage configurations as submitted in accordance with Module II, Attachment A, Container Storage Area Schedule of Compliance, B.1.

The Permittees shall stack 55-gallon drums and SWBs to a maximum of two high. 85-gallon drums shall not be stacked. Large waste boxes shall be stacked to a maximum of two high unless size and weight restrictions prohibit stacking due to safety concerns. The Permittees shall establish a maximum size and weight for the large waste boxes to be stacked two high.

### III.A.3 Container Inspection

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.31), the Permittees shall conduct, at a minimum, a weekly inspection of each of the container storage areas.

Inspections shall include checking for leaking containers and for deterioration of containers and the containment systems, as caused by corrosion or other factors and for items as listed in the Application, Attachment C.2.2. Inspections will be conducted daily when waste handling occurs in accordance with the procedures in the Application, Attachment C.2.1. The Permittees shall maintain written documentation of the inspections in accordance with the Application, Attachment C.1.1.

#### III.A.4 Preparedness and Prevention

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.35), the Permittees shall ensure that each unit has been or will be designed, constructed, maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous or non-hazardous waste constituents to the air, soil or surface water which could threaten human health or the environment.

The Permittees shall comply with the general facility operations and waste management practices as provided in the Application, Attachment K.

#### III.B. Permitted and Prohibited Waste Identification

##### III.B.1. Permitted Waste

The Permittees may store and manage hazardous, mixed low-level and mixed TRU wastes, which may contain some liquids, at B40, K13, FLO1, and the Storage Pad; hazardous, mixed low-level and mixed TRU solid wastes at B05, B45, and TA-55-185; and mixed low-level and mixed TRU wastes, which may contain some liquids, at the Vault. All waste containers shall contain appropriate U.S. EPA Hazardous Waste Numbers.

##### III.B.2 Prohibited Waste

The Permittees shall not store or manage any hazardous, mixed low-level or mixed TRU waste that does not comply with Permit Condition III.B.1.

The Permittees shall not store any wastes with the EPA Hazardous Waste Numbers F020, F021, F022, F023, F026 or F027.

#### III.C. Condition of Containers

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.171), the Permittees shall ensure that any waste container that does not satisfy container condition and inspection requirements will be overpacked or the waste repackaged in a container in good condition, and that the materials of the overpack container will be compatible with both the waste and other container. The overpack container and/or new container shall also be compatible and resistant to environmental conditions.



No containers shall be stored directly on a ground surface or other surface without an impervious base and with secondary containment.

All containers holding hazardous or mixed low-level or mixed TRU waste shall be kept from contact with standing liquids, and the Permittees shall remove all accumulated liquid in a timely manner to prevent overflow of the collection systems.

Containers stored at the TA-55-4 container storage areas B05, B45, and TA-55-185 will only be used to store solid wastes that are cemented, heterogeneous and/or vitrified. Documentation shall be provided which verifies the absence of free liquids in containers to be stored at B05, B45, and TA-55-185.

### III.G. Inspection Schedules and Procedures

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.174), and in accordance with Attachment C.2 of the Application, the Permittees shall conduct, at a minimum, a weekly inspection of each container storage area within TA-55, to identify leaking containers, deterioration of containers, and loss of integrity of containment systems.

The Permittees shall maintain the original inspection records for a minimum of three years from the date of inspection.

### III.H. Special Requirements for Ignitable, Reactive and Incompatible Waste

The Permittees shall ensure that containers holding ignitable or reactive wastes shall be located at least 50 feet from the TA-55 property line at all times. The Permittees shall also ensure that containers with ignitable or reactive wastes are protected from sources of ignition or reaction.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.177(c)), storage containers with incompatible waste shall be separated from other material or be protected from other materials by means of a berm, dike, wall or another device as defined in this permit and associated attachments.

The Permittees shall ensure that no incompatible wastes are mixed and no waste shall be placed in a container that previously held an incompatible waste.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.1101(a)(3)), the Permittees shall ensure that in areas managing incompatible wastes, the incompatible wastes will not cause secondary containment systems to leak, corrode or fail.

### III.I. Corrective Action for Solid Waste Management Units

Corrective actions shall be implemented in accordance with information requested in the Container Storage Area Schedule of Compliance B.7.

### III.J. Closure of the Container Storage Areas

Upon closure of each of the container storage areas at TA-55, the Permittees shall remove all hazardous, mixed low-level waste and/or mixed TRU waste and waste residues from the areas in accordance with the Closure Plan for the TA-55 Container Storage Units, Application Attachment F.1 and Compliance Schedule B-8 and as required by 20.4.1.500 NMAC and 20.4.1.900 NMAC (incorporating 40 CFR 264 and 270.14(b)(13), respectively). The Permittees shall ensure the adequate removal of wastes to meet the closure performance standards.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.178), the Permittees shall monitor and/or sample for and either decontaminate or remove all soils contaminated with or containing hazardous waste, mixed low-level waste or mixed TRU waste and waste residues.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(2) and 264.113(a) and (b)), the Permittees shall ensure 1) all hazardous waste will be treated, removed off-site, or disposed of on-site within 90 days from receipt of the final volume of waste at each unit and 2) all closure activities will be completed within 180 days from receipt of the final volume of waste at each unit.

In the event that clean closure is not obtainable and pursuant to 20.4.1.5 NMAC (incorporating 40 CFR 264.117 through 264.120), the Permittees shall meet the requirements for submissions of a survey plat and a post-closure monitoring plan.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.113(a) and (b)), if the planned closure for TA-55 is expected to exceed the 90 days for treatment, removal or disposal of wastes and/or the 180 days for completion of closure activities, a petition for a schedule of closure that justifies a longer period of closure time will be submitted by the Permittees. An extension may only be granted by the Secretary if one of the following is demonstrated: closure activities require longer than 90 or 180 days as described above, the unit has the capacity to receive additional wastes, there is a reasonable likelihood that another person or operator will recommence operation of the site within one year, or closure would be incompatible with continued operation. The Permittees shall also demonstrate that all steps have and shall be taken to prevent threat to human health and the environment from the unclosed, but inactive, unit.

The Permittees shall ensure that pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(c)), written notification of a request for a permit modification to authorize a change in operating plans, facility design or the approved closure plan will be submitted to the Secretary for review and approval prior to implementation of any changes. The Permittees shall submit a request for a permit modification for use of any criteria to demonstrate compliance for closure that has not been permitted in the Application.

### III.K. Contingency Plan

Emergency equipment at TA-55 shall be maintained as provided in Tables E-1 through E-4 of the Application. The Permittees shall also follow the contingency plan addressed in the "LANL General Part B Permit Application", Revision 1.0, and in accordance with 20.4.1.900 NMAC (incorporating 40 CFR 270.14(b)(7)) and 20.4.1.500 NMAC (incorporating 40 CFR 264.50 through 264.56 and 264.52(b)).

Module II – General Facility Conditions  
Attachment A – Container Storage Area Schedule of Compliance

A. DEFINITIONS

For purposes of this Container Storage Area Schedule of Compliance, the following definitions shall apply:

**“Release”** means any spills, leaks, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing of hazardous waste (including hazardous constituents), mixed low-level waste, or mixed TRU waste into the environment (including the abandonment or discarding of barrels, containers and other closed receptacles containing hazardous waste, hazardous constituents or radiological constituents).

**“Solid waste management unit”** means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any areas at or around a facility at which solid wastes have been routinely and systematically released and include the container storage areas.

**“Hazardous waste”** means a solid waste, or combination of solid wastes, which because of the quantity, concentration or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, incapacity reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. Hazardous wastes include hazardous constituents, as defined below by the term “hazardous constituent”.

**“Hazardous constituent”** means any constituent identified in Appendix VIII of 40 CFR Part 261 and/or in Appendix IX of 40 CFR Part 264.

**“Mixed low-level waste”** means waste that contains radioactivity and is not classified as high-level waste, transuranic waste, spent nuclear fuel or 11(e)(2) by-product material as defined in DOE Order 5820.2A, “Radioactive Waste Management”.

**“TRU waste”** means waste that is contaminated with alpha emitting transuranic (TRU) radionuclides with half-lives greater than 20 years and concentrations greater than 100 nanocuries per gram at the time of assay and has atomic numbers greater than 92, as defined in DOE Order 5820.2A, “Radioactive Waste Management”.

**“Mixed TRU waste”** means waste that contains both a hazardous and a TRU waste component.

**“Permittees”** include Los Alamos National Laboratory and the University of California.

**“Facility”** applies to TA-55 at the Los Alamos National Laboratory.

**“Secretary”** means the Director of the New Mexico Environment Department, or his/her designee.

If subsequent to the issuance of this permit, regulations are promulgated which redefine any of the above terms, the Secretary may, at its discretion, apply the new definition to the permit.

## B. COMPLIANCE SCHEDULES

The Permittees shall only be granted a permit after all compliance schedule issues have been approved by the Secretary. A summary of the compliance schedules is provided in Table B-1.

### 1) Storage Configuration

The Permittees shall provide to the Secretary within 90 calendar days storage configuration diagrams for each of the eight container storage areas within TA-55. The diagrams shall be provided for each storage area identified in the Application and shall include the following information:

- a) An engineering drawing for each specific storage location/structure showing basic design features (e.g., airlock personnel entry) and parameters, specific dimensions, specific materials of construction, sloping and direction of sloping and berms;
- b) Materials for building/structure bases and foundations;
- c) A layout of container placement, by container type;
- d) Number of each type of container;
- e) Location of aisles;
- f) Location of containment systems; and
- g) Volume of waste and waste container type.

### 2) Storage Containers

- a) The Permittees shall provide to the Secretary within 30 calendar days a list of any additional waste containers, not specifically identified in the Application Section 2.1.2 or Attachment G, which may be used to store waste at the container storage areas at TA-55. The type of waste to be stored in these containers, the number of containers anticipated and the location (specific storage container area) where the containers will be used shall also be provided.
- b) The Permittees shall provide to the Secretary within 30 calendar days the methodology, in addition to acceptable knowledge (AK), to determine the presence of free liquid in all container types and the criteria that will be used to designate a container as being free of liquids.

- c) The Permittees shall provide to the Secretary within 60 calendar days details regarding containers (those elevated by design) that do not require elevation to prevent contact with accumulated liquids and containers that will require placement on either a self-containment unit or within a lined cabinet.

### 3) Condition of Containers

- a) The Permittees shall provide to the Secretary within 30 calendar days the methodology that will be used to examine and/or survey the exterior surface of all waste containers to verify that the outside surfaces are free of contamination.
- b) The Permittees shall provide to the Secretary within 30 calendar days information on whether liners will be used for any/all containers. Provided information shall also include liner requirements and specifications describing the functional requirements of fitting inside the drum/container, liner material thickness and tolerances, and quality controls and required testing that will be in place to ensure liners meet the specifications (including waste and container compatibility) and quality control procedures to ensure compliance with the requirements.

### 4) Management of Containers

- a) The Permittees shall provide to the Secretary within 30 calendar days a discussion of the handling methods and any special handling equipment that may be used for each type of container to ensure waste containers will be handled in a manner that will cause not ruptures or leaks.
- b) The Permittees shall provide to the Secretary within 30 calendar days a plan for opening waste containers within a work enclosure that provides confinement, preventing any release of waste constituents. Included in this plan shall be an outline of specific waste handling requirements for opening waste containers and the work enclosure area, including any special ventilation systems and waste containment systems, for each type of waste container and waste type.
- c) The Permittees shall provide to the Secretary within 30 calendar days the maximum size and weight restrictions for large waste boxes to be stacked two high.

