TA55

ENTERED

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TECHLAW INC.

September 9, 2002

Mr. Carl Will
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2905 Rodeo Park Drive East
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Reference: Work Assignment No. Y515, 06110.040; State of New Mexico Environment Department, Santa Fe, New Mexico; LANL Permitting Support, Evaluation of LANL NOD Responses for TA-55 Part B RCRA Permit Renewal Application; Task 9 Deliverable.

Dear Mr. Will:

Enclosed please find the draft deliverable for the above-referenced work assignment. The deliverable consists of evaluations of the Los Alamos National Laboratory's (LANL) responses to Notice of Deficiency (NOD) comments on the LANL Technical Area 55 (TA-55) RCRA Part B Permit Renewal Application (Revision 1, January 2002). The NODs were issued by NMED on May 16, 2002. The evaluation of the responses to the NODs includes a determination of adequacy, partial adequacy or inadequacy. Where partially adequate or inadequate, a brief explanation or discussion of additional informational needs is provided.

There are a few issues that NMED may need to give additional consideration. The first issue is that LANL has yet to provide descriptions of wastes to be stored at each of the units. LANL has only indicated broad categories of waste (e.g., mixed low-level waste). However, upon review of the revised Part A application information, it appears that we can pull the waste information needed to issue the permit.

The second issue deals with the Closure and Post-closure Plans. LANL provided responses to the Closure Plans for each unit at TA-55 and TechLaw provided an evaluation of those responses. However, it is TechLaw's understanding that NMED would like one Closure/Post-closure Plan for TA-55. NMED had requested TechLaw's support in developing a Closure/Post-closure Plan that will address all areas within TA-55. If desired, TechLaw will review the revised information provided in the TA-55 responses and incorporate any pertinent information into the TA-55 Closure/Post-Closure Plan.

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Finally, LANL has indicated that they will develop a site-specific closure/sampling plan at the time of closure. This plan will detail closure activities including sampling locations, numbers of samples, etc. This approach was taken with TA-54 and deemed acceptable by NMED. We therefore assumed that this similar approach would be acceptable for TA-55. NMED should evaluate this assumption.

Within the evaluations, some notations were made pointing out policy decisions for NMED. This included General Comment Nos. 3 and 4 and Specific Comment Nos. 8a, 32, 33, 39, 40, 48, 50f, 51a, 51g, 53c, 55a, 55e, 58, 59a, 59b, 68d, 68g, 71a, 71e, 71f, 73a, 73b, 82d, 82g, 82h, 83d, 93g, 83h, 86a, 86b, 86f, 86g, 88a, 88b, 96d, 96g, 96h, 97d, 97g, 97h, 98a, 100a, 100e, 100f, 102a, 102b, 108b, and 108c. Most of these issues involve radionuclides.

With the exception of the waste identification issue, LANL provided adequate responses to most of the NODs. Some additional detail regarding the vitrification unit is still needed (Specific Comment Nos. 113 – 117). Note that only the bare minimum of information needed to adequately address the NODs was provided by LANL. However, it appears that LANL has provided sufficient information to complete and issue a Draft TA-55 Permit.

If you have any questions, please call me at (303) 763-7188.

Sincerely,

June K Dreith

June Dreith
Program Manager

Enclosure

cc: James Bearzi, NMED
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TASK 9 DELIVERABLE

EVALUATION OF THE LANL REPONSE TO NOTICE OF DEFICIENCY TA-55 PART B RCRA PERMIT APPLICATION, JANUARY 2002, REVISION 1.0, LOS ALAMOS NATIONAL LABORATORY, DATED MAY 16, 2002

NMED General Support Contract –
Los Alamos National Laboratory Permit

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Submitted to:

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In response to:

Work Assignment No. Y513, 06110.040

September 2002

EVALUATION OF THE LANL REPONSE TO NOTICE OF DEFICIENCY TA-55 PART B RCRA PERMIT APPLICATION, JANUARY 2002, REVISION 1.0, LOS ALAMOS NATIONAL LABORATORY, DATED MAY 16, 2002

INTRODUCTION

The Los Alamos National Laboratory (LANL) responded to a Notice of Deficiency (NOD) sent by the New Mexico Environment Department (NMED) on May 16, 2002. The full title of the NOD is "Notice of Deficiency, TA-55 Part B RCRA Permit Application, January 2002, Revision 1.0, Los Alamos National Laboratory, EPA ID No. NM0890010515." LANL's responses to the NOD General Comments and Specific Comments were evaluated and are addressed below. In responding to the NOD, five LANL General Comments were presented to address NOD issues and are referenced by LANL's responses to the NOD comments.

This evaluation document reviews the LANL General Comments, as well as LANL's responses to the NOD's general and specific comments. The LANL General Comments are included in their entirety and followed by NMED's assessment (denoted **Evaluation**). Also, the document format incorporates the original NOD comment, Los Alamos National Laboratory's (LANL) response to the NOD (denoted **Response)**, and an evaluation of the LANL response (denoted **Evaluation**).

LANL GENERAL COMMENTS

LANL General Comment #1: *LANL has reviewed its waste management operations at technical area (TA) 55, and will revise its application to permit seven container storage units (CSUs), one storage tank system, one cementation unit, and one vitrification unit. The B38 CSU will be closed under interim status and has a closure plan currently in development. This closure plan will be delivered to the Hazardous Waste Bureau (HWB) this fall for review and approval. The proposed FLO1 CSU is no longer necessary for operations in Room 401 and will not be permitted. Please note that this CSU was never permitted for hazardous waste storage. LANL will revise the application to remove the applicable information associated with these CSUs.*

Evaluation: This comment clarifies and supports LANL's responses to the NOD.

LANL General Comment #2: *LANL submitted a permit application to HWB for review, and will provide any additional information needed by the agency to complete its technical review of the permit application. LANL has determined it is not in its best interest to revise the permit application other than to clarify details or correct errors/ omissions in that document. For LANL to make any other changes would result in an application that is a hybrid of LANL and HWB positions. This would be confusing to the reader and limit LANL's rights and abilities to subsequently comment and appeal a given section of the draft permit. The LANL permit application describes and supports LANL's waste management activities at TA-55. In response to the application, LANL expects that the HWB will draft a permit that complies with regulatory requirements and reflects its position on waste management practices. Keeping this in mind, LANL agrees to revise the TA-55 Permit Application to include all of the changes agreed upon in this and any subsequent RSI/NOD letters provided by the HWB. This revision will be conducted upon completion and mutual resolution of the RSI/NOD process with the HWB.*

Evaluation: NMED HWB acknowledges LANL's position regarding the revision of the TA-55 Part B permit application. NMED will consider all information supplied by LANL in drafting the permit for TA-55 whether it is submitted in a Part B permit application or in a response to an RSI/NOD letter. It is envisioned that some of the information obtained from LANL will be incorporated directly into the permit while other information will be used as a basis for developing permit language. Any remaining data gaps will be discussed with LANL and/or addressed in the permit through a compliance schedule.

LANL General Comment #3: *LANL will follow all applicable DOE and Nuclear Regulatory Commission (NRC) procedures, requirements, and guidelines as they apply to the storage, treatment, and decontamination of radioactive constituents at the TA-55 waste management units. The DOE and NRC regulations are not preempted by the federal or state regulations governing the handling of hazardous waste. Compliance with all available DOE and NRC requirements is protective of human health and the environment. The Permit Application will not be revised to include the DOE and NRC procedures, requirements, and guidelines, nor will it be revised to include details regarding the handling and/or radionuclide content of the waste streams stored and treated at the TA-55 units.*

Evaluation: NMED's RCRA authority was delegated by the US EPA and is on an equal footing with the authority of the DOE and NRC regulations. NMED does not intend to preempt DOE and NRC regulations, however, it has the authority to regulate the management of mixed wastes and, therefore, requires information associated with the safe and appropriate management of both the chemical and radiological components of said wastes. Revise the application accordingly.

LANL General Comment #4: *Facility specific procedures for waste management at TA-55 and LANL are intended to meet the operational requirements of the facility and are subject to frequent changes to update management structure, non-hazardous waste operations, and/or developing missions. It is inappropriate for these procedures to be included in the application and subsequently the permit due to their dynamic nature, which could require a permit modification each time they are updated. The procedures cited in the application and this NOD Response are written to meet facility and applicable regulatory requirements.*

Evaluation: NMED agrees that inclusion of specific procedures in the permit application is not necessary, however, complete references to all appropriate and applicable procedures must be provided in the permit application. Also, the references to these procedures must be updated through the permit modification process upon issuance of the permit, in order to reflect changes in their use, addition of new procedures, cancellation of procedures, etc.

LANL General Comment #5: *LANL is seeking to permit the vitrification unit prior to its construction at TA-55-4 and is aware that additional information may be required before commencing waste operations. The application provides the information available at the time it was issued and was intended as a placeholder pending submittal and approval of a permit modification at a later date. The "Final Design Report for DP Surety Vitrification System," (INEEL, 2001) is provided as Attachment B of this NOD Response and provides more detailed information on the unit. This information is subject to changes as the unit is constructed.*

Evaluation: NMED accepts this response, however, the final vitrification system design report does not address all of the NOD comments associated with this unit. See the response evaluations of applicable NOD comments for further explanation.

NOD GENERAL COMMENTS

1. *The Application lacks sufficient detail, especially in regard to the container storage units (CSU's). The Application does not provide detail as to how specifically the CSUs and the other waste storage and treatment activities and equipment will meet regulatory requirements. Revise the Application to include details on how the hazardous waste management units and the hazardous waste management activities will comply with requirements of the regulations.*

   LANL Response: The U.S. Environmental Protection Agency (EPA) has proposed a "Standardized Permit" for CSUs because they are routine and repetitive. The EPA suggests that, in lieu of an application, a letter of intent to operate a hazardous waste CSU be submitted to the regulatory agency. All other required documentation would be maintained on site. The existing regulations provide goals such as the closure performance standard. If that standard is met, then the closure is complete. LANL is concerned that the amount of detail being requested through the NOD process will result in an overly prescriptive permit that is difficult to implement. A more complex permit will require frequent and costly modifications to keep current, burdening both NMED and LANL without commensurate benefit. Please refer to LANL General Comment No. 2 for a discussion regarding the revision of the application.

   Evaluation: The response to this comment is inadequate. The US EPA has proposed a standardized permit under 40 CFR 270 Subpart I and 40 CFR Part 267. However, the proposed regulations are still under discussion and have not been promulgated. In addition, if 40 CFR Subpart I is promulgated by the US EPA, the State of New Mexico will still need to adopt the new regulations. The standardized permit is designed for facilities that routinely manage hazardous wastes. Issuing a standardized permit is not a simple as providing a letter of intent. Pursuant to the proposed 40 CFR 270.255, NMED would review the appropriateness of a standardized permit along with the information provided in the permit application and inform LANL of their eligibility for such a permit. NMED would then be required to give public notice or either intent to issue or deny the permit and allow a 45-day public comment period and a public hearing, if requested. Also, while the standardized permit allows for the facility to maintain much of the supporting information on-site, this information is subject to compliance audits. Until the standardized permit rule becomes promulgated, LANL must meet the requirements for a RCRA hazardous waste permit and provide details on how the hazardous waste management units and the hazardous waste management activities will comply with requirements of the existing regulations.

2. *The Application does not specifically and consistently identify hazardous waste management units which are requested to be permitted. The Application refers variously to eight and nine CSU's. Page I-I states that there are nine CSU's; Page 2-1, paragraph 1, states that there are eight CSU's; Section 2.1 states there are nine CSU's; and page 2-1, Sections 2.1 and 2.1.1 list eight CSU's. Page 4-4, Section 4.1.2.3, identifies TA-55-4, Room 401, that "may be used to store hazardous waste," and is not identified elsewhere in the Application text. Figure G-1, "Basement Container Storage Units," includes Room B38, which is not identified elsewhere as a CSU to be permitted. Page 4-4, Section 4.1.2.3, states that B38 is an inactive CSU "that is scheduled for closure under interim status," though no schedule for closure is provided and*

B38 is not included in the TA-55 Closure Plan. The number of tanks in the storage tank system is not identified. NMED requests that Permittees review for internal consistency and accuracy all documents submitted to NMED. Revise the Application to include a list and description with identifiable locations of all hazardous waste management units included in the Application.

LANL Response: The application identifies the waste management units to be permitted in Section 2.0, Attachment G, Attachment H, Attachment I, and Attachment J. For additional clarification:

There are a total of seven CSUs to be permitted at TA-55. The other two CSUs mentioned in the application consists of a proposed CSU (FLO-1) that will not be permitted and a CSU (B38) that will be closed under interim status (see LANL General Comment No. 1). Table 1 identifies each of the CSUs to be permitted including its location and capacity.

Table 1
Container Storage Units at TA-55

Unit Name	Location	Capacity [a] (gallons)
B40	TA-55-4, Basement	21,500
B05	TA-55-4, Basement	3,600
K13	TA-55-4, Basement	3,400
B45	TA-55-4, Basement	11,000
Vault	TA-55-4, Basement	4,000
Storage Pad	Northwest of TA-55-4	135,000
TA-55-185	West of TA-55-4	30,000

a This has been revised since the application to reflect the calculation of maximum capacities with a minimum aisle space of 2 feet. Please refer to the response to Comment No. 4b.

There is one storage tank system at TA-55. This tank system is composed of 4 tank components and consists of a total of 18 tanks with a maximum storage capacity of 1,200 liters or approximately 336 gallons. Table 2 identifies each tank component, its location, the number of tanks, and capacity of each tank.

Table 2
Storage Tank System at TA-55 [a]

Tank Component	Location	Number of Tanks	Tank Capacity (liters) [b]	Tank Capacity (gallons) [b]
Evaporator Glovebox Tank	TA-55-4, Room 401	1	270	71
Cementation Unit Pencil Tanks	TA-55-4, Room 401	5	50	13

Pencil Tanks	TA-55-4, Room 401	10	50	13
Vitrification Unit Slab Tanks	TA-55-4, Room 434B	2	125	33

a The storage tank system consists of 4 components that store the same waste matrix and share a common piping network. The overall capacity of the unit is 1,200 liters [~336 gallons].

b The tank capacity listed is for each individual tank associated with the component.

There are two Subpart X treatment units at TA-55. Table 3 identifies each unit, its location, and capacity.

Table 3
Subpart X Treatment Units at TA-55

Treatment Unit	Location	Capacity (liters)	Capacity (gallons)
Cementation Unit	TA-55-4, Room 401	568	150
Vitrification Unit	TA-55-4, Room 434B	50 liters/hour	13.2 gallons/hour

The unit identified in Section 4.1.2.3 that "may be used to store hazardous waste" in TA-55-4, Room 401 is FLO1, which will no longer be permitted as discussed in LANL General Comment No. 1.

The CSU at B38 is undergoing closure under interim status this fall. It is not included in the closure plan because it has a separate unit-specific closure plan containing specific information applicable to the CSU including data from the operating record. This closure plan will be submitted to NMED for approval upon completion.

LANL will revise the application to clarify the number and capacity of all the waste management units at TA-55.

Evaluation: The response to this comment is partially adequate. The table presented in Attachment G indicates that the FLO1 CSU will be permitted for use, although the response indicates it is no longer proposed as a CSU location. Revise Attachment G accordingly.

Also, the capacity values referenced in the text of the response are not consistent with the total capacity values calculated from the response tables. Verify the capacity values and converted measurements and revise all references to these values, as necessary, throughout the application.

3. *The Application does not address the radiological components of the wastes. Radiological characterization is required for storage, treatment, transportation and packaging of treated waste, disposal, decontamination, and verification for closure. The Application should address these issues or provide adequate references to documents that do address the radiological components of the waste.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

4. *Attachments B.1 and B.2, the waste analysis plans for the cementation unit and vitrification unit, respectively, only provide information related to the waste analysis plan for the hazardous waste component of the mixed wastes and not the radiological component.*

   LANL Response: Please refer to LANL General Comment No. 3.

   Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

5. *In the event that there is leak or spill from one of the storage tanks (e.g., storage tank system, cementation unit tank component and/or vitrification unit tank component), the tank must be removed from service until the requirements of 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.196) have been met. If major repairs are warranted, the tank system cannot be returned to service until certification by an independent, qualified, registered, professional engineer has been obtained demonstrating that the repaired system is capable of handling hazardous wastes without a release for the intended life of the system. This certification must be submitted to NMED within seven days after returning the tank system to use. Revise the Application to discuss repair issues for each of the tank systems and include a discussion of the certification of major repairs.*

   LANL Response: LANL addressed the requirements of 20.4.1 NMAC, Subpart V, 264, 196 [6-14-00] in Attachment H, Section H.3 of the application. The final paragraph reads as follows:

   > "If it is determined that there has been a leak or spill from any of the storage tank components into the secondary containment, the affected component or portion thereof will be removed from service immediately and the requirements of 20.4.1 NMAC, Subpart V, 264, 196 [6-14-00], will be initiated."