### 5) Containment Systems

- a) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.175(b)(1)), the Permittees shall provide to the Secretary within 60 calendar days information on the underlying base of the containment systems, and how it shall be demonstrated that the base will be free of cracks or gaps and will be sufficiently impervious to contain leaks, spills and accumulated precipitation until the collected material is detected and removed.

- b) Pursuant to 20.4.1.900 NMAC (including 40 CFR 270.15(a)(3)), the Permittees shall provide to the Secretary within 60 calendar days the capacity of the containment system relative to the number and volume of waste containers to be stored in each container storage area. Calculations demonstrating the requirements for secondary containment at each storage area shall be provided. The Permittees shall also provide calculations of the surface area and the quantities of liquid that would cover the area for each container storage area.
  - c) The Permittees shall provide to the Secretary within 60 calendar days the details regarding the isolation of waste containers from contact with any potentially accumulated liquids. This shall include a discussion of how storage areas that will not store liquid wastes will be designed to drain and remove liquids and how these containers will be kept from contact with liquids, pursuant to 20.4.1.900 NMAC (incorporating 40 CFR 270.15(b)).
- 6) Ignitable, Reactive and Incompatible Waste
- a) The Permittees shall provide to the Secretary within 30 calendar days an engineering drawing or other data that demonstrates that containers of ignitable or reactive waste will be located at least 50 feet from the TA-55 boundary.
  - b) The Permittees shall provide to the Secretary within 30 calendar days the policies that are in-place to minimize the possibility of accidental ignition and the precautions that will be taken for prevention of ignition, spontaneous ignition and radiant heat.
  - c) The Permittees shall provide to the Secretary within 30 calendar days all processes that will be used to prevent reactions that may: generate extreme heat or pressure, fire, explosions, or violent reactions; produce uncontrolled flammable fumes, dust, or gases, in sufficient quantities to threaten human health or the environment; produce uncontrolled flammable fumes, dust, or gases in sufficient quantities to pose a risk of fire or explosions; damage the structural integrity of the facility; and be a threat to human health or the environment.
  - d) The Permittees shall provide to the Secretary within 30 days safeguards that will be in-place to ensure the compatibility of incompatible wastes with secondary containment systems.
- 7) Corrective Action for Solid Waste Management Units
- a) The Permittees shall provide to the Secretary within 90 calendar days the dimensions, materials of construction, dates of operation, engineering drawings, and quantity and/or volumes of waste placed in each container storage area at TA-55.

- b) The Permittees shall provide to the Secretary within 60 calendar days:
  - i) A listing of all releases that may have occurred within any of the container storage units in TA-55;
  - ii) The date of release, type of waste(s) released, quantity or volume of waste released, nature of release; and
  - iii) Any groundwater monitoring or other analytical data available to describe the nature and extent of the release.
- c) The Permittees shall provide to the Secretary within 60 calendar days the methodology and data used to determine if there have never been any releases from the container storage areas at TA-55.
- d) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.101 and 264 Subpart S) for RCRA permitted status, the Permittees shall address the closure and corrective action of the container storage units in TA-55. The Permittees shall provide to the Secretary within 60 calendar days a corrective action plan and a schedule of compliance for the corrective actions. This shall include remediation and closure of the asphalt-covered outdoor storage pad. The corrective actions must include implementation beyond area boundaries, where necessary, to protect human health and the environment.

8) Container Storage Area Closure Plan

- a) The Permittees shall provide to the Secretary within 90 Calendar days the maximum inventory of waste, by waste type, and the maximum number of containers by container type for each container storage area at TA-55.
- b) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(4)), a detailed description for the closure of each container storage area must include the steps needed to remove or decontaminate all waste (hazardous, mixed low-level, and mixed TRU) residues and contaminated containment system components, equipment, structures and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils and criteria for determining the extent of decontamination required to satisfy the closure performance standard. The Permittees shall provide to the Secretary within 90 calendar days detailed descriptions of the closure procedures and decontamination techniques for each container storage area, a sampling and analysis plan for sampling and testing soils surrounding the container storage areas, and a plan for removing contaminated soils during either partial closure or closure of the container storage areas.
- c) The Permittees shall provide to the Secretary within 90 calendar days a Quality Assurance and Quality Control (QA/QC) plan outlining the procedures for all soil

sampling, decontamination and decontamination verification. The QA/QC plan shall also include laboratory validation and data validation procedures.

- d) The Permittees shall provide to the Secretary within 90 calendar days a revised schedule for closure activities for TA-55. The schedule shall be revised to be comprehensive of all closure and partial closure activities, including container storage areas that may be left in service during partial closure, sampling, analysis and potential removal of contaminated soils surrounding the container storage areas, data validation, treatment of wastes, and transporting wastes to disposal sites.
- e) The Permittees shall provide to the Secretary within 90 calendar days a revised decontamination plan for TA-55. In addition to the information provided in the Application, this plan must address the following items, general to all container storage areas within TA-55:
  - i) Personal protective equipment (chemical and radiological) needed at each container storage area and a detailed discussion of the radiation and chemical monitoring equipment and monitoring requirements that will be used at each container storage area;
  - ii) Training requirements and medical monitoring requirements for workers;
  - iii) Expected contaminants of concern at each container storage area;
  - iv) Types of monitoring equipment/instruments that will be employed for radiological and chemical monitoring/characterization and how these monitoring instruments will be used (e.g., scanning percent) to determine the presence of contamination and hot spots;
  - v) Chemical make-up of the wash solution to be used in the decontamination of portable equipment and the appropriateness of this solution for organics, inorganics and radionuclides;
  - vi) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(4) and 264.178), methods for sampling and testing surrounding and underlying soils (affected or unaffected) at each container storage area shall be provided. Verification of these soils to closure performance standards shall be performed in order to demonstrate that all soils surrounding the container storage areas are free of contamination or exhibit acceptable levels of contamination. Include the number and locations of background soil samples and the analytical parameters and appropriate analytical methods; and
  - vii) Monitoring of storage structures and inspection for any cracks or conditions that would potentially lead to loss of decontamination liquids for any contamination present prior to sealing or other treatment.
- f) The Permittees shall provide to the Secretary within 90 calendar days a revised decontamination plan for the indoor storage area at TA-55. In addition to the information provided in the Application and in Compliance Schedule 8.e, this plan must address the following items:

- i) Mitigative measures that will be used to ensure that potentially contaminated wash water is not absorbed into wooden pallets during decontamination;
  - ii) In addition to a portable berm, all alternative methods for collecting and containing wash water;
  - iii) Method for removal of wash water and decontamination and verification of recessed areas (sumps) where wash water is allowed to collect.
  - iv) Monitoring of central drainage systems and other drain lines connected to the sumps and other recessed areas; and
  - v) Decontamination and/or removal and disposal of items shown to have fixed contamination.
- g) The Permittees shall provide to the Secretary within 90 calendar days a revised decontamination plan for the vault in TA-55. In addition to the information provided in the Application and in Compliance Schedule 8.e, this plan must address a detailed description of alternative decontamination measures that will be used in decontaminating the vault.
- h) The Permittees shall provide to the Secretary within 90 calendar days a revised decontamination plan for the outdoor storage pad at TA-55. In addition to the information provided in the Application and in Compliance Schedule 8.e, this plan must address the following items:
- i) A detailed discussion of all procedures that will be used in decontaminating the asphalt-covered storage pad;
  - ii) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(4)), if the asphalt is removed, sampling of the soil underlying the removed asphalt must be conducted and all contaminated soil must be removed. Include a discussion of sampling of underlying soils, removal methods for any contaminated soils, and verification procedures for remaining soils;
  - iii) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(4)), methods for sampling of soils surrounding the storage pad, number and locations for soil samples, and removal of contaminated soils, and verification of removal;
  - iv) Sampling and analysis methods to determine whether leaching of constituents from the asphalt is the source of contamination of wash water; and
  - v) A discussion and justification for alternative methods for demonstration of decontamination.
- i) The Permittees shall provide to the Secretary within 90 calendar days a revised decontamination verification plan for the container storage structures within TA-55. In addition to the information provided in the Application and in Compliance Schedule 8.e, this plan must address the following items:
- i) Potential contaminants that may be present at each container storage area;
  - ii) Significance of increase of analytes in contaminated wash water is to be determined using statistical methods defined in U.S. EPA's publication SW-

- 846: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846). The plan shall provide the specific statistical methods that will be used to determine if wash waters show a significant increase in analytical parameters when compared to clean wash water solutions. Also, the plan shall define a significant increase in accordance with SW-846;
- iii) Potential uncertainties associated with the wash water method of decontamination verification, including dilution of constituent and detection of hot spots;
  - iv) Radiological decontamination verification. Include a discussion of swipes on structures and other equipment for loose contamination and hot spots (pursuant to Nuclear Regulatory Guide 1.86), number of swipes, amount of coverage of item requiring swiped, the method for swipe analysis, and all other radiological surveying to be used in verifying no fixed or loose contamination remains above acceptable limits;
  - v) Verification for hazardous waste residues shall be verified using swipe analysis. Include how many swipes will be taken, percent surface coverage and method of analysis;
  - vi) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112 (b)(4)), sampling of soils underlying the container storage areas must be conducted. All contaminated soil must also be removed and verification sampling conducted. The plan shall include a discussion of sampling of underlying soil, particularly at the outdoor storage pad; removal methods for any contaminated soils; and verification procedures for the remaining soils;
  - vii) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112 (b)(4)), soils surrounding the container storage areas shall be sampled and tested for potential contamination. The plan shall discuss how soils surrounding the storage locations will be sampled and verified for potential cross-contamination as a result of decontamination activities;
  - viii) References for all sampling and analysis procedures, in addition to those provided for SW-846, that will be used;
  - ix) Criteria that will be applied to determine when soil and/or sediment sampling is appropriate and required and the number and location for soil and/or sediment samples;
  - x) The frequency of analysis of used wash water and the minimum and maximum surface area that will be cleaned using one volume of wash water; and
  - xi) The methodology and instrumentation for screening sample containers surfaces for radiological contamination and the criteria that will be used to determine if decontamination is necessary.

Table B-1. Summary of Compliance Schedules			
Condition	Category	Summary	Compliance Schedule (days) <sup>a</sup>
B-1	Storage Configuration	Storage configuration for TA-55	90
B-2a	Storage Containers	Comprehensive list of storage containers	30
B-2b	Storage Containers	Methodology for determination of free liquids	30
B-2c	Storage Containers	Container structure and elevation requirements	60
B-3a	Condition of Containers	Visual examination and exterior examination	30
B-3b	Condition of Containers	Container liners	30
B-4a	Management of Containers	Container handling	30
B-4b	Management of Containers	Work enclosures and opening of containers	30
B-4c	Management of Containers	Size and weight restrictions	30
B-5a	Containment Systems	Containment system bases	60
B-5b	Containment Systems	Capacity of containment systems	60
B-5c	Containment Systems	Separation of waste containers from accumulated liquids	60
B-6a	Ignitable, reactive and Incompatible Waste	Location of waste	30
B-6b	Ignitable, reactive and Incompatible Waste	Policies and precautions	30
B-6c	Ignitable, reactive and Incompatible Waste	Processes for reaction prevention	30
B-6d	Ignitable, reactive and Incompatible Waste	Safeguards for secondary containment	30
B-7a	Corrective Action	Container storage area design, operation and waste information	90
B-7b	Corrective Action	Releases and nature and extent of releases	60
B-7c	Corrective Action	Releases	60
B-7d	Corrective Action	Corrective action plan and closure for TA-55	60

B-8a	Container Storage Area Closure Plan	Waste inventory	90
B-8b	Container Storage Area Closure Plan	Soil sampling and analysis plan	90
B-8c	Container Storage Area Closure Plan	Quality Assurance/Quality Control plan	90
B-8d	Container Storage Area Closure Plan	Schedule for closure activities	90
B-8e	Container Storage Area Closure Plan	Decontamination plan, general to all areas	90
B-8f	Container Storage Area Closure Plan	Decontamination plan, Indoor Storage Area	90
B-8g	Container Storage Area Closure Plan	Decontamination plan, Vault	90
B-8h	Container Storage Area Closure Plan	Decontamination plan, Outdoor Storage Pad	90
B-8i	Container Storage Area Closure Plan	Verification plan	90
Notes: <sup>a</sup> Compliance schedules are based on calendar days.			