   In the event of a leak or spill from one of the tank components associated with the storage tank systems (e.g., cementation pencil tanks) the tank must be removed from service until the requirements of 20.4.1 NMAC, Subpart V, 264.196 have been met. If a major repair were needed to a storage tank system component, the component would likely be replaced not repaired. In either case, an independent certification will be needed prior to returning the tank component to service.

   Evaluation: The response to this comment is adequate.

6. *The Application references the definition for a solid waste management unit (SWMU) in Section 4.0. However, hazardous waste management units and regulated units are not addressed. Closure of hazardous waste management units must be addressed in the Application, not under general LANL corrective action, and compliance must be demonstrated with all requirements under 40 C.F.R. Part 264, Subpart G.*

LANL Response: All of the hazardous waste management and regulated units (as applicable) located at TA-55 are addressed in Section 4.1.2 of the application. These units are, by definition, solid waste management units (SWMUs) as provided in Module VIII of the LANL Hazardous Waste Facility permit, which states that a SWMU is

> "any discernable unit at which solid wastes have been placed at any time..."

The SWMUs at TA-55 that are active hazardous waste management units are not included in Module VIII of the permit and are not subject to corrective action requirements. Section 4.1.2 of the application states that these units

> "…..are active hazardous/mixed waste management units operating under interim status standards and will be closed in accordance with a RCRA closure plan."

Closure for these active units is addressed in Attachments F.1, F.2, F.3, and F.4 of the application.

Evaluation: The response to this comment is adequate.

NOD SPECIFIC COMMENTS

Comment No. 1, Section 1.0 - Introduction

1. Section 1.0, Table 1-1

Delete or indicate as NA references to "post-closure plans," "post-closure," "post-closure care," "Post-closure notices," and "Post-closure cost estimate. " Treatment, storage, and miscellaneous units at TA-55 must be closed by removal or decontamination of hazardous waste and hazardous waste residues, and post-closure care with waste left in place is not an option at those units.

> **LANL Response:** Table 1-1 was generated from the Review Checklist for Part B General Requirements found in the "HRMB Standard Operating Procedures Manual" (HRMB, 1998). These items are listed in Table 1-1 to ensure compatibility with the checklist. Post closure plans, post closure, post closure care, post closure notices, and post closure cost estimate may not be an available option at these units, but they are an option for surrounding soils and adjacent SWMUs. Because they are an option for these areas they are addressed in Attachments F.1, F.2, F.3, and F.4 as indicated in the table.
>
> **Evaluation:** The response to this comment is adequate.

Delete or indicate as NA references to "Closure cost estimate, "Post-closure cost estimate," "Liability insurance, " and "Proof of financial coverage. " Permittees as state and federal governments are exempt from those requirements under 20.4.1.500 (incorporating 40 C.F.R. § 264.140(c)).

> **LANL Response:** Table 1-1 was generated from the Review Checklist for Part B General Requirements found in the "HRMB Standard Operating Procedures Manual" (HRMB, 1998). These items are listed in Table 1 to ensure compatibility with the checklist. LANL agrees that, as a DOE facility, it is

exempt from the closure cost estimate, post-closure cost estimate, liability insurance, and proof of financial coverage requirements of 20.4.1 NMAC, Subpart V, 264.140 (c). However, these items are addressed in Attachments F.1, F.2, F.3, and F.4 as indicated in the table.

Evaluation: The response to this comment is adequate.

Comment Nos. 2 - 26, Section 2.0 – Waste Management Units

2. *Section 2.1. Container Storage (40 C.F.R. §§ 270.15 and 264.170 through 264.178)*

The Application refers to eight and nine CSU's. Revise the Application to accurately describe the hazardous waste management units for which a permit is being requested.

LANL Response: Please refer to the response to General Comment No. 2.

Evaluation: The response to this comment is adequate, however, Attachment D (Sheet M2) and Attachment G continue to reference the proposed FLO1 CSU. Also, Attachment I indicates that eight CSUs actively manage hazardous/mixed waste. Revise the application accordingly.

3. *Section 2.1.2. Storage Containers (40 C.F .R. § 264.172)*

a) *The Application must discuss each type of waste container that will be used to store each type of waste at each CSU. Revise the Application to strike vague descriptors such as the words "may be," "may have," and "not limited to" and revise the Application to include all types of waste containers that will be used to store waste at all CSU's.*

LANL Response: LANL conducts basic research in a variety of disciplines for a number of government agencies, including the DOE, the U.S. Department of Defense, and the National Aeronautics and Space Administration. In addition, the University of California (UC) (the operator of the laboratory) receives a fee from the DOE under its contract to perform Locally-Directed Research and Development. This allows UC to conduct basic research in areas of its own direction. There are a number of mature programs at LANL where specific containers can be identified for future use. However, the broad range of research that could be conducted during the term of the renewed permit makes it difficult to identify all of the containers that might ever be used at TA-55.

As discussed with the HWB on May 23, 2002, LANL will not limit the flexibility of its CSUs by specifying the type of containers to be stored in them. In addition, LANL requires the flexibility to place waste types in various sized containers to maximize packaging and storage efficiency at its CSUs. For this reason and as agreed upon at the May 23, 2002 discussion, specific information regarding the type of waste placed in each type of container beyond the hazardous and/or mixed waste classifications is not provided.

LANL will remove "may be," "may have," and "not limited to" and revise the application to include the following basic container sizes:

- 0.25, 0.5, 0.75, 1, 2, and 4, 6 Liter Containers
- 5, 10, 12, and 15 Gallon Containers
- 30, 55, and 85 Gallon Steel Drums
- Special Order Waste Boxes
- Large Waste Boxes
- Standard Waste Boxes (SWB)

Additional information regarding typical storage containers utilized at TA-55 is also provided as Tables C-1 and C-2, in Attachment C of this NOD Response. Please note that these tables do not contain information on all of the possible containers to be used and that the containers are identified by size without limiting the materials of construction.

Evaluation: The response to this comment is adequate.

b) *Several types of containers are mentioned in the Application including "various small containers." These various small containers are not described in Section 2.1.2 or anywhere else in the Application. Revise the Application to include a detailed description of all containers to be permitted for use for storage of any hazardous waste.*

LANL Response: The "various small containers" to be used for waste storage at the TA-55 CSUs include 0.25, 0.5, 0.75, 1, 2, and 4, 6 Liter containers. Please refer to the response to Comment No. 3a for additional discussion.

Evaluation: The response to this comment is adequate.

c) *For each type of container listed, the maximum number of each type of container allowed at each CSU must be provided. In addition, the type of waste placed in each container should also be provided. Revise the Application to include this information.*

LANL Response: Please refer to the response to Comment No. 3a.

Evaluation: The response to this comment is adequate.

4. *Section 2.1.3, Minimum Aisle Space and Storage Configuration (40 C.F.R. § 264.35)*

a) *The requirements for aisle space as outlined in 20.4.1.500 NMAC (incorporating 40 C.F .R § 264.35) state that aisle space must be maintained that will allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the facility in an emergency. The Application indicates that, for all storage locations, a minimum aisle space of two feet will be used. It is questionable whether an aisle space of two feet will be adequate to meet the above stated requirements. Standard industry practice is to use an aisle space of three feet. Either provide adequate justification for the use of an aisle space of two feet in all*

storage locations within TA-55 or revise the Application to specify a minimum of three feet of aisle space.

LANL Response: LANL has reviewed the hazardous waste regulatory requirements for aisle space and has not found a specified width for CSUs. The regulatory requirement in 20.4.1 NMAC, Subpart V, 264.35 states:

> "The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless it can be demonstrated to the Regional Administrator that aisle space is not needed for any of these purposes."

LANL can justify a two-foot minimum aisle space, as follows:

- Waste storage operations at the active TA-55 CSUs currently utilize a minimum two-foot aisle space. This includes the use of this aisle space for routine hazardous waste inspections, which have been unhindered, successfully completed, and documented.

- The current LANL Hazardous Waste Facility Permit provides a precedent for the two-foot aisle space at TA-54 as an established permit condition.

- The aisle spacing in between rows of drums at the CSUs is considered a "means of egress." As stated in OSHA (29 CFR § 1910.37(c)(2)) "a means of egress shall be measured in units of exit width of 22 inches." Because the aisle spacing at each of the CSUs is a minimum of two feet, this OSHA requirement is met.

- Four of the seven CSUs (Storage Pad, B40, K13, and the Vault) discussed in the application will be used to store liquid and/or potentially liquid hazardous/mixed wastes. Since these CSUs have the potential for a spill, the necessary spill control equipment is available and will be hand carried between the rows of drums. This hand carried spill equipment easily fits within the two-foot aisle space.

- Combustible materials at the CSUs are kept at a minimum and the majority of waste storage is conducted in steel containers (e.g., drums, SWBs). Fire protection at the TA-55 CSUs is provided either by a room sprinkler system or by fire extinguishers that can be hand carried within two-foot aisle spaces. The routine procedure in the event of a fire is for an individual to evaluate the situation and, if the situation will not put the individual at risk, use the fire extinguisher if he/she is trained to operate the extinguisher. The individual's main responsibility is to pull the fire alarm, safely exit the structure, and await the arrival of the emergency response team and the fire department; the activities by the response crews would not likely involve fighting the fire at close proximity.

Evaluation: The response to this comment is adequate.

b) *A container layout figure for each of the CSU's within TA-55 must be provided. The figure must contain a layout of the storage location, location of each type of storage container, location of aisles, and containment systems. Revise the Application to include container layout figures for each of the CSU's.*

LANL Response: A container layout figure for each of the TA-55 CSUs is provided in Attachment D of this NOD Response. These figures represent one possible storage configuration and provide the dimensions and location of potential aisle space at each CSU. Please note that the figures in Attachment D are provided for informational purposes only and that the actual configuration and number of containers may vary up to the maximum capacity indicated on the figure. Please refer to the response to Comment No. 3a for additional discussion regarding container sizes and types.

Evaluation: The response to this comment is adequate, however, Sheet M2 presented in Attachment D lists two different values for the maximum capacity for the K13 CSU. The table on Sheet M2 lists the maximum capacity for the K13 CSU as 2,500 gallons, while the title of the configuration drawing for the K13 CSU indicates a maximum capacity of 3,400 gallons. Verify the maximum capacity of the K13 CSU and revise Sheet M2 accordingly.

c) *Six CSU's are requested to be permitted in the April 1998 General Part A Application. There are eight or nine proposed CSU's in the TA-55 Permit Application. The numbering scheme for the container storage, vitrification, and cementation units must provide a cross reference to the numbering scheme found in the General Part A Application. Additionally, the capacities found in the General Part A are inconsistent with the TA-55 Permit Application. For example, the Building 185 CSU has a maximum storage capacity of 55,000 gallons in the TA-55 Application and a maximum storage capacity of 27,500 gallons in the General Part A Application. Revise the Applications to be accurate and consistent with one another.*

LANL Response: Table 4 provides a summary of the differences between the "Los Alamos National Laboratory General Part A Permit Application" (LANL, 1998a), hereinafter referred to as the General Part A, and the application:

Table 4
General Part A and TA-55 Part B Permit Applications Crosswalk for Container Storage Unit Identifications and Capacities

1998 General Part A Application [a]		2002 TA-55 Part B Application [b]		Status
Unit ID	Capacity (gallons)	Unit ID	Capacity (gallons)	
Area 1	27,500 [c]	B40	21,500	Active CSU
Area 2		B38	3,000	To be closed
Area 3		B05	3,000	Active CSU
Area 4	3,400	K13	3,400	Active CSU

Area 5	3,400	B45	3,400	Active CSU
Area 6	4,000	Vault	4,000	Active CSU
Storage Pad	135,000	Storage Pad	135,000	Active CSU
TA-55-185	27,500	TA-55-185	55,000 [d]	Proposed CSU

a LANL, 1998, "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

b LANL, 2002, "Los Alamos National Laboratory TA-55 Part B Permit Application," Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

c Total combined capacity for all three areas.

d Previous capacity was based on use of only half the building for storage. The waste management needs of the facility have changed such that the entire building will now be used.

The application represents the most up to date information for the CSUs at TA-55 and supercedes the General Part A. LANL is in the process of revising the LANL General Part A to match the numbering scheme and capacities identified in the application as revised due to the RSI/NOD process. This revised General Part A application will be delivered to the HWB in August of this year.

Please refer to the response to General Comment 2 for the revised capacity, which was updated to reflect minimum aisle space requirements.

Evaluation: The response to this comment appears to be adequate, but the revised Part A must be reviewed to verify consistency between the Part A and Part B permit applications.

d) *The Application states that large containers may be stacked to a maximum of two "high unless size and weight restrictions prohibit it for safety reasons. Revise the Application to include a discussion of specific criteria and methods that will be used to determine the maximum stacking height for each type of container.*

LANL Response: LANL will revise the application to clarify that containers will be stacked to a maximum of two high unless they are too large or heavy to be supported by the container(s) to be located underneath and/or maneuvered with the available forklift/crane/hoist. Containers will be arranged in rows and stacked to a maximum of 10 feet high, based on the requirements in 49 CFR 178.606 (c), "Performance-Oriented Stack Test."

Evaluation: The response to this comment is adequate, however, the results of any stack testing should be noted in the respective CSU's operating record. Revise Section 2.1.3 accordingly.

5. *Section 2.1.5, Condition of Containers (40 C.F.R. § 264.171)*

a) *The Application states that any waste container not in good condition will be overpacked or the waste will be repackaged in a container in good condition. The materials of the overpack container must be compatible with both the waste and the other container. In addition, the overpack container and/or new container must be compatible and resistant to environmental conditions (e.g., corrosion). Revise the Application to include a discussion of this information.*

LANL Response: LANL will revise Section 2.1.5 as follows:

"Containers must be without severe rust, dents, deep scratches, bulges, or other structural defects. Any waste container that is not in good condition (e.g., severe rusting, apparent structural defects) is overpacked or the waste is repackaged in a container that is in good condition and is compatible with the waste, packaging material, and/or other container. Overpack and/or new containers must also be compatible with and resistant to environmental conditions. This meets the requirements of 20.4.1 NMAC, Subpart V, 264.171 [6-14-00]."

Evaluation: The response to this comment is adequate.

b) *Containers must be shown to be free of surface contamination. Revise the Application to discuss how containers will be examined or surveyed to determine if the outside surfaces are free of contamination.*

LANL Response: LANL will add the following paragraph to Section 2.1.7 as follows:

"All containers are regularly inspected for evidence (e.g., corrosion, visible staining, bulges, rupture, dents, leaks) that may indicate surface contamination. If any evidence of surface contamination is detected, the waste container is either overpacked in an appropriate container or the waste is repackaged in a new container as discussed in Section 2.1.5."

Evaluation: The response to this comment is adequate.

c) *Container liners are not discussed, although it is mentioned in Section 2.1.2 that some drums may have liners. These liners are typically procured to a specification describing the functional requirements of fitting inside the drum, material thickness and tolerances, and quality controls and required testing. Also, a quality control program is established to ensure liners meet the specifications. Revise the Application to discuss liners for all containers, requirements (including waste and container compatibility) and quality control procedures to ensure compliance with the requirements.*

LANL Response: LANL will revise Section 2.1.5 to include the following paragraphs:

> "TA-55 uses the LANL procurement system, administered by the Business Operations (BUS) Division, for procurement of waste container components. Suppliers of waste container components are audited by BUS for qualification prior to conducting business transactions. BUS also uses approved procurement product specifications that include quality assurance and ensure that the container package meets U.S. Department of Transportation (DOT) (49 CFR 173.410) requirements for Type A/7A packages.

"Containers procured by BUS include liners if required for the container to pass the manufacturer's tests for A/7A compliance. When liners are procured individually, a representative sample of the purchased liners is inspected for compliance with appropriate specifications using an approved inspection procedure. It is the generator's responsibility to ensure the container and pedigree is inspected for compliance with the specification provided to the supplier. Containers that do not pass inspection are segregated from those that are acceptable to prevent inadvertent use.

"Prior to filling the container with waste, all container components (e.g., lid, liner, and interior/exterior surface) are inspected by the waste generator to ensure container integrity as well as compatibility with the type of waste to be placed into the container. The "Los Alamos National Laboratory Waste Acceptance Criteria," hereinafter referred to as the LANL waste acceptance criteria (WAC) (LANL, 2002b) requires waste generators to ensure the compatibility of the waste container, including liners, with the waste to be containerized. Information regarding the liner's compatibility with the waste components can be obtained from the container/liner manufacturer."

Evaluation: The response to this comment is adequate.

6. *Section 2.1.6, Compatibility of Waste with Containers (40 C.F.R. § 264.172)*

a) *The Application states that only containers made of, or lined with, materials that will not react with wastes stored in them will be used. Revise the Application to provide a discussion of the documentation of waste compatibility for each of the containers and liners to be used. In addition, discuss what types of waste will be used in each type of container.*

LANL Response: The TA-55 CSUs are used to consolidate mixed waste generated at the Plutonium Facility. Transuranic mixed wastes are packaged in chemically compatible waste containers and prior to being shipped to TA-54 are placed in a container that is in compliance with the DOT requirements for containers. Low-level mixed wastes are packaged in chemical compatibility waste containers. Prior to shipping to the centralized treatment, storage, and disposal facility at TA-54, these low-level mixed waste containers are repackaged in compliance with the DOT requirements for containers.