## IV. Module IV – Storage Tank System

### IV.A. Designated Storage Tank System

This module authorizes the storage and management of mixed low-level waste and/or mixed transuranic (TRU) waste in the storage tank system of the Los Alamos National Laboratory's (LANL) Technical Area 55 (TA-55) described below. Specific facility and process information for the storage and management of these wastes is incorporated in the Application Storage Tank System Section 2.2, and Attachments F.2 and H.

The Permittees shall store and manage mixed low-level and/or mixed TRU waste in the storage tank system, provided the Permittees comply with the following conditions:

#### IV.A.1. Storage Tank System

The TA-55 storage tank system consists of four components: the evaporator glove box, cementation unit pencil tanks, pencil tanks, and the vitrification unit slab tanks, which are located in Building 4 (TA-55-4), Rooms 401 and 434A. The Permittees shall design, construct, operate, maintain, and close the storage tank system according to the detailed plans and reports contained in the Application, Section 2.2, Appendices F.2 and H, and Supplements H-1 through H-4.

The storage tank system shall have a maximum capacity of 336 gallons and shall be used to store evaporator bottom solutions prior to stabilization in either the cementation unit or the vitrification unit. Waste solutions shall be stored in the evaporator glove box tank until radionuclide, oxide and metals sampling and analysis is conducted to confirm radionuclide concentrations and chemical concentrations. If radionuclide concentrations are below the discard limit, the waste shall be transferred to the cementation pencil unit tanks or the pencil unit tanks, depending on type of treatment (cementation or vitrification), where the waste shall remain pending the chemical analysis results. Wastes to be treated via cementation shall be transferred directly from the cementation pencil unit tanks to the cementation unit. Waste to be vitrified shall be transferred to the vitrification unit slab tanks prior to vitrification in the unit. For any waste with radionuclide concentrations above the discard limit, the wastes shall be re-circulated.

The storage tank system shall be connected to three main piping systems: solution feed, ventilation, and vacuum piping systems. Waste transfer and the piping system shall be used and maintained as described in the Application Attachment H.1.

IV.A.1.a. Evaporator Glove Box Tank Component - the evaporator glove box tank component is considered an existing tank and shall be subject to the requirements of 20.4.1 NMAC (incorporating 40 CFR 264.191).

The Permittees shall design, construct, operate, and maintain the evaporator glove box tank according to the detailed plans and reports contained in the Application, Appendix H.1.1 and Supplement H-1.

The evaporator glove box tank shall be located in the northwest corner of TA-55-4, Room 401, and shall consist of two welded-steel trays, eight glass columns, and associated ancillary equipment. The maximum capacity of the evaporator glove box tank shall not exceed 71 gallons.

The Permittees shall ensure that no external portions of the tank system are in contact with either soil or water.

IV.A.1.b. Cementation Unit Pencil Tanks Component – the cementation unit pencil tanks are a new tank system and shall be subject to the requirements of 20.4.1 NMAC (incorporating 40 CFR 264.192).

The Permittees shall design, construct, operate, and maintain the cementation unit pencil tanks, piping and ancillary equipment, and the foundation and support for the system according to the detailed plans and reports contained in the Application, Appendix H.1.2 and Supplements H-2A, H-2B, and H-2C.

The cementation unit pencil tanks shall consist of five vertical tanks located perpendicular to the west wall of TA-55-4 in Room 401. Each cementation unit pencil tank shall not exceed a working capacity of 13 gallons.

IV.A.1.c. Pencil Tanks Component – the pencil tanks are a new tank system and shall be subject to the requirements of 20.4.1 NMAC (incorporating 40 CFR 264.192).

The Permittees shall design, construct, operate, and maintain the pencil tanks, piping and ancillary equipment, and the foundation and tank support for the system according to the detailed plans and reports contained in the Application, Appendix H.1.3 and Supplement H-3.

The pencil unit tanks shall consist of ten vertical tanks located perpendicular to the west wall of TA-55-4 Room 401. Each pencil tank shall not exceed a maximum capacity of 13 gallons.

IV.A.1.d. Vitrification Unit Slab Tanks Component - the vitrification unit slab tanks are a new tank system and shall be subject to the requirements of 20.4.1 NMAC (incorporating 40 CFR 264.192).

The Permittees shall design, construct, operate, and maintain the vitrification unit slab tanks, piping and ancillary equipment, and the foundation and tank support for the system according to the detailed plans and reports contained in the Application, Appendix H.1.4 and Supplement H-4.

The vitrification unit slab tanks shall consist of two slab tanks and associated ancillary equipment and piping. Both slab tanks shall store evaporator bottom solutions, consisting of mixed TRU waste, and shall not exceed a capacity of 33 gallons.

## IV.B. Permitted and Prohibited Waste Identification

### IV.B.1. Permitted Waste

The Permittees may store up to 336 gallons of mixed low-level and/or mixed TRU waste solutions in the storage tank system, including the evaporator glove box tank, the cementation unit pencil tanks, the pencil tanks, and the vitrification unit slab tanks, prior to stabilization in the cementation unit or the vitrification unit. The Permittees shall ensure that all waste solutions bear the appropriate EPA Hazardous Waste Numbers, as contained in the LANL General Part A Permit Application.

### IV.B.2. Prohibited Waste

The Permittees shall not store or manage any hazardous, mixed low-level or mixed TRU waste that does not comply with Permit Condition IV.B.a.

The Permittees shall not store or manage any mixed wastes with organic concentrations of 10 percent or greater by weight.

## IV.C. Secondary Containment and Integrity Assessment

The Permittees shall maintain an external liner system for secondary containment. This system shall consist of Rooms 401 and 434A in TA-55-4. The containment system shall completely surround all of the storage tank components and associated ancillary equipment.

The Permittees shall ensure the containment system is sufficient to contain 100 percent of the largest tank within its boundary and is sloped to allow the collection of fluids.

The Permittees shall maintain the reinforced concrete floor that will serve as the secondary containment free of cracks and gaps.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.193(b)(3)), all hazardous wastes and/or accumulated liquids shall be removed from the secondary containment system within 24 hours to prevent harm to human health and the environment. Adequate information shall be provided to the Secretary if removal of released waste or accumulated liquids cannot be accomplished within 24 hours. If approved by the Secretary, liquids and waste shall be removed in as timely a manner as possible.

## IV.D. Operating Requirements

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.194(a)), the Permittees shall not place hazardous, mixed low-level, mixed TRU waste, and/or treatment reagents into the tank system if they could cause the tank, its ancillary equipment, or containment system to rupture, leak, corrode, or otherwise fail.

The Permittees shall prevent spills and overflows from the tank system and the containment system using the methods provided in the Application, Attachment H.3.

#### IV.E. Response to Leaks or Spills

If in the event there has been a leak or spill from any of the storage tank system components, the Permittees shall immediately remove from service the affected component and initiate the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.196):

- The Permittees shall stop the flow of waste into the system and inspect the system to determine the cause of the release;
- The Permittees shall remove waste from the system within 24 hours of the detection of the leak to prevent further release and to allow inspection and repair of the system. If the Permittees find it impossible to meet this requirement, the Secretary shall be contacted, wherein the Permittees shall provide adequate demonstration that a longer time period is required;
- All collected waste that is RCRA hazardous waste shall be managed in accordance with applicable requirements of 20.4.1.500 NMAC (incorporating 40 CFR 262 through 264);
- The Permittees shall contain visible releases to the environment and shall immediately conduct a visual inspection of all releases to the environment; and
- In the event there is a release to the environment, the Permittees shall prevent further migration of the leak or spill to soils or surface water and shall remove and properly dispose of any visible contamination of the environmental media.

The Permittees shall close the system in accordance with the Closure Plan, contained in the Application, Appendix F.2 unless the following actions are taken:

- For a release or spill that has not damaged the integrity of the system, the Permittees shall remove the released waste and initiate repairs as necessary to fully restore the integrity of the system before returning the system to service; and
- For a release caused by a leak from the primary tank system to the secondary containment system, the Permittees shall repair the primary system prior to returning it to service.

For all major repairs to eliminate leaks or to restore the integrity of the tank system, the Permittees shall obtain a certification by an independent, qualified, registered professional engineer that the repaired system is capable of handling wastes without releases for the intended life of the system, before returning the system to service.

#### IV.F. Inspection Schedules and Procedures

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.193(i) and 264.195), and in accordance with Attachment C.3 of the Application, the Permittees shall conduct daily and weekly inspections of the storage tank system.

The Permittees shall conduct daily inspections of the storage tank system components and all associated ancillary equipment when the system is in operation. The Permittees shall inspect and record the review of all items listed in the Application, Appendix C.3.1.

The Permittees shall conduct weekly inspections of the storage tank and maintain a record of the inspection for all items listed in the Application, Appendix C.3.2.

The Permittees shall maintain the original inspection records for a minimum of three years from the data of inspection.

The Permittees shall maintain security and access controls to the storage tank system in accordance with the conditions outlined in the Application, Attachment K.

#### IV.G. Special Requirements for Ignitable, Reactive and Incompatible Wastes

##### IV.G.1. Special Requirements for Ignitable and Reactive Wastes

The Permittees shall not place ignitable or reactive waste in any part of the storage tank system or the secondary containment system unless the Permittees demonstrate or provide the following:

- Provide the operating pressure and temperature of tanks;
- Demonstrate that waste is treated, rendered or mixed before or immediately after placement in the tank systems so that it no longer is ignitable or reactive;
- Demonstrate that the wastes are not placed in the same tank system unless there is compliance with 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b));
- Demonstrate that the waste is stored or treated in a manner such that it protects against ignition or reaction;
- Demonstrate that the requirements for the maintenance of protective distances between waste management areas and any public ways, streets, alleys or adjoining property lines that could be built upon;
- Provide procedures assuring that hazardous waste will not be placed in a tank that previously held an incompatible waste or material unless it has been decontaminated or unless precautions have been taken per 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b)) to prevent reactions; and/or
- Indicate whether the tank system shall be used for these wastes solely for emergencies.

##### IV.G.2. Special Requirements for Incompatible Wastes

The Permittees shall not place incompatible wastes, or incompatible wastes and materials, in the same tank system or the same secondary containment system unless the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.199) are met.

#### IV.H. Control of Runoff

The Permittees shall prevent runoff from the storage tank system to other areas of the facility and to the environment. The Permittees shall manage runoff according to procedures described in the Application, Section 2.2.6.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.193(b)(3)), the Permittees shall removed all hazardous wastes and/or accumulated liquids from the secondary containment system within 24 hours to prevent harm to human health and the environment. If the Permittees cannot remove released waste or accumulated liquids within 24 hours, the Permittees shall provide adequate information to the Secretary to justify a longer removal time. Upon approval by the Secretary, the liquids and waste shall be removed in as timely as manner a possible.