DOT packaging requirements are based on the Packing Group of the material, its vapor pressure, and the chemical compatibility between the package and the hazardous material. In addition, for non-bulk containers, DOT requires performance-oriented testing. The required performance tests include the drop test, the leak-proofness test, the hydrostatic pressure test, the stacking test, the cooperage test for bung-type wooden barrels, and vibration standard. Bulk containers are divided into specification containers and intermediate containers. For specification bulk containers, DOT has developed detailed specification that covers the design, fabrication, and certification of these containers. For intermediate bulk containers, DOT has established performance testing that these containers must pass. In addition to the performance tests required for non-bulk

packaging, intermediate bulk containers must also pass the bottom and top lift test, the topple test, the righting test, and the tear test. To verify that each bulk and non-bulk package has been manufactured to meet the requirements established by DOT, each authorized container must be specifically marked in accordance with DOT requirements. Manufacturers who apply this marking must register with and are periodically inspected by the DOT. DOT regulations allow the user to accept these markings in determining the packaging compliance. In addition to the design qualification testing performed by the manufacturer, DOT also requires periodic re-testing.

For each hazardous material there is one and only one proper shipping name. DOT regulations provide specific guidance in determining this proper shipping name. Based on this proper shipping name, the Hazardous Materials Table identifies the Packing Group for this material as indicated in Table 5. The Packing Group is designed to indicate the degree of danger presented by the material.

Table 5
Identification of Packing Group

Packing Group	Degree of Danger
I	Great
II	Medium
III	Minor

For each proper shipping name, the Hazardous Materials Table also identifies the specific non-bulk and bulk containers authorized for the packaging of that material. The authorized containers are identified by reference to the specific numerical section in 49 CFR Part 173 that is applicable to that hazardous material. The authorized containers are identified by either their DOT specification or the United Nations (UN) standard. In addition to specifying the specific non-bulk or bulk containers that must be used, the numerical section also identifies any additional packaging requirement that must also be met, if applicable.

The container standards developed by DOT are designed to protect the health and safety of the workers, the public, and the environment from the hazards associated with the transport of hazardous materials. In conducting their evaluation, DOT examined all operations and conditions associated with and involved in the movement of hazardous materials; these include the design, fabrication, and maintenance of packaging, and the preparation, consigning, handling, carriage, storage, and receipt of packaged hazardous waste. A number of the performance tests are directly related to storage, such as the stacking test. In this test, the package is subjected to a force applied to the top surface of the test sample equivalent to the total weight of identical packages that may be stacked on it during storage or transport. The minimum stack height is 10 feet for a maximum duration of 28 days. The stacking test for DOT Type 7A-

specification packaging for the shipment of radioactive material is more stringent. These packages must be able to withstand the compressive load equivalent to five times the mass of the actual package or 1.9 pounds per square inch multiplied by the vertically projected area of the package, whichever is greater.

Some containers will be used for storage of waste prior to placement of the container in an approved DOT shipping container. These non-DOT approved storage containers will receive the same scrutiny when selecting the container as would be used for selecting a DOT shipping container. This selection ensures that there are no waste/container incompatibility problems.

Please refer to the response to Comment No. 5c for additional discussion.

Evaluation: The response to this comment is adequate.

7. *Section 2.1.7 Management of Containers*

a) *The Application states that waste containers will be opened when waste is added or removed or if the container's contents require repackaging. The Application does not discuss whether containers will be opened within a work enclosure that provides confinement, preventing any release of waste constituents. A detailed description of the waste enclosure, including any special ventilation systems, waste containment systems, and special handling requirements should be provided in the Application. Revise the Application to outline specific waste handling requirements for opening waste containers and the work enclosure area for handling each type of waste container and waste type.*

LANL Response: LANL will revise Section 2.1.7.1 to include the following paragraphs:

> "Waste repackaging at TA-55 involves the addition of waste received from the waste generators into a partially filled secondary container or movement of waste from one secondary container to another. If the primary container requires overpacking due to container failure, it will be overpacked into a container that will become the primary container. Waste repackaging will occur at the K13 and the B40 CSUs except for overpacking, which will occur at any TA-55 CSU.
>
> "K13 and B40 are also used to packaged waste received from the waste generators. Waste received into K13 consists of small waste items that are eventually packed into secondary containers to maximize storage and shipping efficiency. B40 receives large waste items that need to be packaged into an SWB or ST45/ST90 shipping container. The following procedures are used to package and repackage waste:
>
> - "Packing TRU Waste Containers," NMT7-WI3-SOP-TA55-013 (LANL, 2002c).

- "Managing Solid Low-Level Waste at TA-55," NMT7-HCP-TA55-DP-02L (LANL, 2002d).
- "Certification and Disposal of Low-level," NMT7-SOP-TA55-DP-01L (LANL, 2002e).
- "Certification and Disposal of Low-Level, Oversize Waste," NMT7-WI3-TA55-HCP-DP-02L (LANL, 1999a).

"The TA-55-4 basement floors and walls provide secondary containment for the K13 and B40 CSUs. Each CSU is provided with ventilation from the TA-55-4 facility ventilation system. This ventilation system is designed to monitor air pressure and ambient air for personnel working in areas where hazardous or mixed waste is managed. It creates zones within TA-55-4, which are at a lower pressure than the outside air. Air flows from the zones of highest pressure to the zones of lowest pressure (highest potential contamination areas). The airflow through the different zones is carefully balanced and controlled to provide the greatest protection to personnel as well as to the environment. If negative air pressure exceeds designated limits, a ventilation alarm (a slow, repeating chime sound) is activated.

Evaluation: The response to this comment is adequate.

b) *In addition to containers being closed, 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.1086(c)(ii)) also requires that the cover and closure devices form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position, there are no visible holes, gaps or other open spaces into the interior of the container. Revise the Application to clarify that in addition to containers being closed, the closing devices will be secured in a manner that there are no visible holes, gaps, or other open spaces into the interior of the container.*

LANL Response: LANL will revise the first paragraph of Section 2.1.7 to state the following:

> "Waste containers stored at the TA-55 CSUs are handled in a manner that will not cause them to rupture or leak, as required in 20.4.1 NMAC, Subpart V, 264.173(b) [6-14-00]. All containers are kept closed during storage in accordance with 20.4.1 NMAC, Subpart V, 264.173(a), except when waste is added to or removed from the container or when a container's contents need to be repackaged. In addition to the containers being closed, the closing devices will be secured in a manner that provides no visible holes, gaps, or other open spaces into the interior of the container, in accordance with 20.4.1 NMAC, Subpart V, 264.1086(c)(1)(ii). Inspections of the containers while they are in storage will be used to verify that there are no visible holes, gaps, or other open spaces into the interior of containers while they are in storage. These inspections will be conducted in accordance with "Storage Area Inspections" NMT7-WI1-HCP-TA-55-011 (LANL, 2001)."

Evaluation: The response to this comment is adequate.

8. *Section 2.1.7.2, Labeling, Recording and Sampling System*

a) *The Application indicates that, where necessary, a "Radioactive Material/Radioactive Waste" label will be attached to waste containers, Revise the Application to include the specific criteria that is used to determine whether containers require radioactive labeling. Include whether the radioactive criteria applies to levels of activity of the waste inside the container and if it applies to external radiological container activity readings.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *Revise the Application to include a copy or example of the Waste Profile Form (WPF) that will accompany all wastes.*

LANL Response: An example of the waste profile form (WPF) is provided as Attachment E to this NOD response. The WPF is provided for information purposed only.

Evaluation: The response to this comment is adequate, however, the waste profile form must be incorporated in the permit application. Revise the application accordingly.

9. *Section 2.1.8. Containment Systems (40 C.F.R. §§ 270.15(a-b) and 264.175(a-b))*

a) *The Application states that LANL databases may be used initially to verify the absence or presence of free liquids in containers. The Application must provide the methodologies that will be used in addition to acceptable knowledge (AK) to determine the presence and amount of or absence of free liquids. Revise the Application to include these methodologies.*

LANL Response: The word "may" was used to indicate the possible use of the LANL databases as a source of AK information to determine the presence or absence of free liquids in waste containers. In addition to AK, visual examination and/or verification will be used. This visual verification is used as a quality assurance tool to ensure that the waste matches its associated waste profile description and meets LANL waste acceptance criteria.

Please refer to the "Response to Notice of Deficiency; RCRA Permit Application General Part A, April 1998, Revision 0.0; General Part B, October 1998, Revision 1.0; Los Alamos National Laboratory; May 16, 2002" (LANL, 2002f) for a more detailed description of the AK process.)."

Evaluation: The response to this comment is adequate, however, this information must be presented in the permit application.

b) *The containment requirements as outlined in 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.175(b)(1)) are not addressed in the Application. Specifically, the Application must discuss the underlying base of the containment systems and demonstrate 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. Revise the Application to discuss the base of the containment systems and to demonstrate compliance with the appropriate regulation.*

LANL Response: The containment requirements outlined in 20.4.1 NMAC, Subpart V, 264.175(b)(1) are addressed in Attachment G, Section G.2. In addition, photographs of the secondary containment associated with the applicable TA-55 CSUs are provided in Attachment F of this NOD Response.

Evaluation: The response to this comment is adequate, however, NOD Response Attachment F presents photographs that identify the secondary containments for only the B40, B05, K13, and B45 CSUs. The secondary containments for the Vault, Storage Pad, and TA-55-185 CSUs are not identified in the photographs; provide the appropriate photographs for these three CSUs.

c) *The Application should provide calculations showing the requirements for secondary containment at each CSU. The calculations should demonstrate the amount of liquid and necessary containment requirements. Revise the Application to include containment calculations.*

LANL Response: Table 6 is provided to summarize the capacity associated with the secondary containment provided for each container storage unit at TA-55.

Table 6
Secondary Containment Capacities for Container Storage at TA-55

Container Storage Unit	Location	Waste Types	Maximum Capacity (gallons)	Secondary Containment	Capacity of Secondary Containment (gallons)
B05	TA-55-4, Basement	Solid	3,600	Basement	46,258
B40		Solid and Liquid	21,500		
B45		Solid	11,000		
K13		Solid and Liquid	3,400		
Vault		Solid and Liquid	4,000		
TA-55-185	West of TA-55-4	Solid	30,000	NA	NA
Storage Pad	Northwest of TA-55-4	Solid and Liquid	135,000	Covered Self-Containment Pallets	112[a]

a No more then 110 gallons (i.e., 2 55-gallon drums) of free liquids will be stored on an individual self-containment pallet.

Attachment G of this NOD Response provides a spreadsheet that includes the dimensions of the secondary containment, the total surface area, maximum quantity of liquid to cover the area, and the capacity of the containment. LANL will revise Section 2.1.8 of the application to include Table 6.

Evaluation: The response to this comment is adequate.

d) *The description of secondary containment must also include a calculation of the surface area and the quantities of liquid that would cover the area for each CSU. Revise the Application to include this calculation.*

LANL Response: Attachment G of this NOD Response provides a spreadsheet that includes the dimensions of the secondary containment, the total surface area, maximum quantity of liquid to cover the area, and the capacity of the containment. Please note that these calculations were generated under the assumption that the total volume of the CSU was liquid and was released. This is an extremely conservative assumption and represents the maximum volume capable of being released into the secondary containment. LANL will revise Attachment H of the application to include the spreadsheet calculation provided in Attachment G.

Evaluation: The response to this comment is adequate.

e) *The Application states that accumulated liquids will be removed from containment areas. However, 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.175(b)(5)) specifically states that spilled and leaked waste and all accumulated liquids must be removed in a timely manner to prevent overflow of the collection system. Revise the Application to state that all accumulated liquids will be removed in a timely manner to prevent overflow of the collection system.*

LANL Response: Attachment K, Section K.3.2 of the application states the following:

> "Runoff control of liquids resulting from fire-suppression activities and from leaks or spills will be accomplished by using a vacuum truck, a portable pump, a high-efficiency particulate air (HEPA) vacuum, and/or sorbents, depending on the volume and location of accumulated liquid. Accumulated liquids will be removed as soon as possible."

Please note that this text is applicable to all of the waste management units at TA-55.

Evaluation: The response to this comment is adequate.

f) *Provide a discussion that demonstrates how containers will be kept from contact with any potentially accumulated liquids.*

LANL Response: A discussion demonstrating how containers are kept from contact with potentially accumulated liquids is provided in Attachment G, Section G.2, Page G-4. This discussion includes the following text:

> "Containers holding hazardous or mixed waste in each CSU will be protected from potential contact with accumulated liquids that could be introduced in the event of a plumbing failure or as a result of fire-suppression activities,

leaks, spill, or precipitation by either being elevated or stored in an area that is designed and operated to removed accumulated liquids."

Evaluation: The response to this comment is adequate.

10. *Section 2.1.10, Special Requirements for Ignitable, Reactive, and Incompatible Wastes (40 C.F.R. && 270.14(b)(9), 270.15(b-c), 264.17(a-b). 264.176, and 264.177)*

a) *The Application must include engineering drawings or other data that show the storage location for containers of ignitable and/or reactive wastes and which demonstrate that the containers are located 50 feet from the TA boundary. Revise the Application to include this figure(s).*

LANL Response: 20.4.1 NMAC 264.176 states that containers holding ignitable or reactive waste must be located at least 50 feet from the facility property line. Please note that LANL considers the facility boundary to be the boundary of the entire laboratory. The topographic map included as Figure A-5 of the application shows that all of the CSUs at TA-55 are located at least 50 feet from the LANL facility boundary. Furthermore, the nearest public access road to TA-55 is Pajarito Road. The closest TA-55 CSU resides over 400 feet from Pajarito road.

Evaluation: The response to this comment is adequate.

b) *The Application states ignitable and reactive waste containers are protected from the possibility of accidental ignition or reaction. Revise the Application to include a discussion of these specific policies. Precautions to be taken should include prevention of ignition, spontaneous ignition, and radiant heat.*

LANL Response: LANL will revise Section 2.1.10 of the application to include the following text:

"Ignitable or reactive waste is stored at the K13 CSU and on the container storage pad. Pursuant to 20.4.1 NMAC, Subpart V, 264.17 [6-14-00], LANL will follow specific waste management procedures for ignitable and reactive waste. Containers with ignitable or reactive wastes are located at least 50 feet from the facility property line at all times and are protected from sources of ignition or reaction. Waste management practices at the TA-55 CSUs minimize the possibility of accidental ignition. There are no sources of open flames allowed at the CSUs, and smoking is prohibited. Cutting and welding activities are never conducted in the vicinity of waste containers without proper controls. Ignitable and reactive wastes are segregated and separated by distance and are stored in either a flammable cabinet or self-containment unit. Only non-sparking tools are used in handling waste containers, and lightning rods are located on all storage structures. "No Smoking" signs are conspicuously placed wherever there is a potential hazard from ignitable or reactive waste.

"Precautions are taken to prevent reactions that may produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human

health or the environment, or produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions include keeping containers closed during storage and venting containers of mixed transuranic waste. Together, these measures meet the requirements of 20.4.1 NMAC, Subpart V, 264.17(a) and (b) and 264.176.

"Incompatible wastes, if any, are segregated and separated during storage. All waste is segregated and stored in accordance with the following DOT compatibility groups:

- Flammables (Class 3)
- Oxidizers (Class 5.1)
- Combustible/Noncombustible Miscellaneous Hazardous Material (Class 9)
- Corrosives (Class 8)
- Poisons (Class 6)
- Radioactive (Class 7)
- Acids (Class 8)
- Reactive (Class 4)
- Non-regulated materials.

"Incompatible wastes are separated and segregated from other wastes and materials by means of berm, dike, wall, or other specific means (e.g., secondary containment pallets, modular sheds, and distance). In addition, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste, as required by 20.4.1 NMAC, Subpart V, 264.177(a) and (b), and 20.4.1 NMAC, Subpart IX, 270.15(d).

"Ignitable, reactive, and incompatible wastes will not be stored at TA-55-4, B40, B05, B45, the Vault, and TA-55-185; therefore the requirements of 20.4.1 NMAC, Subpart V, 264.17, and 20.4.1 NAMC, Subpart IX, 270.15 (c) and (d) [6-14-00] do not apply."

Evaluation: The response to this comment is adequate.

c) *The Application must also describe all processes that will be used to prevent reactions that may generate extreme heat, 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; or be a threat to human health or the environment. Revise the Application to include a discussion of these preventative processes.*

LANL Response: Please refer to the response to Comment No. 10b.

Evaluation: The response to this comment is adequate.

d) *Under 20.4.1.500 NMAC (incorporating 40 C.F.R. § 246.1101(a)(3)), the Application must ensure the management of incompatible wastes within a CSU where secondary containment systems will be used and show that the presence of incompatible wastes will not cause the secondary containment system to leak, corrode, or fail. Revise the Application to discuss safeguards that are in place to ensure the compatibility of incompatible wastes with the secondary containment systems.*

LANL Response: Please refer to the response to Comment No. 10b.

Evaluation: The response to this comment is adequate.

11. *Section 2.1.11. Closure (40 C.F.R. § 264.111 and 264.178)*

Revise the Application to state that at closure of a CSU all hazardous waste will be removed from the CSU and all hazardous waste and hazardous waste residues will be removed or decontaminated in compliance with 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.178).

LANL Response: LANL will revise Section 2.1.11 to include the following text:

> "Partial closure will be accomplished by removal of hazardous wastes and residues from the surfaces and/or equipment associated with the CSU to be closed and that may have come into contact with the wastes."

Evaluation: The response to this comment is adequate.

Refer to specific comments on Attachment F.1 of the Application.

LANL Response: No response required.

Evaluation: The response to this comment is adequate.

12. *Section 2.2, Storage Tank System (40 C.F.R. §§ 270.15 and 264.191 through 194)*

a) *Identify the number of tanks in the storage system.*

LANL Response: Please refer to Table 2 of the response to General Comment No. 2.

Evaluation: The response to this comment is adequate.

b) *The Application indicates types of wastes that "may" be stored in the tank system. The Application must include all types of wastes to be permitted for the tank system. Either remove the word "may" or revise the Application to include a discussion of all the specific types of wastes to be permitted for the tank system.*

LANL Response: The word "may" is used to indicate that the waste is allowed to be stored in the storage tank system. Only mixed waste evaporator bottoms solutions will be stored in the storage tank system. These mixed waste solutions

are assigned the EPA Hazardous Waste Numbers presented in the LANL General Part A. LANL will remove the word "may" from the text.

Evaluation: The response to this comment is adequate.

c) *More detailed information on the storage tank system was provided in Attachment H of the Application. Refer also to comments related to Attachment H.*

LANL Response: No response required.

Evaluation: The response to this comment is adequate.

13. *Section 2.2.2 Containment Systems (40 C.F.R. §§ 270.16(g) and 264.193(a-d))*

a) *The secondary containment areas in TA-55-4, rooms 401 and 434A, consist of 10- inch thick, steel reinforced concrete floors. While the concrete appears to have sufficient strength and thickness to prevent containment failure, it is not clear how the surface of the concrete will be decontaminated in the event of a system or tank failure. The overall decontamination plan was presented, however this plan does not address periodic decontamination of secondary containment systems in the event of a leak. The Application also does not address whether the concrete floors have an epoxy or similar coating to aid in removal of contaminants and to prevent contaminants from seeping into the concrete. Revise the Application to address these issues.*

LANL Response: These requirements specify that the containment be constructed of materials compatible with the waste and have sufficient strength and thickness to prevent failure. Section 2.2.2 provides this information. Discussion regarding the removal of spills from the containment is addressed in Attachment G, Section G.2. Spill removal and decontamination is also addressed in Attachment E of the Permit Application and Appendix E of the "Los Alamos National Laboratory General Part B Permit Application" (LANL, 1998b), hereinafter referred to as the General Part B.

In addition, LANL will revise the Section 2.2.2 of the application to include the following text:

> "The concrete in Rooms 401 and 434A is sealed with an epoxy or similar coating to aid in decontamination should a spill occur. Rooms 401 and 434A have a floor, which consists of 10 inches of concrete through which the constituents must migrate. This provides secondary containment. In addition, tertiary containment is provided by the basement level of TA-55-4, which also consists of 10 inches of concrete. The tanks are located inside a building which prevents them from exposure to precipitation and prevents contaminate mobility out of the containment system."

Evaluation: The response to this comment is adequate.

b) *The Application must include calculations to show that the external liner system is designed to contain 100 percent of the capacity of the largest tank within its boundary. Revise the Application to include these calculations.*

LANL Response: Table 7 has been provided to summarize the secondary containment provided for the storage tank system.

Table 7
Secondary Containment Capacities for the Storage Tank System

Storage Tank System Component	No. of Tanks	Capacity of Each Tank (gallons)	Location	Secondary Containment	Capacity of Secondary Containment (gallons)
Evaporator Glovebox Tank	1	71	TA-55-4, Room 401	TA-55-4, Room 401	10,773
Cementation Unit Pencil Tanks	5	13			
Pencil Tanks	10	13			
Vitrification Slab Tanks	2	33	TA-55-4, Room 434A	TA-55-4, Room 434A	1,344

Attachment G of this NOD Response provides a spreadsheet that includes the dimensions of the secondary containment, the total surface area, maximum quantity of liquid to cover the area, and the capacity of the containment. LANL will revise Section 2.2.8 of the application to include Table 7.

Evaluation: The response to this comment is adequate.

c) *The reinforced concrete floor that will serve as the containment system must be demonstrated to be free of cracks or gaps. Provide this information.*

LANL Response: To demonstrate that the secondary containment systems are currently free of cracks and/or gaps which compromise the containment, LANL has provided photographs of the floors in and around the TA-55 CSUs, storage tank system, cementation unit, and vitrification unit. These photographs are provided in Attachment G of this NOD response.

Evaluation: The response to this comment is partially adequate since Attachment F, not G, to the NOD Response provides some of the referenced photographs. Only photographs of the B40, B05, K13, and B45 CSUs are provided. Provide photographs for the Vault, Storage Pad, and TA-55-185 CSUs; the storage tank system; the cementation unit; and the vitrification unit.

d) *Revise the Application to include a statement that the containment system is designed to completely surround the tanks.*

LANL Response: LANL will revise Section 2.2.2 to include the following text:

> "The tanks are located at TA-55-4 inside Rooms 401 and 434A. These rooms have a floor, walls, and ceiling which completely surround the tanks

and serve as secondary containment, therefore, the secondary containment meets the requirements of 20.4.1 NMAC, Subpart 264.193(1)(iv)."

Evaluation: The response to this comment is adequate.

14. *Section 2.2.4. Special Requirements for Ignitable, Reactive, and Incompatible Wastes (40 C.F.R. §§ 270.16(1).264.198 (a-b) and 264.199(a-b))*

In the event that ignitable or reactive waste is stored in any part of the storage tank system, the following must be either provided or demonstrated. Revise the Application to address these issues:

a) *Provide the operating pressure and temperature specifications for the tanks;*

b) *Demonstrate that waste is treated, rendered, or mixed before or immediately after placement in the tank systems so that it is no longer is ignitable or reactive;*

c) *Demonstrate that the wastes are not placed in the same tank system unless there is compliance with 20.4.1 500 NMAC (incorporating 40 C.F.R. § 264.17(b));*

d) *Demonstrate that the waste is stored or treated in a manner such that it protects against ignition or reaction;*

e) *Demonstrate that the requirements for the maintenance of protective distances between waste management areas and any public ways, streets, alleys, or adjoining property lines;*

f) *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 C.F.R. § 264.17(b)) to prevent reactions; and*

g) *Indicate whether the tank system is used solely for emergencies.*

LANL Response: LANL will revise Section 2.2.4 to state the following:

> "No ignitable, reactive, or incompatible mixed waste will be stored in the storage tank system."

Evaluation: The response to this comment is adequate.

15. *Section 2.2.5. Closure (40 C.F.R. § 264.111)*

Revise the Application to specify that partial closure means closure of all of a tank and its associated piping and underlying containment system, and that closure of parts of a hazardous waste management unit is not permitted.

LANL Response: The storage tank system at TA-55-4 is composed of 4 distinct components that share a common piping system and secondary containment (i.e., Rooms 401 and 434B). Closure of these components is defined as follows:

- Partial closure of the storage tank system will consist of the removal of a given tank component (e.g., the 5 cementation pencil tanks) and the ancillary equipment (i.e., piping, valves) connected directly to it. What remains in place will consist of the portions of the piping system which all of the tank components share and the secondary containment. The secondary containment will be decontaminated in the vicinity of the tank component being removed in accordance with the closure plan found in Attachment F.2 of the application.

- Final closure of the storage tank system will include removal of all of the tank components and ancillary equipment, including the shared portions of the piping system. The facility headers for ventilation, the wet vacuum system, and the radioactive liquid waste collection system will be left in place for other uses.

LANL will revise Section 2.2.5 and Attachment F.2 to clarify.

Evaluation: The response to this comment is adequate.

Revise the Application to specify that at closure of a tank all hazardous waste will be removed from the tank and all hazardous waste and hazardous waste residues will be removed or decontaminated in compliance with 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.197).

LANL Response: LANL will revise Section 2.2.5 to include the following text:

> "Partial closure will be accomplished by removal of hazardous wastes and residues from the surfaces and/or equipment associated with the tank component being closed and that may have come into contact with the wastes."

Evaluation: The response to this comment is adequate.

Refer to the specific comments on the Storage Tank Closure Plan, Attachment F .2

LANL Response: No response required.

Evaluation: The response to this comment is adequate.

16. *Section 2.2.6 Control of Runoff (40 C.F.R. §§ 270.14(b)(8)(ii) and 264.193(e)(i-ii)*

a) *The prevention of runoff from the storage tank system is based upon the assumption that the secondary containment system is sufficient to contain 100 percent of the volume of the largest tank. Provide calculations demonstrating that each secondary containment system is sufficient to contain 100 percent of the volume of the largest tank within the containment.*

LANL Response: Please refer to the response to Comment No. 13b.

Evaluation: The response to this comment is adequate.

b) *The Application states that any accumulated liquids will be removed as soon as possible. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F .R § 264.193(c)(3)), all hazardous wastes and/or accumulated liquids must be removed from the secondary containment system within 24 hours to prevent harm to human health and the environment. If adequate information is provided to NMED that removal of released waste or accumulated liquids cannot be accomplished within 24 hours, then the liquids and waste may be removed in as timely a manner a possible. Either revise the Application to state that accumulated wastes and liquids will be removed within 24 hours or provide adequate justification as to why removal of liquids cannot be accomplished within 24 hours.*

LANL Response: LANL will revise Section 2.2.6 to include the following text:

> "In the event of a hazardous and/or mixed waste spill that results in the accumulation of free liquids in the secondary containment system, all free liquids will be removed within 24 hours unless "as low as reasonably achievable" (ALARA) concerns prevent accessibility."

Evaluation: The response to this comment is adequate.

17. *Section 2.3. Miscellaneous Unit -Cementation Unit*

More detailed information on the cementation unit was provided in Attachment I of the Application. Refer also to specific comments related to Attachment I.

LANL Response: No response required.

Evaluation: The response to this comment is adequate.

18. *Section 2.3.2. Containment Systems (40 C.F.R. §§ 270.16(g) and 264.193(a-d))*

a) *The Application must include calculations to show that the external liner system is designed to contain 100 percent of the capacity of the largest tank within its boundary. Revise the Application to include these calculations.*

LANL Response: Table 8 summarizes the secondary containment provided for the treatment units at TA-55.

Table 8
Secondary Containment for the Subpart X Treatment Units at TA-55

Subpart X Treatment Unit	Capacity (gallons)	Location	Secondary Containment	Capacity the Secondary Containment (gallons)
Cementation Unit	150	TA-55-4, Room 401	TA-55-4, Room 401	10,773
Vitrification Unit	17.7	TA-55-4, Room 434A	TA-55-4, Room 434A	1,344

Attachment G of this NOD Response provides a spreadsheet that includes the dimensions of the secondary containment, the total surface area, maximum quantity of liquid to cover the area, and the capacity of the containment. LANL will revise Section 2.3.2 and 2.4.2 of the application to include the information in Table 8.

Evaluation: The response to this comment is adequate.

b) *The reinforced concrete floor that is designated as the containment system must be demonstrated to be free of cracks or gaps. Provide this information.*

LANL Response: Please refer to the response to Comment No. 13c.

Evaluation: The response to this comment is inadequate since additional information is required to address Comment No. 13c and, thus, this comment as well. As noted in the evaluation of Comment No. 13c, no photographs of the secondary containment area for the cementation unit were provided. Provide photographs of this area.

c) *Revise the Application to include a statement that the containment system is designed to completely surround the cementation unit.*

LANL Response: LANL will revise Section 2.3.2 of the application to include the following text:

> "The cementation unit is located at TA-55-4 inside Room 401. This Room has a floor, walls, and ceiling which completely surround the unit and serve as secondary containment, therefore, the secondary containment meets the requirements of 20.4.1 NMAC, Subpart 264.193(1)(iv)."

Evaluation: The response to this comment is adequate.

19. *Section 2.3.4. Special Requirements for Ignitable, Reactive, and Incompatible Wastes (40 C.F.R. §§ 270.16(1).264.198 (a-b) and 264.199(a-b))*

a) *In the event that ignitable or reactive waste is stored in any part of the storage tank system, the following must be either provided or demonstrated. Revise the Application to address these issues:*

- *Provide the operating pressure and temperature specifications for the tanks; Demonstrate that waste is treated, rendered, or mixed before or immediately after placement in the tank system so that it no longer is ignitable or reactive;*
- *Demonstrate that the wastes are not placed in the same tank system unless 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.17(b)) is complied with;*
- *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;*
- *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 C.F.R § 264.17(b)) to prevent reactions; and*
- *Indicate whether the tank system is used solely for emergencies.*

LANL Response: LANL will revise Section 2.3.4 to state the following:

> "No ignitable, reactive, or incompatible mixed waste will treated in the cementation unit."

Evaluation: The response to this comment is adequate.

b) *In addition, the containment system for the cementation unit is the same System to be used for the storage tanks and vitrification unit. The Application must address the potential for incompatible wastes commingling as a result of a leak or spill from either the storage tanks, vitrification units, and/or the cementation unit.*

LANL Response: The tank system, cementation unit, and vitrification unit are used to store/treat mixed waste evaporator bottoms solutions, therefore, there is not an incompatibility issue with commingling resulting from a leak.

Evaluation: The response to this comment is adequate.

20. *Section 2.3.5. Closure (40 C.F.R. § 264.111)*

Revise the Application to specify that at closure of the cementation unit all hazardous waste will be removed from the cementation unit and all hazardous waste and hazardous waste residues will be removed or decontaminated in compliance with 20.4.1.500 NMAC (incorporating 40 C.F .R. § 264.197).

LANL Response: LANL will revise Section 2.3.5 of the application to include the following text:

> "Partial closure will be accomplished by removal of hazardous wastes and residues from the surfaces and/or equipment associated with the cementation unit that may have come into contact with the wastes. Closure will include decontamination and disposal activities that will ensure the removal of hazardous wastes and residues to established cleanup levels."

Evaluation: The response to this comment is adequate.

Refer to specific comments on the cementation unit Closure Plan, Attachment F .3

LANL Response: No response required.

Evaluation: The response to this comment is adequate.

21. *Section 2.3.6. Control of Runoff (40 C.F.R. § 270.1402)(8)(ii))*

a) *The prevention of runoff from the cementation unit is based upon the assumption that the secondary containment system is sufficient to contain 100 percent of the volume of the largest tank. Provide calculations demonstrating that each secondary containment system is sufficient to contain 100 percent of the volume of the largest tank within the containment system.*

LANL Response: Please refer to the response to Comment No. 18a.

Evaluation: The response to this comment is adequate.

b) *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 both the storage tank system and/or the vitrification unit and the cementation unit, the containment system will have to be sufficient to contain liquids from all units. Provide a discussion of how the containment system will handle a leak in the storage tank system, the vitrification unit, and/or the cementation unit.*

LANL Response: The secondary containment system for the storage tank system, cementation unit, and vitrification unit consists of the floor, walls, and ceiling associated with Rooms 401 and 434A at TA-55-4. The system is:

- completely surrounding the waste management units;
- constructed of concrete that is sealed with an epoxy or similar coating to aid in decontamination should a spill occur;
- managed such that in the event of a spill, which results in accumulation of free liquids in the secondary containment system, all free liquids will be removed within 24 hours; and
- consisting of adequate capacity to contain both a catastrophic spill from a single unit as well as any combination of units.

Table 9 provides a comparison of the secondary containment capacity associated with Rooms 401 and 434A and the waste management units located within it.

Table 9
Containment System Capacity Verses
Waste Management Unit Capacity

Location	Secondary Containment Capacity (gallons)	Waste Management Units	
		Unit	Total Capacity (gallons)

TA-55-4, Room 401	10,773	Storage Tank System *(Evaporator Storage Tank, Cementation Unit Pencil Tanks, Pencil Tanks)*	266
		Cementation Unit	150
TA-55-4, Room 434A	1,344	Storage Tank System *(Vitrification Slab Tanks)*	66
		Vitrification Unit	17.7

Evaluation: The response to this comment is adequate. However, this information should be incorporated into the permit application.

c) *The Application states that any accumulated liquids will be removed as soon as possible. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R.§ 264.193(c)(3)), all hazardous wastes and accumulated liquids must be removed from the secondary containment system within 24 hours to prevent harm to human health and the environment. If adequate information is provided to NMED that removal of released waste or accumulated liquids cannot be accomplished within 24 hours, then the liquids and waste may be removed in as timely a manner a possible. Either revise the Application to state that accumulated wastes and liquids will be removed within 24 hours or provide adequate justification as to why removal of liquids cannot be accomplished within 24 hours.*

LANL Response: LANL will revise Section 2.3.6 to include the following text:

> "In the event of a hazardous and/or mixed waste spill that results in the accumulation of free liquids in the secondary containment system, all free liquids will be removed within 24 hours unless ALARA concerns prevent accessibility."