#### IV.I. Closure

Upon closure of the storage tank system at TA-55, the Permittees shall remove all hazardous, mixed low-level waste and/or mixed TRU waste and waste residues from the areas in accordance with the Closure Plan for the TA-55 storage tank system, Application Attachment F.2 and Compliance Schedule B-3 and as required by 20.4.1.500 NMAC and 20.4.1.900 NMAC (incorporating 40 CFR 264 and 270.14(b)(13), respectively). The Permittees shall ensure the adequate removal of wastes to meet the closure performance standards.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.197), the Permittees shall monitor and/or sample for and either decontaminate or remove all soils contaminated with or containing hazardous waste, mixed low-level waste or mixed TRU waste, and waste residues.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(2) and 264.113(a) and (b)), the Permittees shall ensure 1) all hazardous waste will be treated, removed off-site, or disposed of on-site within 90 days from receipt of the final volume of waste at each unit and 2) all closure activities will be completed within 180 days from receipt of the final volume of waste at each unit.

In the event that clean closure is not obtainable, including the decontamination and/or removal of the tank system, ancillary equipment, contaminated soils, and other associated media, and pursuant to 20.4.1.5 NMAC (incorporating 40 CFR 264.117 through 264.120), the Permittees shall meet the requirements for submittal of a survey plat and a post-closure monitoring plan.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.113(a) and (b)), if the planned closure for the TA-55 storage tank system is expected to exceed the 90 days for treatment, removal or disposal of wastes and/or the 180 days for completion of closure activities, a petition for a schedule of closure that justifies a longer period of closure time will be submitted by the Permittees. An extension may only be granted by the Secretary if one of the following is demonstrated: closure activities require longer than 90 or 180 days as described above, the unit has the capacity to receive additional wastes, there is a reasonable likelihood that another person or operator will recommence operation of the site within one year, or closure would be incompatible with continued operation. The Permittees shall also demonstrate that all steps have and shall be taken to prevent threat to human health and the environment from the unclosed, but inactive, unit.

The Permittees shall ensure that pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(c)), written notification of a request for a permit modification to authorize a change in operating plans, facility design or the approved closure plan will be submitted to the Secretary for review and approval prior to implementation of any changes. The Permittees shall submit a request for a permit modification for any deviation from closure that has not been permitted in the Application.

Module II – General Facility Conditions  
Attachment B – Storage Tank System Schedule of Compliance

A. DEFINITIONS

For purposes of this Storage Tank System Schedule of Compliance, the following definitions shall apply:

**“Release”** means any spills, leaks, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing of hazardous waste (including hazardous constituents), mixed low-level waste, or mixed TRU waste into the environment (including the abandonment or discarding of barrels, containers and other closed receptacles containing hazardous waste, hazardous constituents or radiological constituents).

**“Solid waste management unit”** means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any areas at or around a facility at which solid wastes have been routinely and systematically released and include the container storage areas.

**“Hazardous waste”** means a solid waste, or combination of solid wastes, which because of the quantity, concentration or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, incapacity reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. Hazardous wastes include hazardous constituents, as defined below by the term “hazardous constituent”.

**“Hazardous constituent”** means any constituent identified in Appendix VIII of 40 CFR Part 261 and/or in Appendix IX of 40 CFR Part 264.

**“Mixed low-level waste”** means waste that contains radioactivity and is not classified as high-level waste, transuranic waste, spent nuclear fuel or 11(e)(2) by-product material as defined in DOE Order 5820.2A, “Radioactive Waste Management”.

**“TRU waste”** means waste that is contaminated with alpha emitting transuranic (TRU) radionuclides with half-lives greater than 20 years and concentrations greater than 100 nanocuries per gram at the time of assay and has atomic numbers greater than 92, as defined in DOE Order 5820.2A, “Radioactive Waste Management”.

**“Mixed TRU waste”** means waste that contains both a hazardous and a TRU waste component.

**“Permittees”** include Los Alamos National Laboratory and the University of California.

**“Facility”** applies to TA-55 at the Los Alamos National Laboratory.

**“Secretary”** means the Director of the New Mexico Environment Department, or his/her designee.

If subsequent to the issuance of this permit, regulations are promulgated which redefine any of the above terms, the Secretary may, at its discretion, apply the new definition to the permit.

## B. COMPLIANCE SCHEDULES

The Permittees shall only be granted a permit after the Secretary has approved all compliance schedule issues. A summary of the compliance schedules is provided in Table B-1.

- 1) Storage Tank System Design and Operation
  - a) The Permittees shall provide to the Secretary within 30 calendar days all of the types of wastes to be permitted for the storage tank system.
  - b) The Permittees shall provide to the Secretary within 30 calendar days the criteria that will be used to determine whether wastes stored in the storage unit tank system will go through stabilization in the cementation unit or will be sent to the vitrification unit.
  - c) The Permittees shall provide to the Secretary within 30 calendar days the radionuclide discard limit that will be used to determine if wastes will be transferred to the cementation unit pencil tanks or the pencil tanks.
  - d) If sample analysis indicates that concentrations are above the discard limit, the solutions will be re-circulated. The Permittees shall provide to the Secretary within 30 calendar days how solutions will be re-circulated and how the re-circulation process affects the radionuclide concentrations.
- 2) Containment Systems
  - a) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.193), the Permittees shall provide to the Secretary within 60 calendar days information on the underlying base of the containment systems, and how it shall be demonstrated that the base will be free of cracks or gaps and will be sufficiently impervious to contain leaks, spills and accumulated precipitation until the collected material is detected and removed.
  - b) Pursuant to 20.4.1.900 NMAC (including 40 CFR 270.15(a)(3)), the Permittees shall provide to the Secretary within 60 calendar days the capacity of the containment system relative to the volume of waste to be managed in the storage

tank system. Calculations to demonstrate the external liner system is designed to contain 100% of the capacity of the largest tank within its boundary shall be provided.

- c) The containment system for the cementation unit is also the same containment system to be used for the storage tank system and the vitrification unit. In the unlikely event that a leak occurs in the cementation unit, the storage tank system and/or the vitrification unit, the containment system will have to be sufficient to contain liquids from up to all three units. The Permittees shall provide to the Secretary within 60 calendar days a discussion regarding management of a simultaneous leak in the storage tank system, the cementation unit and/or the vitrification unit within the containment system.

3) Closure

- a) The Permittees shall provide to the Secretary within 60 Calendar days the maximum inventory of waste, including waste type, maximum capacity based on area, and the maximum quantity of waste for each component of the storage tank system.
- b) The Application must address the requirements in 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(4)), which states a detailed plan of how waste is to be removed shall be submitted. The Permittees shall provide to the Secretary within 90 calendar days a detailed discussion of how waste will be removed from each of the components of the storage tank system.
- c) The Application must also address how removed waste will be handled. Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(3)), the types(s) of off-site hazardous waste management facilities to be used must be identified. The Permittees shall provide to the Secretary within 90 calendar days a plan for management of removed waste, and if waste is to be shipped to an off-site location, indicate the types of waste, by waste code, that will go to each specific off-site facility.
- d) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(3) and (4)), the Permittees shall provide to the Secretary within 90 calendar days a detailed description for the closure of each component of the storage tank system including the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination as required to satisfy the closure performance standard.
- e) The Permittees shall provide to the Secretary within 90 calendar days the Quality Assurance/Quality Control (QA/QC) procedures for all soil sampling,

decontamination, and decontamination verification. The QA/QC plan shall also include laboratory validation and data validation procedures.

- f) The Permittees shall provide to the Secretary within 90 calendar days a revised schedule for closure activities for the storage tank system. The schedule shall be revised to include time for sampling, analysis and potential removal of contaminated soils surrounding/underlying the storage tank system, time for proper data validation, time to treat wastes, and adequate time for transporting wastes to disposal sites. The schedule shall be comprehensive of all potential activities for closure and partial closure.
- g) The Permittees shall provide to the Secretary within 90 Calendar days a revised decontamination plan for the storage tank system. In addition to the information provided in the Application, Appendix F.2, the plan must address the following issues:
  - i) Personal protective equipment (chemical and radiological) needed for each component of the storage tank system and a detailed discussion of the radiation and chemical monitoring equipment and monitoring requirements that will be used;
  - ii) Training requirements and medical monitoring requirements for workers;
  - iii) A detailed discussion of all the steps for disassembling the storage tank system, removing all hazardous waste residue and contaminated containment system components, equipment, and structures of the storage tank system, and containerizing pieces of the system;
  - iv) A detailed discussion regarding disassembly, decontamination, and management of ancillary equipment;
  - v) Radiological decontamination verification; and
  - vi) A comprehensive list of all expected constituents of concern in each component of the system, including the ancillary equipment.
- h) The Permittees shall provide to the Secretary within 90 Calendar days a revised decontamination verification plan for the storage tank system. In addition to the information provided in the Application, Appendix F.2, the plan must address the following issues:
  - i) Chemical make-up of the wash solution to be used in the decontamination of portable equipment and the appropriateness of this solution for organics, inorganics and radionuclides;
  - ii) Uncertainties associated with the wash water method for decontamination verification, including the ability of this method to detect hot spots;
  - iii) Decontamination verification for radionuclides shall include swipe analyses of structures or other equipment that are to be left on-site per NRC Regulatory Guide 1.86 to verify that removal contamination has been adequately removed and that there are no remaining hot spots of unacceptable level. The plan shall include the use of swipes, and discuss

- how many swipes will be taken, the amount of coverage of the item to be swiped, and the method of analysis;
- iv) Significance of increase of analytes in contaminated wash down waters is to be determined using statistical methods defined in SW-846. The plan shall provide the specific statistical methods that will be used to determine if wash down waters show a significant increase in analytical parameters when compared to clean wash water solutions. Also, the plan shall define a significant increase in accordance with SW-846. Verification for hazardous waste residues shall also be conducted using swipe analysis and discussion of how many swipes will be taken, percent surface coverage and the method of analysis;
  - v) Prescribed established levels and/or contaminant-specific levels for determining adequate decontamination of equipment;
  - vi) Surveying ancillary equipment and adjacent areas where radiological contamination is a suspected contaminant to verify that no fixed contamination above acceptable levels remains and that there are no unacceptable hot spots; and
  - vii) The frequency of analysis of the used wash water and the minimum and maximum surface area that will be cleaned using a specified volume of wash water.
- i) The Permittees shall provide to the Secretary within 90 Calendar days a revised decontamination verification plan for the areas adjacent to the storage tank system. In addition to the information provided in the Application, Appendix F.2, the plan must address the following issues:
- i) Random swipes shall be taken from the area adjacent to the storage tank system. Indicate the number of swipes that will be taken, the percentage of area that will be swiped, and the size of the swipe samples. Also, indicate that swipes will be taken for both hazardous and radiological constituents;
  - ii) Swipes shall be taken for secondary containment;
  - iii) The extent of contamination in drains/sumps (e.g., to the trap or past the trap into the drain system) shall be determined. If the swipe analysis indicates the potential for contamination, discuss how sumps and drains past the trap will be sampled. Also, if drains are found to be contaminated, discuss how drain systems will either be removed or decontaminated. Also, for any decontaminated drain system, soils surrounding the drain system shall be sampled to ensure that soils have not been contaminated as a result of drain leakages; and
  - iv) Drains shall be washed down. Indicate how wash water will be prevented from entering drain lines.
- j) The Permittees shall provide to the Secretary within 60 calendar days the screening methodology for radiological contamination of sample container surfaces. Include the methodology and proposed instrumentation for screening of

samples. Also provide the criteria for determining if decontamination is necessary and the methodology to determine decontamination effectiveness.