Evaluation: The response to this comment is adequate.

22. *Section 2.4, Miscellaneous Unit -Vitrification Unit*

Revise the Application to include a definition of the vitrification unit that describes all the ancillary piping and equipment and other components that are included as part of the unit.

LANL Response: The vitrification unit, glovebox, ancillary equipment, and associated secondary containment are described in Attachment J of the application.

Evaluation: The response to this comment is adequate.

More detailed information on the vitrification unit was provided in Attachment J of the Application. Refer to specific comments related to Attachment J.

LANL Response: No response required.

Evaluation: The response to this comment is adequate.

23. *Section 2.4.2, Containment Systems (40 C.F.R. §§ 270.16(g) and 264.193(a-d))*

a) *The Application must include calculations to show that the external liner system is designed to contain 100 percent of the capacity of the largest tank within its boundary. Revise the Application to include these calculations.*

LANL Response: Please refer to the response to Comment No. 18a.

Evaluation: The response to this comment is adequate.

b) *The reinforced concrete floor that will serve as the containment system must be demonstrated to be free of cracks or gaps. Provide this information.*

LANL Response: Please refer to the response to Comment No. 13c.

Evaluation: The response to this comment is inadequate since additional information is required to address Comment No. 13c and, thus, this comment as well. As noted in the evaluation of Comment No. 13c, no photographs of the secondary containment area for the vitrification area were provided. Provide such photographs.

c) *Revise the Application to include a statement that the containment system is designed to completely surround the vitrification unit.*

LANL Response: LANL will revise Section 2.4.3 of the application to include the following text:

> "The vitrification unit is located at TA-55-4 inside Room 434A. This Room has a floor, walls, and ceiling which completely surround the unit and serve as secondary containment, therefore, the secondary containment meets the requirements of 20.4.1 NMAC, Subpart 264.193(1)(iv).

Evaluation: The response to this comment is adequate.

24. *Section 2.4.4, Special Requirements for Ignitable, Reactive and Incompatible Wastes (40 C.F.R. §§ 270.16(i), 264.198 (a-b) and 264.199(a-b))*

While reactive, ignitable, and incompatible wastes will not be treated in the vitrification unit itself, the containment system to be used by the vitrification unit is the same as that to be used for the storage tanks and cementation unit, which may be used to Store or treat reactive, ignitable, and incompatible wastes. The Application must address the potential for the vitrification unit to come into contact with these wastes as a result of a leak, rupture, spill, etc. from either a storage tank or the cementation unit. Revise the Application to include this discussion.

LANL Response: LANL will revise Section 2.4.4 to state the following:

> "No ignitable, reactive, or incompatible mixed waste will be treated in the vitrification unit."

Evaluation: The response to this comment is adequate.

25. *Section 2.4.5. Closure (40 C.F.R. § 264.111)*

Revise the Application to specify that partial closure means closure of all of the vitrification unit, and that closure of parts of a hazardous waste management unit is not permitted.

LANL Response: LANL will revise Section 2.4.5 of the application to include the following text:

> "Partial closure will consist of closing the vitrification unit, vitrification unit ancillary equipment (e.g., glass frit feed system, off-gas system, associated structures, piping), and/or glovebox at TA-55, while leaving the other waste management units at LANL in service."

Evaluation: The response to this comment is adequate.

Revise the Application to specify that at closure of the vitrification unit all hazardous waste will be removed from the vitrification unit and all hazardous waste and hazardous waste residues will be removed or decontaminated in compliance with 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.197).

LANL Response: LANL will revise Section 2.4.5 of the application to include the following text:

> "Partial closure will be accomplished by removal of hazardous wastes and residues from the surfaces and/or equipment associated with the vitrification unit that may have come into contact with the wastes."

Evaluation: The response to this comment is adequate.

Refer to specific comments on the vitrification unit Closure Plan, Attachment F.4

LANL Response: No response required.

Evaluation: The response to this comment is adequate.

26. *Section 2.4.6. Control of Runoff (40 C.F.R. § 270.14(b)(8)(ii))*

a) *The prevention of runoff from the vitrification unit is based upon the assumption that the secondary containment system is sufficient to contain 100 percent of the volume of the largest tank. Provide calculations demonstrating that each secondary containment system is sufficient to contain 100 percent of the volume of the largest tank within the containment.*

LANL Response: Please refer to the response to Comment No. 18a.

Evaluation: The response to this comment is adequate.

b) *The containment system for the vitrification unit is also the same containment system to be used for the storage tank system and cementation unit. In the unlikely event that a leak occurs in the storage tank system, the cementation unit, and the vitrification unit, the containment system will have to be sufficient to contain liquids from all units. Provide a discussion of how the containment system will handle a leak in the storage tank system, the cementation unit and the vitrification unit.*

LANL Response: Please refer to the response to Comment No. 21b.

Evaluation: The response to this comment is adequate.

c) *The Application states that any accumulated liquids will be removed as soon as possible. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.193(c)(3)), all hazardous wastes and accumulated liquids must be removed from the secondary containment system within 24 hours to prevent harm to human health and the environment. If adequate information is provided to NMED that removal of released waste or accumulated liquids cannot be accomplished within 24 hours, then the liquids and waste may be removed in as timely a manner a possible. Either revise the Application to state that accumulated wastes and liquids will be removed within 24 hours or provide adequate justification as to why removal of liquids cannot be accomplished within 24 hours.*

LANL Response: LANL will revise Section 2.4.6 to include the following text:

> "In the event of a hazardous and/or mixed waste spill that results in the accumulation of free liquids in the secondary containment system, all free liquids will be removed within 24 hours unless ALARA concerns prevent accessibility."

Evaluation: The response to this comment is adequate.

Comment Nos. 27 - 29, Section 4.0 – Solid Waste Management Units

27. *Section 4.2. Releases (40 C.F.R. § 270.16(d)(2))*

a) *Revise the Application to reference the SWMU Reports that will be submitted to comply with the requirements of 20.4.1.900 NMAC (incorporating 40 C.F.R. § 270.14(d)).*

LANL Response: As discussed previously with the HWB, LANL has proposed submitting the most recent SWMU reports produced through LANL's Environmental Restoration (ER) Project in lieu of summarizing that information in Section 4.0 of all permit applications. This approach is intended to reduce redundancy and improve overall quality by providing the most recent and accurate information available. This approach will still meet the requirements of 20.4.1 NMAC, Subpart IX, 270.14(d).

The ER Project is in the process of updating LANL's 1990 SWMU Report as a vehicle to provide the HWB and the public with the most recent information regarding the SWMUs located at LANL. LANL negotiated the format of the revised SWMU Report with the HWB prior to beginning the process. A prototype version was presented to the HWB to ascertain whether or not the new report would meet the HWB's needs, and LANL has incorporated the HWB's comments into the final version of the report.

The final version of the TA-55 and TA-42 SWMU Reports are provided as Attachment H of this NOD Response. These SWMU Reports summarize all available information about each SWMU in those TAs. Please note that many of the active waste management sites listed in the application are not listed in Module VIII of the LANL Hazardous Waste Facility Permit and therefore are not included in the updated SWMU Report.

To facilitate review of SWMU information, the table included herein as Attachment I provides a cross reference of SWMUs listed in Sections 4.1.1 and 4.1.2 of the application to the TA-55 and TA-42 SWMU Reports sections included as Attachment H of this NOD Response.

Evaluation: The response to this comment is adequate.

b) *Provide an explanation for why active and closing hazardous waste management units are included in this Section and not in the Closure Plan for TA-55. Section 4.1.2 states that these active units "will be closed in accordance with an applicable RCRA closure plan." The "applicable RCRA closure plan" is the TA-55 Closure Plan, which is Attachment F to the Application. Section 4.1.2.3 identifies "storage location B38" that is "scheduled for closure under interim status." B38 is not included in the Closure Plan. B38 and other hazardous waste management units must be either permitted or closed prior to issuance of the Permit. Provide a schedule for closure of B38, revise the Closure Plan to include B38, and provide an explanation for why B38 was not included in the Closure Plan.*

LANL Response: Active and closing hazardous waste management units are addressed in Section 4.0 for regulatory completeness; by definition, they are SWMUs.

All of the active hazardous waste management units at TA-55 are addressed in the closure plans found in Attachments F.1, F.2, F.3, and F.4 of the application. B38 is an inactive CSU that will be closed under interim status. It is not included in the closure plan found in Attachment F.1 of the application because it is not intended to be a permitted unit. A closure plan for B38 is presently being developed and will be submitted to NMED separate from this NOD Response. The closure plan for B38 will be submitted to NMED this fall.

Evaluation: The response to this comment is adequate.

c) *The Application must identify all releases that may have occurred from all of the SWMUs identified in Section 4.1 of the Application or provide documentation that no release occurred from a particular SWMU. Releases may include spills, leaks, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing to the environment. In addition, the date of the release(s), type of waste released, quantity or volume released, nature of the release(s), and groundwater monitoring and other analytical data available to describe the nature and extent of the release(s) should be provided. Other data may include physical evidence of distressed vegetation or soil contamination, historical evidence of releases, state, federal, or local enforcement actions, public complaints, and any other information showing the incidence of or migration of a release. Revise the Application to include this information.*

LANL Response: The status of the characterization activities for releases from SWMUs at TA-55 and TA-42 is summarized in the updated SWMU Reports, provided as Attachment H of this NOD Response. The SWMU Reports provide a comprehensive summary of all available information about the TA-55 and TA-42 SWMUs, however, this information does not necessarily include all of the examples of data noted in the HWBs comments.

Evaluation: The response to this comment is adequate.

d) *The incinerator complex, SWMU 42-001(a), was shut down due to operational problems. Discuss whether these operational problems (e.g., system failures, startup or shutdown releases, and/or filtration breakthrough) resulted in releases of contaminants to the atmosphere. Also discuss the waste feed system and any potential releases associated with it.*

LANL Response: Information concerning potential releases from SWMU 42-001(a) is included in the TA-42 SWMU Report provided in Attachment H of this NOD Response.

Evaluation: The response to this comment is adequate.

e) *The discussion of SWMU Nos. 42-001(b) and (c) does not address whether there were any leaks from the underground drain lines or the tanks, which could have led to contamination of surface soils, subsurface soils, and potentially groundwater and the environment. Revise the Application to address potential leaks from the underground drainlines and tanks.*

LANL Response: Information concerning potential releases from SWMUs 42-001(b) and (c) is included in the TA-42 SWMU Report provided in Attachment H of this NOD Response.

Evaluation: The response to this comment is adequate.

f) *The sumps, pumps, and tanks, drains, and drainlines associated with SWMU 55-008 are not addressed as having any releases. Provide documentation that no releases occurred, or provide a discussion of potential releases from these systems.*

LANL Response: Information concerning potential releases from SWMU 55-008 is included in the TA-55 SWMU Report provided in Attachment H of this NOD Response.

Evaluation: The response to this comment is adequate.

g) *Provide a discussion of whether there were any releases from the concrete enclosure, SWMU 55-009.*

LANL Response: Information concerning potential releases from SWMU 55-009 is included in the TA-55 SWMU Report provided in Attachment H of this NOD Response.

Evaluation: The response to this comment is adequate.

h) *The Application does not address releases from any of the active hazardous waste management units. Revise the Application to discuss whether there have been any releases from these active units.*

LANL Response: There has not been a recorded release to the environment from any of the active TA-55 hazardous waste management units. In addition, there has not been a recorded release from the inactive B38 CSU that will be closed under interim status as discussed in the response to Comment No. 27b.

Evaluation: The response to this comment is adequate.

28. *Section 4.3. Characterization of Release*

Information related to the characterization of releases is referenced to documents not provided with the Application, such as the 1990 SWMU Report and the RFI Work Plan for Operable Unit 1129. However, the Application states that, at a minimum, the corrective action process will include investigations to verify whether or not a release has occurred. However, for a RCRA Part B Permit Application, characterization of releases must include the following types of available information concerning prior or current releases:

a) *Date of the release;*
b) *Type of waste or constituent released;*
c) *Quantity or volume released;*
d) *Nature of the release: (e.g., spill, overflow, ruptured tank or pipe, construction failure, etc.);*
e) *Groundwater monitoring and other analytical data available to describe nature and extent of release;*
f) *Physical evidence of distressed vegetation or soil contamination;*
g) *Historical evidence of releases such as tanker truck accidents;*
h) *Any state, local, or federal enforcement action that may address releases;*
i) *Any public citizen complaints about the facility that could indicate a release; and*
j) *Any information showing the migration of the release.*

Revise the Application to include, at a minimum, the above-listed information.

LANL Response: The status of the characterization activities for releases from SWMUs at TA-55 and TA-42 is summarized in the updated TA-55 and TA-42 SWMU Reports, provided as Attachment H of this NOD Response. The SWMU reports summarize all available information about each SWMU, to the extent that it is available; however, this information does not necessarily include all of the examples of data noted in the HWB comments.

Evaluation: The response to this comment is adequate.

29. *Section 4.4. Corrective Actions (40 C.F.R. § 264.101)*

The Application states that corrective action will be conducted in accordance with approved NMED and LANL ER corrective action activities and that the corrective action will generally follow the RCRA Facility Investigation/Corrective Measures Study (RFI/CMS) process. However, 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.101) and proposed 40 C.F .R Part 264, Subpart S, language, requires that the Application specify corrective actions and how they will be implemented for each SWMU. The Permittees must include a summary of completed corrective action activities and a schedule for future corrective action activities in the Application rather than only reference the corrective action program of the LANL ER Project. Revise the Application to specify corrective action investigation and remediation for releases from SWMU's at TA-55. The corrective actions must include implementation beyond area boundaries where necessary to protect human health and the environment.

LANL Response: The status of the characterization activities for releases from SWMUs at TA-55 and TA-42 is summarized in the TA-55 and TA-42 SWMU Reports, provided as Attachment H of this NOD Response. The SWMU Reports provide a summary of corrective action activities completed to date and the current status of each SSWMU or AOC. Please note that the schedule for future corrective action activities is beyond the scope of the application. The specifics of future corrective action activities are agreed upon by HWB and LANL and documented in the ER Project baseline, in accordance with the existing schedule of compliance included in Module VIII of the Hazardous Waste Facility Permit.

Evaluation: The response to this comment is adequate.

Comment No. 30, Attachment A – Facility Description

30. *Attachment A.1, TA-55 General Description (40 C.F.R. § 270.14(b)(1)*

The description of the Facility must briefly describe the processes involved in the generation of hazardous wastes, including mixed wastes. Revise the Application to include this discussion as part of the general Facility description.

LANL Response: 20.4.1 NMAC, Subpart IX, 270.14(b)(1) requires "a general description of the facility." This is provided in Section A.1 as written. In addition, Section A.1 refers to Attachments G, H, I, and J for detailed descriptions of the waste management units at TA-55. These attachments each

provide descriptions of the processes involved in the generation of hazardous and mixed waste due to TA-55 waste management operations.

Evaluation: The response to this comment is adequate.

Comment Nos. 31-43, Attachments B.1 and B.2 – Waste Analysis Plan

31. *Attachments B.1 and B.2, Waste Analysis Plans for the Cementation Unit and Vitrification Unit*

Incorporate Attachments B.1 and B.2, the Waste Analysis Plans (WAP's) for the TA-55 cementation unit and vitrification unit, into the Facility-wide WAP included with the Facility-wide General Application. Address Comment Nos. 32 through 43 in the Facility-wide WAP.

LANL Response: LANL will incorporate Attachments B.1 and B.2 into the LANL-Wide WAP.

Evaluation: The response to this comment is adequate.

32. *Attachment B.1.2, Description of Waste (40 C.F.R. §§ 270.14(b)(2) and 264.13(a)(1))*

a) *The Application uses several vague descriptors (e.g., primarily, generally, and typically) as to the source of waste, type of waste, and components of the waste. The Application must discuss all waste streams that will be treated at the cementation unit, and Table B.1-1 should reflect all the waste streams and waste descriptions. Revise the Application accordingly.*

LANL Response: Section B.1.2 and Table B.1-1 of the application contain the waste descriptions and waste streams to be treated in the cementation unit. The descriptors of primarily, generally, and typically were added because TA-55 and LANL conduct basic research in a variety of disciplines for a number of government agencies, including DOE, DOD, and NASA. In addition, UC (the operator of the laboratory) receives a fee from the DOE under its contract to perform Locally-Directed Research and Development. This allows UC to conduct basic research in areas of its own direction.

The waste streams destined for treatment in the cementation unit are limited to solid and liquid hazardous/mixed wastes that carry the EPA Hazardous Waste Numbers identified in the LANL General Part A (LANL, 1998).