- k) The Permittees shall provide to the Secretary within 60 calendar days the special labeling and shipping requirements for radiological samples.

Table B-1. Summary of Compliance Schedules			
Condition	Category	Summary	Compliance Schedule (days) <sup>a</sup>
B-1a	Storage Tank System Design and Operation	Permitted wastes	30
B-1b	Storage Tank System Design and Operation	Process criteria for determining cementation or vitrification of waste	30
B-1c	Storage Tank System Design and Operation	Radiological discard limits and feed into cementation unit pencil tanks or pencil tanks	30
B-1d	Storage Tank System Design and Operation	Re-circulation of waste	30
B-2a	Containment System	Containment system bases	60
B-2b	Containment System	Capacity of containment system	60
B-2c	Containment System	Multiple use and leaks in containment system	60
B-3a	Closure	Waste inventory and capacity	60
B-3b	Closure	Waste removal	90
B-3c	Closure	Handling and transport of removed waste	90
B-3d	Closure	System component closure, soils	90
B-3e	Closure	Quality Assurance/Quality Control	90
B-3f	Closure	Schedule for closure	90
B-3g	Closure	Decontamination plan	90
B-3h	Closure	Decontamination verification – storage tank system	90
B-3i	Closure	Decontamination verification – adjacent areas	90
B-3j	Closure	Screening of sample containers	60
B-3k	Closure	Radiological labeling and shipping requirements	60

<sup>a</sup> Compliance schedules are based on calendar days.

## V. Module V – Miscellaneous Unit: Cementation Unit

### V.A. Miscellaneous Unit, Cementation Unit

This module authorizes the treatment of solid and liquid mixed low-level waste and/or mixed transuranic (TRU) waste in the cementation unit of the Los Alamos National Laboratory's (LANL) Technical Area 55 (TA-55) described below. Specific facility and process information for the treatment of these wastes is incorporated in the Application, Section 2.3, Attachments B.1, F.3 and I, and Supplements I-1 and I-2.

The Permittees shall treat mixed low-level and/or mixed TRU waste in the cementation unit, provided the Permittees comply with the following conditions:

### V.B. Cementation Unit

The cementation unit shall be located in the glove box BG-454, along the west wall of TA-55-4, Room 401. The unit shall consist of a pH adjustment column, a vacuum trap, two motor-driven mixers, four impellers, a glove box, and associated support structures and piping. The Permittees shall design, construct, operate, maintain, and close the cementation unit according to the detailed plans and reports contained in the Application, Section 2.3, Appendices F.3 and I, and Supplements I-1 and I-2.

The cementation unit shall have a maximum capacity of 150 gallons. The Permittees shall ensure that treatment of mixed low-level and mixed TRU wastes effectively meets the treatment objectives in the Application, Appendix I.2 and as follows:

- Stabilization of mixed waste solutions that contain radionuclides and toxicity characteristic metals (primarily chromium, arsenic, cadmium, mercury and lead) in a cement matrix;
- Stabilization of mixed waste into a cement matrix, rendering the metals not leachable as determined by the Toxicity Characteristic Leaching Procedure (TCLP);
- Stabilization of mixed waste into a cement matrix that will no longer exhibit toxicity characteristics;
- Stabilization of mixed wastes in cement to form a non-corrosive solid matrix; and
- Production of solidified cement monoliths that meet the Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC), which prohibits free liquids.

### V.C. Permitted and Prohibited Waste Identification

#### V.C.1. Permitted Waste

The Permittees shall treat up to 150 gallons of solid and liquid mixed low-level and/or mixed TRU waste solutions in the cementation unit at one time. The Permittees shall ensure that all waste solutions bear the appropriate EPA Hazardous Waste Numbers, as

contained in the LANL General Part A Permit Application. The Permittees shall apply the cementation unit-specific waste analysis plan, as contained in the Application, Appendix B.1.

#### V.C.2. Prohibited Waste

The Permittees is prohibited from treating waste not identified in Permit Condition V.C.1.

#### V.D. Containment Systems

The Permittees shall maintain secondary containment, which shall consist of Room 401 in TA-55-4. The containment system shall completely surround the cementation unit and associated equipment.

The Permittees shall ensure the containment system is sufficient to contain 100 percent of the largest tank/unit within its boundary and is sloped to allow the collection of fluids.

The Permittees shall maintain the reinforced concrete floor that will serve as the secondary containment free of cracks and gaps.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.193(b)(3)), all hazardous wastes and/or accumulated liquids shall be removed from the secondary containment system within 24 hours to prevent harm to human health and the environment. Adequate information shall be provided to the Secretary if removal of released waste or accumulated liquids cannot be accomplished within 24 hours. If approved by the Secretary, liquids and waste shall be removed in as timely a manner a possible.

#### V.E. Inspection Schedules and Procedures

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.602), and in accordance with Attachment C.4 of the Application, the Permittees shall conduct daily and weekly inspections of the cementation unit.

The Permittees shall conduct daily inspections of the cementation unit components and surrounding areas when the system is in operation. The Permittees shall inspect and record the review of all items listed in the Application, Appendix C.4.1.

The Permittees shall conduct weekly inspections of the cementation unit and surrounding area and maintain a record of the inspection for all items listed in the Application, Appendix C.4.2.

The Permittees shall maintain the original inspection records for a minimum of three years from the date of inspection.

The Permittees shall maintain security and access controls to the storage tank system in accordance with the conditions outlined in the Application, Attachment K.

#### V.F. Special Requirements for Ignitable, Reactive, and Incompatible Wastes

##### V.F.1. Special Requirements for Ignitable and Reactive Wastes

The Permittees shall not place ignitable or reactive waste in any part of the cementation unit or the secondary containment system unless the Permittees demonstrate or provide these issues:

- Provide the operating pressure and temperature of the system;
- Demonstrate that waste is treated, rendered or mixed before or immediately after placement in the cementation unit so that it no longer is ignitable or reactive;
- Demonstrate that the wastes are not placed in the same component unless there is compliance with 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b));
- Demonstrate that the waste is treated in a manner such that it protects against ignition or reaction;
- Demonstrate that the requirements for the maintenance of protective distances between waste management/treatment areas and any public ways, streets, alleys or adjoining property lines that could be built upon;
- Provide procedures assuring that hazardous waste will not be placed in a component that previously held an incompatible waste or material unless it has been decontaminated or unless precautions have been taken per 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b)) to prevent reactions; and/or
- Indicate whether the cementation unit shall be used for these wastes solely for emergencies.

##### V.F.2. Special Requirements for Incompatible Wastes

The Permittees shall not place incompatible wastes, or incompatible wastes and materials, in the cementation unit or the secondary containment system unless the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.199) are met.

#### V.G. Control of Runoff

The Permittees shall prevent runoff from the cementation unit to other areas of the facility and to the environment. The Permittees shall manage runoff according to procedures described in the Application, Section 2.3.6.

The Permittees shall removed all hazardous wastes and/or accumulated liquids from the secondary containment system within 24 hours to prevent harm to human health and the environment. If the Permittees cannot remove released waste or accumulated liquids within 24 hours, the Permittees shall provide adequate information to the Secretary to

justify a longer removal time. Upon approval by the Secretary, the liquids and waste shall be removed in as timely a manner as possible.

#### V.H. Closure

Upon closure of the cementation unit at TA-55, the Permittees shall remove all hazardous, mixed low-level waste and/or mixed TRU waste and waste residues from the areas in accordance with the Closure Plan for the TA-55 cementation unit, Application Attachment F.3 and Compliance Schedule B-3, and as required by 20.4.1.500 NMAC and 20.4.1.900 NMAC (incorporating 40 CFR 264 and 270.14(b)(13), respectively). The Permittees shall ensure the adequate removal of wastes to meet the closure performance standards.

For clean closure, pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.603), the Permittees shall monitor and/or sample for and either decontaminate or remove all soils contaminated with or containing hazardous waste, mixed low-level waste or mixed TRU waste and waste residues.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(2) and 264.113(a) and (b)), the Permittees shall ensure 1) all hazardous waste will be treated, removed off-site, or disposed of on-site within 90 days from receipt of the final volume of waste at each unit and 2) all closure activities will be completed within 180 days from receipt of the final volume of waste at each unit.

The Permittees shall ensure the environmental performance standards, pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.601), are met.

In the event that clean closure is not obtainable, including the decontamination and/or removal of the cementation unit, secondary containment, contaminated soils, and other associated media, and pursuant to 20.4.1.5 NMAC (incorporating 40 CFR 264.117 through 264.120), the Permittees shall meet the requirements for submittal of a survey plat and a post-closure monitoring plan.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.113(a) and (b)), if the planned closure for the TA-55 cementation unit is expected to exceed the 90 days for treatment, removal or disposal of wastes and/or the 180 days for completion of closure activities, a petition for a schedule of closure that justifies a longer period of closure time will be submitted by the Permittees. An extension may only be granted by the Secretary if one of the following is demonstrated: closure activities require longer than 90 or 180 days as described above, the unit has the capacity to receive additional wastes, there is a reasonable likelihood that another person or operator will recommence operation of the site within one year, or closure would be incompatible with continued operation. The Permittees shall also demonstrate that all steps have and shall be taken to prevent threat to human health and the environment from the unclosed, but inactive, unit.

The Permittees shall ensure that pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(c)), written notification of a request for a permit modification to authorize a change in operating plans, facility design or the approved closure plan will be submitted to the Secretary for review and approval prior to implementation of any changes. The Permittees shall submit a request for a permit modification for any deviation from closure that has not been permitted in the Application.

Module II – General Facility Conditions  
Attachment C – Cementation Unit Schedule of Compliance

A. DEFINITIONS

For purposes of this Cementation Unit Schedule of Compliance, the following definitions shall apply:

**“Release”** means any spills, leaks, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing of hazardous waste (including hazardous constituents), mixed low-level waste, or mixed TRU waste into the environment (including the abandonment or discarding of barrels, containers and other closed receptacles containing hazardous waste, hazardous constituents or radiological constituents).

**“Solid waste management unit”** means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any areas at or around a facility at which solid wastes have been routinely and systematically released and include the container storage areas.

**“Hazardous waste”** means a solid waste, or combination of solid wastes, which because of the quantity, concentration or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, incapacity reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. Hazardous wastes include hazardous constituents, as defined below by the term “hazardous constituent”.

**“Hazardous constituent”** means any constituent identified in Appendix VIII of 40 CFR Part 261 and/or in Appendix IX of 40 CFR Part 264.

**“Mixed low-level waste”** means waste that contains radioactivity and is not classified as high-level waste, transuranic waste, spent nuclear fuel or 11(e)(2) by-product material as defined in DOE Order 5820.2A, “Radioactive Waste Management”.

**“TRU waste”** means waste that is contaminated with alpha emitting transuranic (TRU) radionuclides with half-lives greater than 20 years and concentrations greater than 100 nanocuries per gram at the time of assay and has atomic numbers greater than 92, as defined in DOE Order 5820.2A, “Radioactive Waste Management”.

**“Mixed TRU waste”** means waste that contains both a hazardous and a TRU waste component.

**“Permittees”** include Los Alamos National Laboratory and the University of California.

“**Facility**” applies to TA-55 at the Los Alamos National Laboratory.

“**Secretary**” means the Director of the New Mexico Environment Department, or his/her designee.

If subsequent to the issuance of this permit, regulations are promulgated which redefine any of the above terms, the Secretary may, at its discretion, apply the new definition to the permit.