Evaluation: The response to this comment is adequate.

b) *The WAP does not address the radiological component of the waste. The radioactivity of the waste is critical in determining health and safety measures, packing, labeling and transportation requirements, and decontamination and verification processes. Revise the Application to include a description of the radiological components of the waste.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

33. *Attachment B.1.3.1, Proposed Analytical Parameters and Methods (40 C.F.R. 270.14(b)(2) and 264.13(b)(1-2))*

Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.13(b)(2)), the Application must include all of the test methods that will be used for the chosen parameters and not just methods that may be used. These parameters should be for both hazardous and radiological components. Revise the Application to include all the test methods that will be used for the chosen parameters.

LANL Response: Table B.1-2 of the application summarizes the test methods that will be used to characterize the hazardous components of waste to be treated by cementation at TA-55. In addition, please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is partially adequate since the test methods are presented for the hazardous component. Please refer to NMED's evaluation of LANL General Comment No. 3 regarding the radiological component. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

34. *Attachment B.1.3.2, Criteria and Rationale for Parameter Selection (40 C.F.R. 264.13(b)(1))*

The Application indicates that acceptable knowledge (AK) will be used for waste characterization where possible. AK is acceptable only when adequate documentation and 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. A schedule of the frequency of sampling and sampling methods (pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.13(b)(3) and (4)) must be included in the WAP, as well as a specific decision-making process that describes when AK is acceptable and when sampling should be conducted. Revise the Application to include this information.

LANL Response: The information requested is provided in the LANL General Part B, WAP (LANL, 1998) and/or its subsequent revisions. In addition, the specific decision-making process for AK acceptability consistent with the WAP is established in the following:

- LIG 404-00-02, "Acceptable Knowledge Guidance" (LANL, 1999b) and the PLAN-WASTEMGMT-002,
- "LANL Waste Acceptance Criteria" (LANL, 2002b), and
- "Los Alamos National Laboratory Transuranic Waste Certification Plan," (TWCP) (LANL, 2002g).

Please refer to the "Response to Notice of Deficiency; RCRA Permit Application General Part A, April 1998, Revision 0.0; General Part B, October 1998, Revision 1.0; Los Alamos National Laboratory; May 16, 2002" (LANL, 2002f) for a more detailed description of the AK process.

Evaluation: The response to this comment is adequate, however, the information regarding acceptable knowledge must be incorporated into the Waste Analysis Plan.

35. *Attachment B.1.4, Characterization Procedures (40 C.F.R. §§ 270.14(b)(2), 264.13(a)(1-3) and 264.13(b)(2))*

The Application indicates that most of the waste characterization will be based on AK. However, there is no decision tree to indicate when AK will not meet characterization requirements and when sampling is required, or the frequency at which sampling will be conducted. Also, the Application must address how often sampling of waste streams will be conducted to ensure that the waste streams are consistent, indicating that AK is applicable. Revise the Application accordingly.

LANL Response: Please refer to the response to Comment No. 34.

Evaluation: The response to this comment is adequate, however, the information regarding acceptable knowledge must be incorporated into the Waste Analysis Plan.

36. *Attachment B.1.4.1, Characterization Procedures for Waste to be Treated (40 C.F.R. §§ 270.14(b)(2) and 264.13(b)(2-4))*

The Application must include a decision tree indicating how it will be determined that AK is sufficient to define waste streams and specifically when sampling will be required, In addition, if sampling is necessary, the sampling frequency and analytical parameters must be clearly identified. The sampling methods to be used to obtain a representative sampling of each waste stream and the appropriateness of these methods must also be provided. If LANL-specific protocol is to be used for sample collection, preservation, QA/QC and health and safety issues, then either this information must be contained within the Application or a specific reference to the protocol to be followed must be provided in the Application. Revise the Application to include this information.

LANL Response: The information requested is provided in the LANL General Part B, WAP (LANL, 1998b) and/or its subsequent revision. Sampling methods consistent with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," (SW-*846)* (EPA, 1986) will be utilized in addition to the requirements specified in the response to Comment No. 34.

In addition, please refer to the "Response to Notice of Deficiency; RCRA Permit Application General Part A, April 1998, Revision 0.0; General Part B, October 1998, Revision 1.0; Los Alamos National Laboratory; May 16, 2002" (LANL, 2002f) for a more detailed description of the AK process.

Evaluation: The response to this comment is adequate, however, the information regarding acceptable knowledge must be incorporated into the Waste Analysis Plan.

37. *B.1.4.2, Characterization Procedures for Treated Waste (40 C.F.R. §§ 270.14) and 264.13(b)(2-4))*

The characterization processes to be used on the treated waste are referenced to the "LANL Transuranic Waste Certification Plan," the "Waste Isolation Pilot Plant (WIPP) Waste Analysis Plan" permit conditions, and LANL-specific protocol. The LANL- specific protocol to be used for sampling techniques should be either included in the Application or specifically referenced by document and/or protocol number, so that the applicability and appropriateness of the methods can be determined. Revise the Application to include this information on the LANL-specific protocols.

LANL Response: Please refer to the response to Comment No. 36.

Evaluation: The response to this comment is adequate.

38. *Attachment B.1.4.5, Reevaluation Frequencies (40 C.F.R. §§ 264.13(a)(3) and 264.13(b)(4))*

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. Revise the Application to discuss how and when waste stream verification for non-routinely generated wastes will be conducted. Also provide a decision tree outlining when and how reevaluation for non-routinely generated wastes will be done.

LANL Response: Please refer to the response to Comment No. 34.

Evaluation: The response to this comment is adequate.

39 *Attachment B.2.2, Description of Waste (40 C.F.R. §§ 270.14(b)(2) and 264.13(a)(1))*

The WAP does not address the radiological component of the waste. The radioactivity of the waste is critical in determining health and safety measures, packing, labeling and transportation requirements, and decontamination and verification processes. Revise the Application to include a description of the radiological components of the waste.

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

40. *Attachment B.2.3.2, Criteria and Rationale for Parameter Selection (40 C.F.R. §§ 264.13(b)(1-4))*

The Application indicates that AK will be used for waste characterization where possible. AK is acceptable only when adequate documentation and 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. A schedule of the frequency of sampling and sampling methods (pursuant to 20.4.1.500 NMAC, incorporating 40 C.F.R. § 264.13(b)(3) and (4)) must be included in the waste analysis plan as well as a specific decision-making process for when AK is acceptable and when sampling should be conducted. Methods for radiological screening of samples to determine whether health and safety issues are a concern should also be provided as part of characterization. Revise the Application to address these issues.

LANL Response: Please refer to the response to Comment No. 34 and LANL General Comment No. 3.

Evaluation: The response to this comment is partially adequate, insofar as Comment No. 34 addresses the NOD comment. The radiological screening portion of the comment was not adequately addressed through the reference to LANL General Comment No. 3. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

41. *Attachment B.2.4.1, Characterization Procedures for Waste to be Treated (40 C.F.R. §§ 270.14(b)(2) and 264.13(b)(2-4))*

The sampling methods to be used to obtain a representative sampling of each waste stream and the appropriateness of these methods must be provided. Sample collection frequency must also be discussed. If LANL-specific protocol is to be used for sample collection, preservation, QA/QC, and health and safety issues, then a specific reference to the protocol to be followed must be provided in the Application. Revise the Application to include this information.

LANL Response: Please refer to the response to Comment Nos. 34 and 36.

Evaluation: The response to this comment is adequate.

42. *B.2.4.2, Characterization Procedures for Treated Waste (40 C.F.R. §§ 270.14(b)(2) and 264.13(b)(2-4))*

The characterization processes to be used on the treated waste are referenced to the "LANL Transuranic Waste Certification Plan", the "Waste Isolation Pilot Plant (WIPP) Waste Analysis Plan" permit conditions, and LANL-specific protocol. The LANL-specific protocol to be used for sampling techniques should be specifically referenced so that the applicability and appropriateness of the methods can be determined. Revise the Application to include these references.

LANL Response: Please refer to the response to Comment No. 36.

Evaluation: The response to this comment is adequate.

43. *Attachment B.2.4.5, Reevaluation Frequencies (40 C.F.R. §§ 264.13(a)(3) and 264.13(b)(4))*

The Application is vague as to how 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. Revise the Application to discuss how and when waste stream verification for non-routinely generated wastes will be conducted. Also provide a decision tree outlining when and how reevaluation for non-routinely generated wastes will be done.

LANL Response: Please refer to the response to Comment No. 38.

Evaluation: The response to this comment is adequate.

Comment Nos. 44 - 59, Attachment F.1 – Closure Plan for Container Storage Units

44. *Attachment F.1.1.1, Closure Performance Standard*

Delete "and post-closure" from the third bullet.

LANL Response: The third bullet will be revised to read the same as the performance standard in 20.4.1 NMAC, Subpart V, 264.111(c).

Evaluation: The response to this comment is adequate.

45. *Attachment F.1.1.2, Partial and Final Closure Activities 40 C.F.R. §§ 270.14(b)(13), 270.14(b)(15-18), 264.110 through 264.151 and 264.178)*

Revise the Application to discuss which structure(s) within the CSU's may be left in service during closure activities.

LANL Response: Section F.1.1.2 of the application states:

> "Partial closure may consist of closing one or more of the CSUs at TA-55 while leaving the other regulated hazardous/mixed waste units at LANL in service."

There are not any structures within the units that will be left in service, however, the units themselves are located in buildings and rooms that will be decontaminated and reused for other LANL missions upon certification of closure.

Evaluation: The response to this comment is adequate.

46. *Attachment F.1.1.9, Survey Plat and Post-Closure Requirements (40 C.F.R. §§ 270.14(b)(13), 270.14(b2)(15-18), 264.110 through 264.151 and 264.178)*

Any criteria used to demonstrate compliance for closure that is not permitted in this Application will require a permit modification. Revise the Application to indicate that the requirements for a permit modification pursuant to 20.4.1.500 NMAC (incorporating 40

C.F.R. §264.112(c)), will be followed in the event that an amendment to the closure plan is warranted.

LANL Response: The requirements of 20.4.1 NMAC, Subpart V, 264.112(c) are addressed in Section F.1.1.4.

Evaluation: The response to this comment is adequate.

47. *Attachment F.1.2, Closure Procedures*

The Application states that, if necessary, the closure plan will be modified and that the modified closure plan will be submitted to the NMED for review and approval. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)). a written notification of, or request for, a permit modification to authorize a change in operating plans, facility design, or the approved closure plan must be submitted to NMED. In addition, the requirements for a permit modification, also outlined in 40 C.F.R. § 264.112(c). must be met. Revise the Application to address the written notification requirement.

LANL Response: Please refer to the response to Comment No. 46.

Evaluation: The response to this comment is adequate.

48. *Attachment F.1.2.1, Estimate of Maximum Waste in Storage (40 C.F.R. § 264.112(b)(3))*

The Application must provide an estimate of the maximum inventory for each type of waste and within what types of containers that waste is contained. In addition, the Application must include a discussion of how much waste and the type of wastes that are located at each CSU. Revise the Application to include, for each CSU, the maximum quantity of waste, waste type, maximum capacity based on area, and the maximum number of containers by container type.

LANL Response: Please refer to the response to General Comment No. 2 and Specific Comment No 3a.

Evaluation: The response to this comment is partially adequate. No inventory data by type of waste is provided. **[Carl, it appears that inventory data can be extracted from the revised part A recently submitted by LANL.]**

49. *Attachment F.1.2.3, Removal of Waste (40 C.F.R. §§ 264.112(b)(3) and 264.178)*

According to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(3))), the types(s) of off-site hazardous waste management facilities to be used must be identified. Revise the Application to discuss the types of waste that will be shipped to each specific off-site facility.

LANL Response: LANL intends to develop a unit-specific closure/sampling plan for the TA-55 CSUs at the time of each closure that is consistent with the operating record. This approach was discussed with Carl Will of the HWB on April 23 and June 7, 2002, regarding the closure of the TA-54 CSUs. LANL would like to establish the same approach for the TA-55 storage tank system as described below.

LANL intends to develop a unit-specific closure/sampling plan. This plan will utilize the operating record of the unit at the time of its closure to determine the hazardous constituents that were actually stored in the unit and to identify the nature and extent of spills (if any) that may have occurred. The use of the operating record will narrow the range of hazardous constituents to be sampled for and be more representative of the potential contamination at the unit. A list of potential hazardous constituents for the TA-55 CSUs is provided in Table F.1-2 of the application and represents the breadth of EPA Hazardous Waste Numbers capable of being stored in the unit as identified in the LANL General Part A (LANL, 1998a).

In addition, this unit-specific closure/sampling plan will utilize the operating record of the unit to determine:

- The waste types that will be removed prior to and during closure.
- The final disposal destination for the waste in the unit and for any wastes generated as a result of the decontamination and disposal operations.
- The most recent procedures, technologies, and innovations to provide clean closure of the unit and protect human health and the environment.

Evaluation: The response to this comment is adequate

50. *Attachment F.1.2.4, Closure Procedures and Decontamination*

a) *As outlined in 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)) a detailed description for the closure of each CSU must include 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 required to satisfy the closure performance standard. Revise the Application to provide detailed descriptions of the closure procedures and decontamination techniques for each CSU.*

LANL Response: LANL maintains that Attachment F.1 of the Permit Application meets the closure criteria set forth in the regulations with the following sections:

- Section F.1.2.4 - general decontamination information applicable to all of the CSUs at TA-55 including PPE, pre-closure activities, and inspection criteria.
- Section F.1.2.4.1 - specific decontamination information for the indoor CSUs.
- Section F.1.2.4.2 - specific decontamination information for the Vault.

- Section F.1.2.4.3 – specific decontamination information for the outdoor storage pad including a discussion regarding the decontamination and/or removal of the asphalt.

- Section F.1.2.5 - decontamination of the equipment used to conduct the closure.

- Section F.1.2.6 - verification method to ensure adequate decontamination.

- Section F.1.3 – sampling and analytical procedures including both soils and liquid.

Evaluation: The response to this comment is adequate. LANL should also note that information specific to this comment will be furnished in the unit-specific closure/sampling plan that will be submitted just prior to unit closure.

b) *The Application does not address methods for sampling and testing surrounding soils and removing contaminated soils during either partial closure or closure. Revise the Application to address surrounding soils and soil that underlies CSU's, particularly the outdoor storage pad.*

LANL Response: Soil and sediment sampling is discussed in Section F.1.3.1, which states the following:

> "Soil samples (if required) will be collected from various depths to determine the vertical extent of contamination. Sediment samples will be collected from the surface or near surface. Sampling procedures will be performed in accordance with the most recent version of ER-SOP-6.09, "Spade and Scoop Method for Collection of Soil Samples" (LANL, 1995); ER-SOP-6-10, "Hand Auger and Thin-Walled Tube Samples" (LANL, 1998); or other appropriate ER SOPs or NMED approved methods."

The cited procedures have methods that are consistent with SW-846 for sampling and prevention of potential cross contamination. In addition, Section F.1.3.3 (which is applicable to all decontamination efforts) states:

> "To prevent cross contamination, it is important to clean non-disposable samplers after each sample is collected. Cleaning of samplers will be performed in accordance with ER-SOP-1.08, "Field Decontamination of Drilling and Sampling Equipment" (LANL, 2001)."

LANL intends to determine the necessity of soil sampling at the TA-55 storage pad at the time of closure based upon the operating and inspection record associated with the unit. If a spill is indicated in the operating record, soil sampling and/or remediation will be conducted according to the procedures identified in the unit-specific closure plan as discussed in the response to Comment No. 49.

Please note that the B05, B40, B45, K13 and the Vault CSUs are located inside Building 4 at TA-55. The floor of these CSUs consists of a 10-in. thick reinforced concrete slab that is maintained to remain free of cracks and gaps and is compatible with the wastes stored in the CSUs. The TA-54-185 CSU is also located inside a building on top of a concrete slab that is maintained to remain free of cracks and gaps and is compatible with the waste stored in the CSU. Inspections and maintenance of the floors and walls in each CSU is effective at preventing migration of waste to the environment, therefore, soil sampling activities will not be applicable to these CSUs.

Evaluation: The response to this comment is adequate. However, further definition of sample locations and sampling depths must be provided in the closure/sampling plans to fully characterize the soils around the units.

c) *The Application states that all sampling will be done in accordance with Quality Assurance/Quality Control (QA/QC) procedures. Revise the Application to include these QA/QC procedures.*

LANL Response: Please refer to LANL General Comment No. 4.

Evaluation: The response to this comment is adequate, however, the procedures must be referenced in the application as indicated in NMED's evaluation of the response to LANL General Comment No. 4.

d) *The schedule for closure activities for the CSU's are presented in Table F.1-1. However, the schedule does not appear to allow for the sampling, analysis, and potential removal of contaminated soils surrounding the CSU's. It is not apparent that the schedule allows time for proper data validation, time to treat wastes, time for additional leaching tests for the asphalt, or adequate time for transporting wastes to disposal sites, if warranted. In addition, some structures in the CSU's may be left in service during partial closure. Revise the schedule to be comprehensive of all potential activities for closure and partial closure.*

LANL Response: The schedule presented in the closure plan is a placeholder for a comprehensive schedule to be provided in the unit-specific closure/sampling plan as discussed in the response to Comment No. 49. The comprehensive schedule will utilize the operating record of the unit to determine appropriate timeframes for data validation, waste treatment, leach testing, and/or transportation of wastes.