## B. COMPLIANCE SCHEDULES

The Permittees shall only be granted a permit after the Secretary has approved all compliance schedule issues. A summary of the compliance schedules is provided in Table B-1.

### 1) Waste Analysis Plan

- a) The Permittees shall submit to the Secretary within 60 calendar days all waste streams that will be treated in the cementation unit, including the source of waste, type of waste, and components of the waste. Address both chemical and radiological waste components.
- b) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.13(b)(2)), the Permittees shall submit to the Secretary within 60 calendar days all analytical test methods that will be used for the chosen parameters.
- c) The Application indicates that acceptable knowledge (AK) will be used for waste characterization where possible. AK is acceptable only when adequate documentation/data from the process generator is available which shows consistency of the waste streams. However, where there is variability in waste streams, sampling must occur on a regular basis. The Permittees shall submit to the Secretary within 60 calendar days a schedule of the frequency of sampling and sampling methods (pursuant to 20.4.1.500 NMAC, incorporating 40 CFR 264.13(b)(3) and (4)), as well as a specific decision-making process that describes when AK is acceptable and when sampling should be conducted.
- d) The Permittees shall submit to the Secretary within 60 calendar days the sampling methods to be used to obtain a representative sampling of each waste stream and the appropriateness of these methods. If LANL-specific protocols are to be used for sample collection, preservation, QA/QC and health and safety issues, then the Permittees shall, within 60 calendar days, submit this information to the Secretary or shall provide specific references to the protocols to be followed.
- e) The Application is vague as to how waste stream verification will be conducted and when waste stream verification will be conducted for non-routinely generated wastes. No decision criteria are provided for the frequency of reevaluation of

non-routinely generated wastes. The Permittees shall submit to the Secretary within 60 calendar days how and when waste stream verification for non-routinely generated wastes will be conducted. Include a decision tree outlining when and how reevaluation for non-routinely generated wastes will be done.

## 2) Containment Systems

- a) The Permittees shall provide to the Secretary within 60 calendar days information on the underlying base of the containment systems, and how it shall be demonstrated that the base will be free of cracks or gaps and will be sufficiently impervious to contain leaks and spills until the collected material is detected and removed.
- b) Pursuant to 20.4.1.900 NMAC (including 40 CFR 270.15(a)(3)), the Permittees shall provide to the Secretary within 60 calendar days the capacity of the containment system relative to the number and volume of waste to be managed and treated in the cementation unit. Calculations demonstrating that the external liner system is designed to contain 100% of the capacity of the largest tank within its boundary shall be provided.
- c) The containment system for the cementation unit is also the same containment system to be used for the storage tank system and the vitrification unit. In the unlikely event that a leak occurs in the cementation unit, the storage tank system and/or the vitrification unit, the containment system will have to be sufficient to contain liquids from up to all three units. The Permittees shall provide to the Secretary within 60 calendar days a discussion regarding management of a simultaneous leak in the storage tank system, the cementation unit and/or the vitrification unit, within the containment system.

## 3) Special Requirements for ignitable, Reactive and Incompatible Wastes

The containment system for the cementation unit is the same system to be used for the storage tank system and the vitrification unit. The Permittees shall provide to the Secretary within 60 calendar days a discussion of the potential for incompatible wastes commingling as a result of a leak or spill from either the storage tank system, the cementation unit and/or the vitrification unit.

## 4) Protection of the Atmosphere

The cementation unit has a system of negative pressure zones and high-efficiency particulate air (HEPA) filters that are designed to work together to prevent releases of contaminants to the atmosphere. Attachment K.3.4 of the Application states that backup generators are available at TA-55 in the event of a power outage. However, it appears that there is no immediately available backup system for the cementation unit. The Permittees shall provide to the Secretary within 60 calendar days the procedures to prevent releases to the atmosphere in the event of a power outage, causing a temporary

shutdown of the negative pressure zones and HEPAs. In addition, address how long the system will be shutdown until the backup generators can be put online with the cementation unit.

#### 5) Closure

- a) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(3)), the types(s) of off-site hazardous waste management facilities to be used must be identified. The Permittees shall provide to the Secretary within 90 calendar days a discussion of the management and disposal of removed waste. If waste will be shipped to an off-site location, describe the types of waste that will go to each specific off-site facility.
- b) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(4)), a detailed description of all the steps needed to remove all hazardous waste residue and contaminated containment system components, equipment and structures shall be provided. The Application does not delineate how equipment/pieces of the cementation unit will be disassembled, broken down into container-sized pieces and managed. The Permittees shall provide to the Secretary within 90 calendar days a detailed discussion of all the steps for removing all hazardous waste residue and contaminated equipment components of the cementation unit, including the glove box, all associated/ancillary equipment and secondary containment systems.
- c) The Permittees shall provide to the Secretary within 90 calendar days the methodology to determine radiological decontamination verification.
- d) The Permittees shall provide to the Secretary within 90 calendar days a discussion of the potential uncertainties associated with the wash water method of decontamination verification and discuss how hot spots will be detected and verified decontaminated to acceptable levels. Also provide what control measures will be used to ensure consistency of area cleaned per unit of wash water.
- e) Decontamination verification for radionuclides shall also include swipe analyses of structures or other equipment that are to be left on-site per NRC Regulatory Guide 1.86 to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable level. The Permittees shall provide to the Secretary within 90 calendar days a revised plan that includes the use of swipes. Discuss how many swipes will be taken, the amount of coverage of the item requiring swiped, and the method of analysis.
- f) Decontamination verification for hazardous waste residues shall also be verified using swipe analysis, similar to that as outlined in the above comment. The Permittees shall provide to the Secretary within 90 calendar days a revised plan that includes swipe sampling and analysis for hazardous waste residues. The plan

shall include the number of swipes, percent surface coverage and the method of analysis.

- g) The Permittees shall provide to the Secretary within 90 calendar days the prescribed levels or contaminant-specific levels that will be the criteria for determining if equipment has been sufficiently decontaminated.
- h) The Permittees shall provide to the Secretary within 90 calendar days a discussion of how cracks or fractures in the floors, walls or other surfaces will be addressed prior to decontamination activities. Include a discussion of corrective action measures that shall be taken to ensure decontamination activities do not result in contamination of flawed surfaces.
- i) The Permittees shall provide to the Secretary within 90 calendar days the regulatory limits for hazardous constituents that will be used to verify decontamination.
- j) The significance of increased concentration of analytes in contaminated wash down waters shall be determined using statistical methods defined in SW-846. The plan shall provide the specific statistical methods that will be used to determine if wash down waters show a significant increase in analytical parameters when compared to clean wash water solutions. The Permittees shall provide to the Secretary within 90 calendar days a definition of a significant increase in accordance with SW-846. Include a discussion regarding the verification of decontamination of hazardous waste residues through the use of swipe analysis; discuss how many swipes will be taken, percent surface coverage and the method of analysis.
- k) Surveying, using appropriate radiation instruments, shall be conducted in areas where radiological contamination may have been present. If the radiological contaminants exist as fixed contamination, analysis of the wash down water will not indicate the presence of potential fixed radiological contamination. The Permittees shall provide to the Secretary within 90 calendar days a plan for surveying of equipment and adjacent areas where radiological contamination is a suspected contaminant to verify that no fixed contamination above acceptable levels remains and that there are no unacceptable hot spots.
- l) The Permittees shall provide to the Secretary within 90 calendar days the methodology and proposed instrumentation for the radiological screening of samples. Include the criteria that will be used to determine if decontamination, special labeling and/or special shipping instructions are required.

Table B-1. Summary of Compliance Schedules			
Condition	Category	Summary	Compliance Schedule (days) <sup>a</sup>
B-1a	Waste Analysis Plan	Waste streams	60
B-1b	Waste Analysis Plan	Analytical test methods	60
B-1c	Waste Analysis Plan	Acceptable knowledge and waste characterization	60
B-1d	Waste Analysis Plan	Sampling protocol	60
B-1e	Waste Analysis Plan	Non-routinely generated wastes	60
B-2a	Containment Systems	Containment system bases	60
B-2b	Containment Systems	Capacity of containment system	60
B-2c	Special Requirements for Ignitable, Reactive and Incompatible Wastes	Capacity of containment system –simultaneous leak	60
B-3	Special Requirements for Ignitable, Reactive and Incompatible Wastes	Waste commingling	60
B-4	Protection of Atmosphere	Control of atmospheric releases	60
B-5a	Closure	Removed waste management, transport and disposal	90
B-5b	Closure	Waste removal	90
B-5c	Closure	Radiological decontamination verification	90
B-5d	Closure	Decontamination uncertainty	90
B-5e	Closure	Radiological verification	90
B-5f	Closure	Hazardous waste residue verification	90
B-5g	Closure	Equipment decontamination criteria	90
B-5h	Closure	Decontamination of flawed surfaces	90
B-5i	Closure	Regulatory limits	90
B-5j	Closure	SW-846 methods for statistical analysis	90
B-5k	Closure	Radiological surveying	90
B-5l	Closure	Screening of samples	90

<sup>a</sup> Compliance schedules in calendar days.

## VI. Module VI – Miscellaneous Unit: Vitrification Unit

### VI.A. Miscellaneous Unit, Vitrification Unit

This module authorizes the treatment of solid and liquid mixed low-level waste and/or mixed transuranic (TRU) waste in the vitrification unit of the Los Alamos National Laboratory's (LANL) Technical Area 55 (TA-55) described below. Specific facility and process information for the treatment of these wastes is incorporated in the Application, Section 2.4, Attachments B.2, F.4 and J, and Supplement J-1.

The Permittees shall treat mixed low-level and/or mixed TRU waste in the vitrification unit, provided the Permittees comply with the following conditions:

### VI.B. Vitrification Unit

The vitrification unit shall be located in a glove box located in the center Room 434A in TA-55-4. The unit shall consist of a single batch in-can melter, glass frit feed system, glass/waste handling system for cooling and moving glass-filled cans, and off-gas system, a glove box, and associated piping and support structures. The Permittees shall design, construct, operate, maintain, and close the vitrification unit according to the detailed plans and reports contained in the Application, Section 2.4, Appendices F.4 and J, and Supplement J-1.

The vitrification unit shall have a maximum processing capacity of 13.2 gallons of waste per hour resulting in 1.3 glass cans per week, with each can containing no more than 22.2 gallons, for a maximum of 28.9 gallons per week.

#### VI.B.1. Glass Frit Feed System

The glass frit feed system shall supply a dry borosilicate glass frit to the melter. The glass frit shall be unloaded from the bulk bag, located outside TA-55-4, into a hopper and transferred via an auger conveyor through a volumetric screw feeder, through a drop pipe and into the batch hopper. The batch hopper shall transfer the glass frit through a screw auger in the glove box wall to the melter system.

The Permittees shall ensure the dry borosilicate glass frit meets the specification provided in the Application, Supplement J-1.

#### VI.B.2. Melter

The melter shall consist of an in-can configuration with a nominal operating temperature of 1050 degrees Celsius (°C) and a maximum operating temperature of 1100 °C. Horizontal resistance-heating elements shall be used to achieve the desired temperature. Liquid wastes and dry glass frit shall be fed into the melter via a port in the lid. An exhaust port shall convey exhaust gases to the facility wet-vacuum system via the off-gas system.

The melter can shall have a total volume of approximately 22.2 gallons, with the operational capacity being 17.7 gallons of the total volume.

#### VI.B.3. Glass/Waste Handling System

The glass/waste handling system shall consist of two inner can movement mechanisms (ICMM), a glove box crane, and 55-gallon drums. The ICMMs shall consist of a bottom plate assembly surrounded by a cooling jacket, which shall be motor driven horizontally to and from under the melter. After the vitrification process is complete, the bottom plate assembly and a can of glass shall be lowered into the cooling jacket and rolled out from under the melter to allow for cooling. Once cooled, the can of glass shall be removed from the cooling jacket by a glove box crane and loaded into a standard 55-gallon drum for bagout. The 55-gallon drum shall contain an inner liner of insulation or padding to prevent the melter can from moving within the drum and to protect the plastic drum liner.

#### VI.B.4. Off-gas System

The off-gas system shall condense contaminants from the off-gas exiting the melter, such that the remaining gases are discharged into the atmosphere via the facility wet-vacuum system. The primary components of the off-gas system include a quencher, caustic scrubber column, scrubber sump tank, scrubber recycle tanks, scrubber intermediate storage tanks, and a heat exchanger.

The off-gas system shall operate as designed and discussed in the Application, Appendix J.1.4 and in the Compliance Schedule B-1.

#### VI.B.5. Glove Box

The glove box shall serve as the primary containment for the vitrification unit. Overhead cranes located within the glove box shall facilitate movement of equipment and cooled cans of glass.

#### VI.B.6. Treatment Effectiveness

The Permittees shall ensure that treatment of mixed low-level and mixed TRU wastes effectively meets the treatment objectives in the Application, Appendix J.2

The Permittees shall ensure that the facility implements appropriate waste management options for mercury in the scrubber solution.

#### VI.C. Permitted and Prohibited Waste Identification

##### VI.C.1. Permitted Waste

The vitrification unit shall have an overall capacity of 7 gallons of waste and shall have a maximum processing capacity of 13.2 gallons of waste per hour resulting in 1.3 glass cans per week. The Permittees shall ensure that all waste solutions bear the appropriate EPA Hazardous Waste Numbers, as contained in the LANL General Part A Permit Application. The Permittees shall apply the vitrification unit-specific waste analysis plan, as contained in the Application, Appendix B.2.

#### VI.C.2. Prohibited Waste

The Permittees is prohibited from treating waste not identified in Permit Condition VI.C.1.

#### VI.D. Containment Systems

The Permittees shall maintain secondary containment, which shall consist of Rooms 401 and 434A in TA-55-4. The containment system shall completely surround the vitrification unit and associated equipment.

The Permittees shall ensure the containment system is sufficient to contain 100 percent of the largest tank/unit within its boundary and is sloped to allow the collection of fluids.

The Permittees shall maintain the reinforced concrete floor that will serve as the secondary containment free of cracks and gaps.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.193(b)(3)), all hazardous wastes and/or accumulated liquids shall be removed from the secondary containment system within 24 hours to prevent harm to human health and the environment. Adequate information shall be provided to the Secretary if removal of released waste or accumulated liquids cannot be accomplished within 24 hours. If approved by the Secretary, liquids and waste shall be removed in as timely a manner as possible.

#### VI.E. Inspection Schedules and Procedures

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.602), and in accordance with Attachment C.5 of the Application, the Permittees shall conduct daily and weekly inspections of the vitrification unit.

The Permittees shall conduct daily inspections of the vitrification unit components and surrounding areas when the system is in operation. The Permittees shall inspect and record the review of all items listed in the Application, Appendix C.5.1.

The Permittees shall conduct weekly inspections of the vitrification unit and surrounding area and maintain a record of the inspection for all items listed in the Application, Appendix C.5.2.

The Permittees shall maintain the original inspection records for a minimum of three years from the date of inspection.

#### VI.F. Special Requirements for Ignitable, Reactive, and Incompatible Wastes

##### VI.F.1. Special Requirements for Ignitable and Reactive Wastes

The Permittees shall not place ignitable or reactive waste in any part of the vitrification unit or the secondary containment system unless the Permittees demonstrate or provide the following:

- Provide the operating pressure and temperature of the system;
- Demonstrate that waste is treated, rendered or mixed before or immediately after placement in the vitrification unit so that it no longer is ignitable or reactive;
- Demonstrate that the wastes are not placed in the same component unless there is compliance with 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b));
- Demonstrate that the waste is treated in a manner such that it protects against ignition or reaction;
- Demonstrate that the requirements for the maintenance of protective distances between waste management/treatment areas and any public ways, streets, alleys or adjoining property lines that could be built upon;
- Provide procedures assuring that hazardous waste will not be placed in a component that previously held an incompatible waste or material unless it has been decontaminated or unless precautions have been taken per 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b)) to prevent reactions; and/or
- Indicate whether the vitrification unit shall be used for these wastes solely for emergencies.

##### VI.F.2. Special Requirements for Incompatible Wastes

The Permittees shall not place incompatible wastes, or incompatible wastes and materials, in the vitrification unit or the secondary containment system unless the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.199) are met.

#### VI.G. Control of Runoff

The Permittees shall prevent runoff from the vitrification unit to other areas of the facility and to the environment. The Permittees shall manage runoff according to procedures described in the Application, Section 2.4.6.

The Permittees shall removed all hazardous wastes and/or accumulated liquids from the secondary containment system within 24 hours to prevent harm to human health and the environment. If the Permittees cannot remove released waste or accumulated liquids within 24 hours, the Permittees shall provide adequate information to the Secretary to

justify a longer removal time. Upon approval by the Secretary, the liquids and waste shall be removed in as timely a manner as possible.

#### VI.H. Environmental Performance Standards

The Permittees shall not, through the operation of the vitrification unit, violate the environmental performance standards set forth in 20.4.1.500 NMAC (incorporating 40 CFR 264.601), and as discussed in the Application, Appendix J.3 and Compliance Schedule B-7.

#### VI.I. Closure

Upon closure of the vitrification unit at TA-55, the Permittees shall remove all hazardous, mixed low-level waste and/or mixed TRU waste and waste residues from the areas in accordance with the Closure Plan for the TA-55 vitrification unit, Application Attachment F.4 and Compliance Schedule B-8 and as required by 20.4.1.500 NMAC and 20.4.1.900 NMAC (incorporating 40 CFR 264 and 270.14(b)(13), respectively). The Permittees shall ensure the adequate removal of wastes to meet the closure performance standards.

For clean closure, pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.603), the Permittees shall monitor and/or sample for and either decontaminate or remove all soils contaminated with or containing hazardous waste, mixed low-level waste or mixed TRU waste and waste residues.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(2) and 264.113(a) and (b)), the Permittees shall ensure 1) all hazardous waste will be treated, removed off-site, or disposed of on-site within 90 days from receipt of the final volume of waste at each unit and 2) all closure activities will be completed within 180 days from receipt of the final volume of waste at each unit.

The Permittees shall ensure the environmental performance standards, pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.601), are met.

In the event that clean closure is not obtainable, including the decontamination and/or removal of the vitrification unit, secondary containment, contaminated soils, and other associated media, and pursuant to 20.4.1.5 NMAC (incorporating 40 CFR 264.117 through 264.120), the Permittees shall meet the requirements for submissions of a survey plat and a post-closure monitoring plan.

Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.113(a) and (b)), if the planned closure for the TA-55 vitrification unit is expected to exceed the 90 days for treatment, removal or disposal of wastes and/or the 180 days for completion of closure activities, a petition for a schedule of closure that justifies a longer period of closure time will be submitted by the Permittees. An extension may only be granted by the Secretary if one of the following is demonstrated: closure activities require longer than 90 or 180 days as

described above, the unit has the capacity to receive additional wastes, there is a reasonable likelihood that another person or operator will recommence operation of the site within one year, or closure would be incompatible with continued operation. The Permittees shall also demonstrate that all steps have and shall be taken to prevent threat to human health and the environment from the unclosed, but inactive, unit.

The Permittees shall ensure that pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(c)), written notification of a request for a permit modification to authorize a change in operating plans, facility design or the approved closure plan will be submitted to the Secretary for review and approval prior to implementation of any changes. The Permittees shall submit a request for a permit modification for any deviation from closure that has not been permitted in the Application.

Module II – General Facility Conditions  
Attachment D – Vitrification Unit Schedule of Compliance

A. DEFINITIONS

For purposes of this Vitrification Unit Schedule of Compliance, the following definitions shall apply:

**“Release”** means any spills, leaks, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing of hazardous waste (including hazardous constituents), mixed low-level waste, or mixed TRU waste into the environment (including the abandonment or discarding of barrels, containers and other closed receptacles containing hazardous waste, hazardous constituents or radiological constituents).

**“Solid waste management unit”** means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any areas at or around a facility at which solid wastes have been routinely and systematically released and include the container storage areas.

**“Hazardous waste”** means a solid waste, or combination of solid wastes, which because of the quantity, concentration or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, incapacity reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. Hazardous wastes include hazardous constituents, as defined below by the term “hazardous constituent”.

**“Hazardous constituent”** means any constituent identified in Appendix VIII of 40 CFR Part 261 and/or in Appendix IX of 40 CFR Part 264.

**“Mixed low-level waste”** means waste that contains radioactivity and is not classified as high-level waste, transuranic waste, spent nuclear fuel or 11(e)(2) by-product material as defined in DOE Order 5820.2A, “Radioactive Waste Management”.

**“TRU waste”** means waste that is contaminated with alpha emitting transuranic (TRU) radionuclides with half-lives greater than 20 years and concentrations greater than 100 nanocuries per gram at the time of assay and has atomic numbers greater than 92, as defined in DOE Order 5820.2A, “Radioactive Waste Management”.

**“Mixed TRU waste”** means waste that contains both a hazardous and a TRU waste component.

**“Permittees”** include Los Alamos National Laboratory and the University of California.

**“Facility”** applies to TA-55 at the Los Alamos National Laboratory.

**“Secretary”** means the Director of the New Mexico Environment Department, or his/her designee.

If subsequent to the issuance of this permit, regulations are promulgated which redefine any of the above terms, the Secretary may, at its discretion, apply the new definition to the permit.

## B. COMPLIANCE SCHEDULES

The Permittees shall only be granted a permit after the Secretary has approved all compliance schedule issues. A summary of the compliance schedules is provided in Table B-1.

### 1) Off-Gas System

- a) The Application specifies the use of a caustic scrubber column for cleaning the off-gas. The rationale for the choice of a caustic scrubber was not provided. The Permittees shall provide to the Secretary within 60 calendar days a discussion that identifies and provides measured or estimated concentrations of all contaminants in the off-gas that are to be controlled by the caustic scrubber column. Also provide the scrubber’s design removal efficiency (DRE) and the outlet concentrations for each contaminant.
- b) The Permittees shall provide to the Secretary within 60 calendar days the description of the scrubber, including the type or size of the packing and the concentration of caustic (or pH) of the scrubber solution.
- c) The Permittees shall provide to the Secretary within 60 calendar days a description of the quencher and indicate the design outlet temperature.
- d) The Permittees shall provide to the Secretary within 60 calendar days a brief description of the scrubber system that is designed to exhaust to the building wet/dry vacuum system. The information shall explain the system’s ability to control any contaminants remaining in the scrubber exhaust.
- e) Once the off-gas system is constructed, a performance evaluation shall be completed to determine the effectiveness of the system. The Permittees shall provide to the Secretary within 180 calendar days an evaluation, which shall include a determination of the actual control efficiency of the scrubber, emission rates and whether any additional controls to supplement the efficiency of the scrubber are required. As it is unlikely that a 100% control efficiency for mercury can be obtained, measurements of the actual control efficiency must be made and the amount of mercury that is actually vaporized should also be included in the performance evaluation.