Evaluation: The response to this comment is adequate.

e) *The Application states that all workers will have proper training and medical monitoring. Reference the appropriate section(s) of the Application that discuss the training requirements and medical monitoring requirements for workers.*

LANL Response: Training requirements for TSDF workers/supervisors, site workers (LANL and contractor), and emergency responders are addressed in Appendix D of the LANL General Part B. Personnel (LANL and contractor) involved in the closure of the TA-55 CSUs are required to meet the minimum

training requirements for a general site worker as outlined in Table D-1. In addition to the training outlined in Table D-1, personnel (LANL and contractor) are required to attend General Employee Training (GET) if they will be working 10 days or more on-site. GET includes an overview of the Occupational Medicine Program, which is managed by the Occupational Medicine Group (HSR-2).

All new LANL employees are provided with a full medical evaluation at the Occupational Medicine building (TA-3-409) to provide baseline medical information. In addition to this baseline assessment, some job assignments require medical surveillance and/or certification evaluations every year (e.g., those who work with identified carcinogens) to monitor for early signs of health effects and/or to ensure their health meets job-performance standards. Before leaving LANL employment, personnel are required to schedule an appointment with HSR-2 to review their health status. HSR-2 maintains an occupational medical record on each LANL employee; these confidential medical records are released to others only with the employee's written consent, except as required by law.

Contract personnel are required to meet the occupational medical monitoring requirements provided by the company they work for in accordance with OSHA.

Evaluation: The response to this comment is adequate.

f) *Revise the Closure Plan for the closure of CSU's to include the sampling of potential contaminated areas using swipe sampling rather than sampling the rinse water to determine if a release has occurred and to determine if contamination has been remediated.*

LANL Response: LANL maintains that the use of swipe sampling is not the best or only method for closure decontamination verification. Swipe samples are not an approved methodology for hazardous waste constituent sampling. In addition, their use is not necessarily appropriate for all types of hazardous constituents or closure circumstances.

LANL has only been able to verify the following approved sampling methodologies for swipe sampling:

- Polychlorinated biphenyl (PCB) - "Verification of PCB Spill Cleanup by Sampling and Analysis" EPA-560/5-85-026 (EPA, 1985), and as included in Attachment A of SW-846, Method 8290A), and

- Surface Contamination - Occupational Safety and Health Administration (OSHA) (OSHA, 1999).

The first is limited to sampling for PCBs, which are non-volatile, somewhat viscous compounds. The technical intent of this sampling method is also limited to establishing the presence of the compounds at concentrations of 10 ppm or higher. This is a relatively high level of contamination compared to the risk-

based concentration limits required for closure determinations. The second method limits the use of swipe sampling to act as a quality control measure to ensure that a cleaning procedure is being implemented effectively. The method states specifically that this type of sampling is not intended to assess health risk resulting from contamination. The use of these sampling methodologies has not been expressly extended or approved beyond the stated purpose or context. LANL stipulates that swipe sampling is commonly used as a screening tool to determine the presence of hazardous constituents quantitatively.

Swipe sampling, by nature, does not involve the collection of samples from the entire surface being verified. The method relies upon a statistical random sampling approach that will require a large number of samples (with associated costs) to ensure a high confidence level for the verification data. Swipe sampling is dependent upon the efficiency of the contact between the analyte and the collection medium. This can affect the reproducibility of data for each swipe per surface contact over the time frame of the closure and from one contact surface to another within the same CSU. This is due to inherent limitations associated with the collection medium and the total surface area contacted. In addition, swipe sampling may not be the best or most appropriate method for the full range of hazardous constituents found at the TA-55 CSUs and/or the differing materials of construction. Constituents that have hardened, reside in relatively rougher surface features (e.g., cracks, surface irregularities), or will not be absorbed by collection medium used may not be successfully collected using a swipe. Furthermore, the conditions during the closure may also prevent a successful collection.

Wash water sampling, as described in the application, presents two areas in which it may be superior for decontamination verification. The first has to do with the composition of the wash water solution, which consists of water and a surfactant/solvent. This solution is more effective at the removal of hazardous constituents because there is a higher potential that an acknowledged decontamination surfactant/solvent (e.g. Alconox) will solubilize the full range of hazardous constituents found at the TA-55 CSUs verses a compound-specific material utilized on a swipe (see SW-846 Method 8290A). The second has to do with surface contact, which is arguably more significant when the entire surface of the CSU is wiped down with wash water as opposed to random samples using swipes.

LANL proposes a method of utilizing wash water samples that minimizes dilution and provides a specific set of criteria by which the verification results can be compared as follows:

1. Minimize dilution of hazardous constituents by limiting the wash water solution to an amount that is sufficient to wipe down the surface to be verified and collect the required number of samples.

2. Limit the sampling area to a specific discrete location (e.g., a wall or portion thereof depending on the size of the unit).

3. Verify decontamination by comparing the discrete sample results to a blank result obtained from the wash water solution prior to its use for the verification wipe down. If the result is at or below that of the blank, the

closure is considered complete. If the result is above the blank, apply one or all of the following options:

- Repeat the decontamination and verification of the discrete location.
- Compare the result to the Region 9 Risk Based levels for drinking water. If below, apply for an alternate demonstration of closure.
- Disposal of the surface (e.g. asphalt) at an appropriate on-site location.

This proposed method minimizes dilution and establishes an extremely conservative set of criteria (blank results or drinking water standards) by which to establish verification.

Finally, LANL has established wash water sampling for decontamination verification during container storage closure at both TA-21-61 and TA-50-37. The approach has never been previously questioned by NMED permit writers/inspectors and it is currently included in the approved closure plans in LANL's Hazardous Waste Facility Permit. Additionally, NMED has usually required prior approval of detailed sampling and decontamination activities prior to the start of the closure process unless LANL proceeds "at risk" (i.e., subject to changes made by NMED). Rinse water sampling has not been identified as a problem in previous closure plan reviews and approvals.

Evaluation: The response to this comment is adequate. **[Carl, for TA-54 it was decided that NMED would not require swipe sampling but would evaluate the need for it at the time of closure. It is assumed that this would apply for TA-55 as well.]**

g) *There is no discussion of how background levels for soils will be determined. At closure of a CSU, Permittees must demonstrate that hazardous waste and hazardous waste residues have been removed from all soils surrounding the CSU. Revise the Application to reference "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Ryti et al., 1998, for determination of background soil levels.*

LANL Response: Please refer to the response to Comment No. 50b.

Evaluation: The response to this comment is partially adequate in that Comment No. 50b discusses soil sampling in general, but does not specifically discuss background sampling. Provide detailed information regarding the location and collection of background soil samples or revise the application to reference Ryti et al.

h) *The Application states that each storage structure will be inspected for any cracks or conditions that would potentially lead to loss of decontamination liquids, and that, if any defects affecting containment are found, appropriate remedial actions, for example repairs, maintenance, or replacement, will be*

conducted. It is unclear from the Application whether the cracks or other flaws will be monitored for contamination prior to sealing or other treatment. Contamination could be sealed within a crack of a structure. Revise the Application to discuss how these defects in storage Structures will be investigated to ensure that no contamination has migrated into the defect prior to remedial action.

LANL Response: LANL will revise Attachment F of the application to include the following:

> "Preventive maintenance inspections are conducted routinely (i.e., weekly) at each of the TA-55 CSUs while waste is in storage. If any defects, deterioration, damage, or hazards affecting containment have developed, appropriate remedial actions (including sampling, repairs, maintenance, or replacement) are completed immediately. Prior to beginning of any decontamination activities at the TA-55 CSUs, the base or secondary containment of each CSU will be inspected for any cracks or conditions that could potentially lead to loss of decontamination water and/or verification wash water during closure. If a crack or gap is present, a swipe sample or a representative sample of the media (i.e., concrete, metal) will be taken to determine the presence of contamination. The sample will be analyzed for the hazardous contaminants identified in the operating record of the CSU. If contamination is detected, the surface flaw will be decontaminated prior to repairing the crack/gap. Complete or partial removal (e.g., scabbling) of the material may be performed until contamination is no longer detected. If partial removal is successful in eliminating the contamination, it will be assumed that the remaining material is clean."

Evaluation: The response to this comment is adequate.

51. *Attachment F.1.2.4.1, Indoor Storage Area (40 C.F.R. § 264.112(b)(4))*

a) *The Application states that a wash water solution will be used in the decontamination of portable equipment. Discuss what will comprise the wash solution and discuss the appropriateness of this solution for organics, inorganics, and radionuclides.*

LANL Response: The wash water solution will consist of water and an appropriate surfactant/solvent. This surfactant/solvent will be determined at the time of closure based on its capability to remove the hazardous constituents identified in the operating record for the CSU. General laboratory surfactants (e.g., Alconox) will be used for the majority of the closures with specialized solvents used for more focused removal, if necessary.

Please refer to LANL General Comment No. 3 for discussion regarding radionuclides.

Evaluation: The response to this comment is adequate, excluding the reference to LANL General Comment No. 3. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *The description of portable equipment also includes wooden pallets. The use of a wash water solution on wood, which is known to absorb water, could result in additional contamination of the pallet. Discuss mitigative measures that will be used to ensure the pallets do not absorb any potentially contaminated wash water, becoming contaminated by the decontamination procedure.*

LANL Response: LANL will revise Section F.1.2.4 to delete the reference to wooden pallets. Please note that there are not any in use at the TA-55 CSUs.

Evaluation: The response to this comment is adequate.

c) *The Application states that a portable berm may be used to collect and contain wash water. Discuss what alternate methods may be used, if the portable berm is not used, for containment of wash water.*

LANL Response: The word "may" in this case is used to indicate that portable berms are allowed to be used for wash water collection and containment. They will be used if the CSU does not have a sump or low area designed for collection.

Evaluation: The response to this comment is adequate.

d) *The Application indicates that wash water will be allowed to accumulate in the bottom of recessed areas (e.g., sumps), where the water will be removed and tested for potential contamination. The Application does not discuss how the recessed area where the wash water was allowed to collect will be decontaminated if the results from the wash water indicate contamination. Revise the Application to discuss how the entire recessed area will be decontaminated and verified.*

LANL Response: The second paragraph in Section F.1.2.4.1 states the following:

> "After the walls and floors have been washed down, any recessed areas present (e.g. sumps) will be wiped down with wash water. The used wash water will collect in the recessed area where it will be sampled."

This indicates that the recessed areas will be decontaminated and the wash water is allowed to accumulate in the recessed area (if present). Decontamination verification samples will only be taken after wash cycles have been completed as described in Section F.1.2.6.

Evaluation: The response to this comment is adequate.

e) *Sumps are often connected to a central drainage system. Include in the Application a discussion of how drain lines connected to sumps and other recessed areas will be investigated and decontaminated.*

LANL Response: The word "sump" is used to describe all recessed areas located in the vicinity of the TA-55 waste management units. Most of these areas are not

connected to any central drainage system. Drains, if any, will be blocked off (using berms and/or metal plates) during decontamination to prevent the loss of water.

Evaluation: The response to this comment is adequate.

f) *The Application infers that the decontamination procedures are only for loose contamination and that any item that is shown to have fixed contamination will be removed and disposed of properly. Clarify the Application accordingly.*

LANL Response: It is anticipated that due to the presence of painted surfaces and operating procedures designed to prevent spills there will be little or no contamination present. This would require only the surface decontamination procedures described in the closure plan presented in the application. However, if the operating record of the unit (at the time of closure) indicates a spill or an event with the potential to result in fixed contamination of hazardous constituents, an appropriate method for removal will be proposed. This may include sandblasting, removal of asphalt, and or chemical decontamination as appropriate to the situation.

Evaluation: The response to this comment is adequate.

g) *The Application states that the wash water will only be analyzed for hazardous constituents. At closure of a CSU, Permittees must determine that there is no fixed radiological contamination. Revise the Application to address radiological contamination and decontamination.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

52. *Attachment F.1.2.4.2, Vault (40 C.F.R. § 264.112(b)(4))*

The Application must contain a description, of all measures of decontamination (i.e., decontamination measures will be initiated to accomplish chemical decontamination, as well as to satisfy ALARA requirements for mixed waste in accordance with applicable DOE Orders) that will be applied in decontaminating the vault. Revise the Application to include a detailed description of the alternative decontamination measures.

LANL Response: LANL intends to close the Vault using the procedures described in Section F.1.2.4 and F.1.2.4.1. It is important to note that storage in the Vault is not limited to hazardous and mixed waste. Other items with radiological constituents are and will be present in the Vault. Section F.1.2.4.2 is provided to indicate that alternative procedures may be required due to the presence of these items and ALARA concerns for closure personnel inside the Vault at the time of closure. LANL will evaluate the contents of the Vault and the operating record at the time of closure to determine if an alternate approach is necessary. This approach will be detailed in a CSU specific closure plan to be presented to the NMED at the time of closure.

Evaluation: The response to this comment is adequate.

53. *Attachment F.1.2.4.3, Outdoor Storage Pad (40 C.F.R. §§ 264.112(b)(4))*

a) *The Application states that "potential closure activities...include...future remediation under RCRA corrective actions," "a final option may be to remediate the asphalt storage pad as part of LANL's RCRA corrective actions," and "the final assessment and remediation of the container storage pad and the soil at this CSU location will be integrated and coordinated under a corrective action program at LANL." The meaning of these terms is uncertain, but seem to state that Permittees will choose whether or not to comply with the closure regulations at 20.4.1.500 NMAC (incorporating 40 C.F.R. Part 264, Subpart G and § 264.178) when closing the outdoor storage pad. Revise the Application to demonstrate compliance with 20.4.1.500 NMAC (incorporating 40 C.F.R. Part 264, Subpart G and § 264.178).*

LANL Response: The storage pad at TA-55 was constructed for use as a storage area prior to the implementation of RCRA regulations in 1980 and mixed waste in 1990. This establishes the pad and any contamination from it as being subject to the LANL Corrective Action Program. LANL intends to close the unit in accordance with the closure plan found in Attachment F.1 but has the option to remediate the storage pad under corrective action should contamination from storage activities prior to 1980 render the unit incapable of clean closure in accordance with the approved closure plan.

Evaluation: The response to this comment is partially adequate. Since the storage pad was used to manage hazardous wastes after the RCRA interim status deadline on November 19, 1980, the storage pad is regulated as a RCRA hazardous waste management unit with all associated closure plan requirements. LANL may decontaminate or dispose of the storage pad, however, these activities should be conducted under the closure plan.

b) *The Application states that decontamination procedures similar to those described in Application Section F.1.2.4.1 may be used for the storage pad. It is not clear what other procedures may be used in lieu of those listed in Application Section F.1.2.4.1 or described in this Section. It is also unclear what deviations from the procedure may be applied. Revise the Application to include a discussion of all procedures that will be used to decontaminate the storage pad.*

LANL Response: LANL intends to close the storage pad according to the procedures identified in Section F.1.2.4 and F.1.2.4.1. The storage pad, however, presents some difficulties, which include the leaching of anomalously high levels of organic compounds inherent to the composition of the asphalt. At the time of closure the operating record of the unit will be reviewed to determine the location and presence of spills, if any. If a spill occurred, an alternative demonstration of closure may be required to determine the presence of constituents due to the spill verses those associated with the asphalt. The alternative will be based on the constituents of concern and may include:

- Sampling of "clean asphalt" using the same wash water to eliminate constituents associated only with the asphalt.

- Comparison of wash water sample results to the EPA Region 9 Human Health risk based values for drinking water.

- Comparison of soil sample results to the EPA Region 9 Human Health risk based values for soil.

If an adequate demonstration cannot be made, the pad or portion thereof will be removed. At the time of closure, a unit specific closure plan will be submitted to NMED for approval. This plan will include details for any proposed alternative demonstration if necessary.

Evaluation: The response to this comment is adequate.

c) *The Application states that a wash water solution will be used in the decontamination of equipment. Discuss what will comprise the wash solution and discuss the appropriateness of this solution for organics, inorganics, and radionuclides.*

LANL Response: Please refer to the response to Comment No. 51a.

Evaluation: The response to this comment is adequate, excluding the reference to LANL General Comment No. 3 in the response to Comment No. 51a. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

d) *If decontamination verification of asphalt cannot be determined, the Application indicates that the material will be removed from the site. If the asphalt is removed, sampling of the soil underlying the removed asphalt must be conducted in accordance with 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112 (b)(4)). In addition, all contaminated underlying soil must also be removed and verification sampling conducted. Revise the Application to include a discussion of sampling the underlying soils, removal methods for any contaminated soils, and verification procedures for the remaining soils.*

LANL Response: Please refer to the response to Comment No. 50b.