- f) The Permittees shall provide to the Secretary within 90 calendar days a detailed plan regarding the conduct of the performance evaluation, including the specific constituents proposed for monitoring, the location and methodology for sample collection within the system, the proposed analytical protocols, and the proposed performance criteria for all monitored constituents.
- g) During startup and shutdown of the system, waste must not be fed into the vitrification unit unless it is demonstrated that the off-gas system is operating within the conditions specified in the Application. The Permittees shall provide to the Secretary within 60 calendar days a discussion of startup and shut down procedures.
- h) The Permittees shall provide to the Secretary within 90 calendar days a discussion of monitoring that will be conducted to ensure continued operational effectiveness of the off-gas system.

## 2) Glove Box

The Application states that a small cooling system for the glove box will be used if necessary to maintain temperatures within specification. This cooling system is not addressed in any of the supporting engineering information provided with the Application. The Permittees shall provide to the Secretary within 60 calendar days a description and design of the cooling system, operating conditions and the location of the cooling system in the glove box.

## 3) Demonstration of Treatment Effectiveness

The Permittees shall provide to the Secretary within 60 calendar days the waste management options that will be used for mercury in the scrubber solution.

## 4) Waste Analysis Plan

- a) The Permittees shall submit to the Secretary within 60 calendar days a description of the radiological components of the waste to be treated in the vitrification unit.
- b) The Application indicates that acceptable knowledge (AK) will be used for waste characterization where possible. AK is acceptable only when adequate documentation/data from the process generator is available which shows consistency of the waste streams. However, where there is variability in waste streams, sampling must occur on a regular basis. The Permittees shall submit to the Secretary within 60 calendar days a schedule of the frequency of sampling and sampling methods (pursuant to 20.4.1.500 NMAC, incorporating 40 CFR 264.13(b)(3) and (4)), as well as a specific decision-making process that describes when AK is acceptable and when sampling should be conducted.

- c) The Permittees shall submit to the Secretary within 60 calendar days a decision tree to indicate when AK will not meet characterization requirements and when sampling is required, and the frequency at which sampling will be conducted.
- d) The Permittees shall submit to the Secretary within 60 calendar days the sampling methods to be used to obtain a representative sampling of each waste stream and the appropriateness of these methods. If LANL-specific protocols are to be used for sample collection, preservation, QA/QC and health and safety issues, then the Permittees shall, within 60 calendar days, submit this information to the Secretary or shall provide specific references to the protocols to be followed.
- e) The Application is vague as to how waste stream verification will be conducted and when waste stream verification will be conducted for non-routinely generated wastes. No decision criteria are provided for the frequency of reevaluation of non-routinely generated wastes. The Permittees shall submit to the Secretary within 60 calendar days how and when waste stream verification for non-routinely generated wastes will be conducted. Include a decision tree outlining when and how reevaluation for non-routinely generated wastes will be done.

#### 5) Containment Systems

- a) The Permittees shall provide to the Secretary within 60 calendar days information on the underlying base of the containment systems, and how it shall be demonstrated that the base will be free of cracks or gaps and will be sufficiently impervious to contain leaks, spills and accumulated precipitation until the collected material is detected and removed.
- b) Pursuant to 20.4.1.900 NMAC (including 40 CFR 270.15(a)(3)), the Permittees shall provide to the Secretary within 60 calendar days the capacity of the containment system relative to the volume of waste to be managed and treated in the vitrification unit. Calculations shall be provided that demonstrate the external liner system is designed to contain 100% of the capacity of the largest tank within its boundary.
- c) The containment system for the vitrification unit is also the same containment system to be used for the storage tank system and the cementation unit. In the unlikely event that a leak occurs in the storage tank system, cementation unit and/or the vitrification unit, the containment system will have to be sufficient to contain liquids from up to all three units. The Permittees shall provide to the Secretary within 60 calendar days a discussion regarding management of a simultaneous leak in the storage tank system, the cementation unit and/or the vitrification unit, within the containment system.

#### 6) Special Requirements for ignitable, Reactive and Incompatible Wastes

The containment system for the vitrification unit is the same system to be used for the storage tank system and the cementation unit. The Permittees shall provide to the Secretary within 60 calendar days a discussion of the potential for incompatible wastes commingling as a result of a leak or spill from either the storage tank system, the cementation unit and/or the vitrification unit.

#### 7) Protection of the Atmosphere

- a) The vitrification unit has a system of negative pressure zones and high-efficiency particulate air (HEPA) filters that are designed to work together to prevent releases of contaminants to the atmosphere. Attachment K.3.4 of the Application states that backup generators are available at TA-55 in the event of a power outage. However, it appears that there is no immediately available backup system for the vitrification unit to ensure there will be no downtime in the operation of the off-gas system. The Permittees shall provide to the Secretary within 60 calendar days the procedures to prevent releases to the atmosphere in the event of a power outage, causing a temporary shutdown of the negative pressure zones and the off-gas system. In addition, address how long the system will be shut down until the backup generators can be put online with the vitrification unit.
- b) For fugitive emission prevention, it does not appear that a fan in the off-gas system is used and that the building wet/dry vacuum system shall provide the suction to move the gas. The Permittees shall provide to the Secretary within 60 calendar days the system that shall be used to keep the off-gas system at a pressure below that of the glove box.
- c) It appears that cascaded levels of negative pressure are being used to collect fugitive emissions. The Permittees shall provide to the Secretary within 60 calendar days whether the facility glove box exhaust system will control the fugitive emission that are collected.
- d) The HEPA filter on the glove box will not control NO<sub>x</sub> emissions that may get into the glove box. The Permittees shall provide to the Secretary within 60 calendar days a discussion regarding the control of NO<sub>x</sub> and whether NO<sub>x</sub> will be vented to the atmosphere.

#### 8) Closure

- a) The Permittees shall provide to the Secretary within 90 calendar days the expected constituents, hazardous and radiological, that shall be treated in the vitrification unit.
- b) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(3)), the types(s) of off-site hazardous waste management facilities to be used must be identified. The Permittees shall provide to the Secretary within 90 calendar days a discussion of the management and disposal of removed waste. If waste will be shipped to an

off-site location, other than the WIPP, describe the types of waste, by waste code, that will go to each specific off-site facility.

- c) Pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(4)), a detailed description shall be provided of all the steps needed to remove all hazardous waste residue and contaminated containment system components, equipment and structures. The Permittees shall provide to the Secretary within 90 calendar days a detailed discussion of all the steps for removing all hazardous waste residue and contaminated equipment components of the vitrification unit, including all associated/ancillary equipment and secondary containment systems.
- d) The Permittees shall provide to the Secretary within 90 calendar days a discussion of the potential uncertainties associated with the wash water method of decontamination verification and discuss how hot spots will be detected and verified decontaminated to acceptable levels. Also provide the control measures that will be used to ensure consistency of area cleaned per unit of wash water.
- e) Decontamination verification for radionuclides shall also include swipe analyses of structures or other equipment that are to be left on-site per NRC Regulatory Guide 1.86 to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable level. The Permittees shall provide to the Secretary within 90 calendar days a revised plan that includes the use of swipes. Discuss how many swipes will be taken, the amount of coverage of the item to be swiped, and the method of analysis. Also provide radiological decontamination and verification criteria that shall be used.
- f) Decontamination verification for hazardous waste residues shall also be verified using swipe analysis, similar to that as outlined in the above comment. The Permittees shall provide to the Secretary within 90 calendar days a revised plan that includes swipe sampling and analysis for hazardous waste residues. The plan shall include the number of swipes, percent surface coverage and the method of analysis.
- g) The Permittees shall provide to the Secretary within 90 calendar days the prescribed levels or contaminant-specific levels that will be the criteria for determining if equipment has been sufficiently decontaminated.
- h) The Permittees shall provide to the Secretary within 90 calendar days a discussion regarding repair of cracks or fractures in the floors, walls or other surfaces prior to decontamination activities. Include a discussion of corrective action measures that shall be taken to ensure decontamination activities do not result in contamination of flawed surfaces.
- i) The Permittees shall provide to the Secretary within 90 calendar days the regulatory limits for hazardous constituents that will be used to verify decontamination.

- j) The significance of increased concentrations of analytes in contaminated wash down waters shall be determined using statistical methods defined in SW-846. The plan shall provide the specific statistical methods that will be used to determine if wash down waters show a significant increase in analytical parameters when compared to clean wash water solutions. The Permittees shall provide to the Secretary within 90 calendar days a definition of a significant increase in accordance with SW-846. Include a discussion regarding the verification of decontamination of hazardous waste residues through the use of swipe analysis; discuss how many swipes will be taken, percent surface coverage and the method of analysis.
- k) Surveying, using appropriate radiation instruments, shall be conducted in areas where radiological contamination may have been present. If the radiological contaminants exist as fixed contamination, analysis of the wash down water will not indicate the presence of potential fixed radiological contamination. The Permittees shall provide to the Secretary within 90 calendar days a plan for surveying of equipment and adjacent areas where radiological contamination is a suspected contaminant to verify that no fixed contamination above acceptable levels remains and that there are no unacceptable hot spots.
- l) The Permittees shall provide to the Secretary within 90 calendar days the methodology and proposed instrumentation for the radiological screening of samples. Include the criteria that will be used to determine if decontamination, special labeling and/or special shipping instructions are required.

Condition	Category	Summary	Compliance Schedule (days) <sup>a</sup>
B-1a	Off-Gas System	Scrubber column and DRE	60
B-1b	Off-Gas System	Scrubber solution	60
B-1c	Off-Gas System	Quencher	60
B-1d	Off-Gas System	Scrubber system exhaust	60
B-1e	Off-Gas System	Performance evaluation	180
B-1f	Off-Gas System	Performance evaluation plan and criteria	90
B-1g	Off-Gas System	Start up and shut down	60
B-1h	Off-Gas System	Monitoring of off-gases	90
B-2	Glove Box	Glove box cooling system	60
B-3	Demonstration of Treatment Effectiveness	Waste management options for mercury	60
B-4a	Waste Analysis Plan	Radiological component of wastes	60
B-4b	Waste Analysis Plan	Acceptable knowledge	60
B-4c	Waste Analysis Plan	Acceptable knowledge and decision tree	60
B-4d	Waste Analysis Plan	Sampling methods for waste streams	60
B-4e	Waste Analysis Plan	Non-routinely generated wastes	60
B-5a	Containment System	Containment system bases	60
B-5b	Containment System	Capacity of system	60
B-5c	Containment System	Shared system capacity	60
B-6	Special Requirements for Ignitable, Reactive and Incompatible Wastes	Commingling of wastes	60
B-7a	Protection of the Atmosphere	Releases to atmosphere	60
B-7b	Protection of the Atmosphere	Fugitive emission prevention system	60
B-7c	Protection of the Atmosphere	Glove box exhaust system	60
B-7d	Protection of the Atmosphere	NOx emissions	60
B-8a	Closure	Waste constituents	90
B-8b	Closure	Removed waste management, transport and disposal	90
B-8c	Closure	Waste removal	90
B-8d	Closure	Decontamination uncertainties	90
B-8e	Closure	Radiological verification	90
B-8f	Closure	Hazardous waste residue verification	90
B-8g	Closure	Equipment decontamination criteria	90
B-8h	Closure	Decontamination of flawed surfaces	90
B-8i	Closure	Regulatory limits for hazardous constituents	90
B-8j	Closure	Statistical analysis using SW-846	90
B-8k	Closure	Radiological surveys	90
B-8l	Closure	Screening radiological samples, labeling and shipping	90

<sup>a</sup> Compliance schedule in terms of calendar days.