Evaluation: The response to this comment is adequate. However, further definition of sample locations and sampling depths must be provided in the closure/sampling plans to fully characterize the soils around the units.

e) *20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)) requires that all surrounding soils be sampled and tested for potential contamination. The Application does not discuss how soils surrounding the storage pad will be sampled, how many samples will be taken, what sampling methods will be applied, and how contaminated soils will be removed. Revise the Application to discuss these issues regarding surrounding soils.*

LANL Response: Please refer to the response to Comment No. 50b.

Evaluation: The response to this comment is adequate. However, further definition of sample locations and sampling depths must be provided in the closure/sampling plans to fully characterize the soils around the units.

f) *The Application states that additional testing may be used to determine if leaching of contaminants from the asphalt is contributing to elevated readings in the wash water. Revise the Application to include what sampling and analytical methods will be used to determine if leaching from the asphalt is the source of contamination in the wash water.*

LANL Response: Please refer to the response to Comment No. 53b.

Evaluation: The response to this comment is adequate.

g) *The Application states that, if verification cannot be demonstrated, an alternative demonstration of decontamination will be used. Provide, discuss, and justify the alternative demonstration of decontamination.*

LANL Response: Please refer to the response to Comment No. 53b.

Evaluation: The response to this comment is adequate.

54. *Attachment F.1.2.5, Decontamination Equipment (40 C.F.R. § 264.112(b)(4))*

The Application discusses cleaning of equipment, but neither this Section of the Application nor Section F.1.4.2.1 discusses how the decontamination of equipment used during decontamination procedures of other equipment will be verified. Revise the Application to include procedures for the verification of decontamination of equipment and how levels of residual contamination will be determined.

LANL Response: Section F.1.2.6 provides detailed information for decontamination verification. This is inclusive of the decontamination equipment.

Evaluation: The response to this comment is adequate.

55. *Attachment F.1.2.6, Decontamination Verification (40 C.F.R. §§ 264.112(b)(4-5) and 264.178)*

a) *The Application states that sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination or acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination verification.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is adequate, excluding the reference to LANL General Comment No. 3 in the response to Comment No. 51a. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *The Application should provide a listing of expected contaminants (parameters) that may be present at each CSU. Revise the Application to include a listing of potential contaminants at each CSU.*

LANL Response: Please refer to the response to Comment No. 49.

Evaluation: The response to this comment is adequate.

c) *The Application states that the significance of an increase in contaminant levels in wash down waters is to be determined using statistical methods defined in SW-846. The specific statistical methods that are to be applied must be discussed and provided in the Application. Revise the Application to include 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, define numerically a significant increase.*

LANL Response: The specific statistical methods to be utilized are determined by the hazardous constituent and analytical method as identified in SW-846. LANL intends to develop a unit-specific closure/sampling plan at the time of closure that is consistent with the operating record as described in the response to Comment No. 49. This plan will identify the specific hazardous constituents and statistical methods as they are applicable to that specific closure. In addition, decontamination verification may be conducted utilizing a clean closure equivalency based on EPA Region 9 Human Health Risk values for drinking water.

Evaluation: The response to this comment is adequate.

d) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination verification and to address the investigation methods for detecting hot spots and the methods for verification of decontamination.*

LANL Response: LANL intends to utilize the operating record of the unit at the time of its closure to establish the presence of "hot spots" based on the inspection record and records associated with spills. If any hot spots are identified, special attention will be given to them during decontamination and subsequently during verification. Please note that the TA-55 waste management units are carefully managed to prevent spills and contamination of the surfaces. Decontamination efforts conducted prior to verification will likely remove what little contamination (if any) may be present.

Evaluation: The response to this comment is adequate.

e) *Decontamination verification for radionuclides must include swipe sample analyses of CSU surfaces, structures, and "equipment that is to be left on site, in accordance with NRC Regulatory Guide 1.86, to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to include the use of swipe sampling methods and to discuss how many swipes will be taken, the amount of coverage of the area requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

f) *In addition, surveying using appropriate radiation instruments, should be conducted in areas where radiological contamination may have been present. If radiological contaminants exist as fixed contamination, analysis of the wash down water will not indicate the presence of fixed radiological contamination. Revise the Application to provide for surveying of each CSU 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.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

g) *Decontamination verification of CSU surface areas for hazardous waste residues must also be verified using swipe analysis, similar to that as outlined in Comment e) above. Revise the Application to include swipe sampling and analysis for hazardous waste residues. The discussion should include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: Refer to the evaluation for Comment No. 50f.

h) *The Application does not discuss how surrounding soils will be sampled to ensure that no cross contamination as a result of decontamination activities has occurred. Revise the Application to include a discussion of how soils around areas to be decontaminated will be sampled and verified for potential cross contamination as a result of decontamination procedures.*

LANL Response: Please refer to the response to Comment No. 50b.

Evaluation: The response to this comment is adequate.

i) *The Application does not discuss soils under or around a CSU, in particular the outdoor pad, that are to be decontaminated. 20.4.1.500 NMAC (incorporating 40 C.F .R §264.112(b)(4)) requires that the Application include methods for sampling and testing surrounding soils and verification that these soils meet closure performance standards. Revise the Application to include the methods for sampling and testing surrounding soils at each CSU.*

LANL Response: Please refer to the response to Comment No. 50b.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 50b.

56. *Attachment F.1.3, Sampling and Analytical Procedures (40 C.F.R. § 264.112(b)(4))*

The Application states that sampling and analysis will be conducted in accordance with procedures outlined in SW-846 or other approved procedures or methods. Revise the Application to include references for all proposed procedures and methods that will be used. Revise Tables F.1-1, F.1-2, F.1-5 and F.1-6, as necessary.

LANL Response: Please refer to the response to Comment No. 49.

Evaluation: The response to this comment is adequate.

57. *Attachment F.1.3.1, Soil and Sediment Sampling*

a) *Discuss when soil or sediment sampling is appropriate and required as well as the criteria that will be used to determine when soil or sediment sampling will be conducted.*

LANL Response: Please refer to the response to Comment No. 50b.

Evaluation: The response to this comment is adequate. However, refer to the evaluation for Comment No. 50b.

b) *The soil sampling protocol does not address how many samples will be taken and how soil sample locations will be determined. Revise the Application to include this information.*

LANL Response: Please refer to the response to Comment No. 49.

Evaluation: The response to this comment is adequate.

58. *Attachment F.1.3.2, Liquid Sampling*

Samples of used wash water are to be collected and analyzed to determine when a structure or piece of equipment is deemed sufficiently decontaminated. However, this method appears to lead to uncertainty, as contamination can become diluted as wash water volume increases. Include a discussion regarding the frequency of analysis of the used wash water and provide the minimum and maximum surface area that will be cleaned using one volume of wash water.

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. **[Carl, for TA-54 it was decided that NMED would not require swipe sampling but would evaluate the need for it at the time of closure. It is assumed that this would apply for TA-55 as well.]**

59. *Attachment F.1.3.4, Sampling Handling and Documentation*

a) *The Application states that sample container surfaces will be screened for radiological contamination and decontaminated if necessary. Provide the methodology and proposed instrumentation for screening of samples. Also provide the criteria for determining if decontamination is necessary.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *Discuss special labeling and shipping requirements for radiological samples.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

Comment Nos. 60 - 73, Attachment F.2 – Closure Plan for the Storage Tank System

60. *Attachment F.2.1.1, Closure Performance Standard*

Delete "and post-closure" from the performance standard third bullet.

LANL Response: Please refer to the response to Comment No. 44.

Evaluation: The response to this comment is adequate.

61. *Attachment F.2.1.2, Partial and Final Closure Activities (40 C.F.R. §§ 270.14(b)(13), 270.14(b)(15-18), 264.110 through 264.151 and 264.197)*

a) *Define what is included in the storage tank system, including ancillary equipment and secondary containment, and use the term consistently throughout.*

LANL Response: The storage tank system, ancillary equipment, and associated secondary containment are described in Attachment H of the application.

Evaluation: The response to this comment is adequate.

b) *Discuss the structure(s) within the storage tank system that may be left in service during closure activities.*

LANL Response: Please refer to the response to Comment No. 15.

Evaluation: The response to this comment is adequate.

62. *Attachment F.2.1.9, Survey Plat and Post-Closure Requirements*

Any criteria used to demonstrate compliance for closure that is not permitted in this Application will require a permit modification. Revise the Application to indicate that the requirements for a permit modification pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), will be followed in the event that an amendment to the closure plan is warranted.

LANL Response: The requirements of 20.4.1, Subpart V, 264.112(c) are addressed in Section F.2.1.4.

Evaluation: The response to this comment is adequate.

63. *Attachment F.2.2, Closure Procedures*

The Application states that, if necessary, the closure plan will be modified and the modified closure plan will be submitted to the NMED for review and approval. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), a written notification of or request for a permit modification to authorize a change in operating plans, facility design or the approved closure plan must be submitted to NMED. In addition, the requirements for a permit modification, also outlined in 40 C.F .R § 264.112(c), must be met. Revise the Application to address the written notification requirement.

LANL Response: Please refer to the response to Comment No. 62.

Evaluation: The response to this comment is adequate.

64. *Attachment F.2.2.1, Estimate of Maximum Waste in Storage (40 C.F.R. § 264.112(b)(3))*

The Application must provide an estimate of the maximum inventory for each type of waste and within what components of the storage tank system that waste is contained. Revise the Application to include, for each component of the storage tank system, the maximum quantity of waste, waste type, and maximum capacity.

LANL Response: Please refer to the response to General Comment No. 2.

Evaluation: The response to this comment is partially adequate. No information on inventory by waste type was provided, however, this information may be extracted from the Part A application.

65. *Attachment F.2.2.3, Removal of waste (40 C.F.R. §§ 264.112(b)(3-4) and 264.197)*

a) *The Application must address the requirements in 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)), which states that a detailed plan of*

how waste is to be removed shall be included in the closure plan. Revise the Application to include a detailed discussion of how waste will be removed from each of the components of the storage tank system.

LANL Response: The waste removed from the tank system will be solidified in the cementation or vitrification units as discussed in Section F.2.2.3. LANL intends to develop a unit-specific closure/sampling plan for the storage tank system component(s) at the time of closure that is consistent with the operating record. This approach was discussed with Carl Will of the HWB on April 23 and June 7, 2002, regarding the closure of the TA-54 CSUs. LANL would like to establish the same approach for the TA-55 storage tank system as described below.

LANL intends to develop a unit-specific closure/sampling plan. This plan will utilize the operating record at the time of closure to determine the hazardous constituents that were actually stored and to identify the nature and extent of spills (if any) that may have occurred. The use of the operating record will narrow the range of hazardous constituents to be sampled for and be more representative of the potential contamination at the unit. A list of potential hazardous constituents is provided in Table F.2-2 and represents the breadth of EPA Hazardous Waste Numbers capable of being treated in the unit as identified in the LANL General Part A (LANL, 1998b).

In addition, this unit-specific closure/sampling plan will utilize the operating record to determine:

- The waste types that will be removed prior to and during closure.
- The final disposal destination for the waste and for any wastes generated as a result of the decontamination and disposal operations.
- The most recent procedures, technologies, and innovations to provide clean closure of the unit and protect human health and the environment.

Evaluation: The response to this comment is adequate.

b) *The Application must also address how removed waste will be handled. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R § 264.112(b)(3)), the types of off-site hazardous waste, management facilities to be used must be identified. Revise the Application to describe the handling and disposal of removed waste and, if waste is to be shipped to an off-site location, the types of waste that will be shipped to each specific off-site facility.*

LANL Response: Please refer to the response to Comment No. 65a.

Evaluation: The response to this comment is adequate.

66. *Attachment F.2.2.4, Closure Procedures and Decontamination (40 C.F.R. §§ 264.112(b)(3-4) and 264.197)*

a) *Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(3) and (4)) a detailed description for the closure of each component of the storage tank system must include 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 required to satisfy the closure performance standard. Subsections F.2.2.4.1 through F.2.2.4.3 do not provide information to fulfill the requirements. Revise the Application to adequately address the requirements for closure, decontamination, and verification.*

LANL Response: LANL maintains that Attachment F.2 of the Permit Application meets the closure criteria set forth in the regulations with the following sections:

- Section F.2.2.4 - general decontamination information including PPE, pre-closure activities, and inspection criteria.
- Section F.2.2.4.1 - specific information for the storage tank components.
- Section F.2.2.4.2 - specific information for the ancillary equipment.
- Section F.2.2.4.3 – specific decontamination information for the areas adjacent to the storage tank system (i.e., secondary containment).
- Section F.2.2.5 - decontamination of the equipment used to conduct the closure.
- Section F.2.2.6 - verification method to ensure adequate decontamination.
- Section F.2.3 – sampling and analytical procedures including both soils and liquid.

Evaluation: The response to this comment is adequate.

b) *The Application states that all sampling will be done in accordance with Quality Assurance/Quality Control (QA/QC) procedures, however, the procedures are not provided. Revise the Application to include these QA/QC procedures.*

LANL Response: Please refer to LANL General Comment No. 4.

Evaluation: The response to this comment is adequate.

c) *The schedule for closure activities for the storage tank system is presented in Table F.2-1. However, it is not apparent that the schedule allows time for proper data validation, time to treat wastes, or adequate time for transporting wastes to disposal sites, if warranted. In addition, some structures in the storage tank*

system area may be left in service during partial closure. Revise the schedule to be comprehensive of all potential activities for closure and partial closure.

LANL Response: Please refer to the response to Comment No. 50d.

Evaluation: The response to this comment is adequate.

d) *The Application states that all workers will have proper training and medical monitoring. Reference the appropriate portions of the Application that discuss the training requirements and medical monitoring requirements for workers.*

LANL Response: Please refer to the response to Comment No. 50e.

Evaluation: The response to this comment is adequate.

67. *Section F.2.2.4.1, Storage Tank System Components*

a) *Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)), a detailed description of all the steps needed to remove all hazardous waste residues and contaminated containment system components, equipment, and structures must be provided. The Application does not delineate how the storage tank system will be disassembled, broken down into containerizable pieces, and managed. Revise the Application to include a detailed discussion of all the steps for removing all hazardous waste residues and contaminated containment system components, equipment, and structures of the storage tank system.*

LANL Response: The storage tank system component(s) and/or ancillary equipment to be closed will be removed and cut up into pieces that can be packaged into containers. Details regarding exactly how this will be conducted will be provided in the unit-specific closure/sampling plan at the time of closure as discussed in the response to Comment No. 65a.

Evaluation: The response to this comment is adequate.

b) *Provide the regulations that will be applicable for managing the containerized components of the storage tank system.*

LANL Response: Please refer to the response to Comment No. 65a.

Evaluation: The response to this comment is inadequate since the regulatory citation was not provided in the response to Comment No. 65a.

68. *Section F.2.2.4.2, Ancillary Equipment*

a) *The Application states that ancillary equipment will be either decontaminated, decommissioned, or dismantled depending on anticipated disposition or use after closure. Clarify whether this statement means that certain pieces of ancillary equipment may be decontaminated for future use.*

LANL Response: Please refer to the response Comment No. 15.

Evaluation: The response to this comment is adequate.

b) *Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)), a detailed description of all the steps needed to remove all hazardous waste residues and contaminated containment system components, equipment, and structures must be provided. The Application does not delineate how ancillary equipment will be disassembled, broken down into containerizable pieces, and managed. Revise the Application to include a detailed discussion of all the steps for removing all hazardous and radiological waste residues and contaminated ancillary equipment components of the storage tank system.*

LANL Response: Please refer to the response to Comment No. 67a.

Evaluation: The response to this comment is adequate.

c) *Revise the Application to reference the regulations that will be applicable for managing the containerized ancillary equipment components.*

LANL Response: Please refer to the response to Comment No. 65a.

Evaluation: The response to this comment is inadequate because the regulatory citation was not provided in the response to Comment No. 65a.

d) *The Application states that sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination or acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination verification.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

e) *The Application should provide a listing of expected contaminants (parameters) that may be present in the ancillary equipment. Revise the Application to include a listing of potential contaminants in the ancillary equipment.*

LANL Response: Please refer to the response to Comment No. 65a.

Evaluation: The response to this comment is adequate, but will require verification when the unit-specific closure/sampling plan is submitted to NMED prior to closure.

f) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination*

verification and to address the investigation methods for detecting hot spots and the methods for verification of decontamination.

LANL Response: Please refer to the response to Comment Nos. 50f and 55d.

Evaluation: The response to this comment is adequate. However, refer also to the evaluations for Comment Nos. 50F and 55d.

g) *Decontamination verification for radionuclides must include swipe analyses of structures or other equipment that are to be left on site, in accordance with NRC Regulatory Guide 1.86, to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to include the use of swipe sampling methods and to discuss how many swipes will be taken, the amount of coverage of the surface requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

h) *Decontamination verification of hazardous waste management unit surfaces for hazardous waste residues must be verified using swipe analysis, similar to that as outlined in Comment g) above. Revise the Application to include swipe sampling methods and analysis for hazardous waste residues. The discussion should include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 50f.

i) *The Application states that the wash cycles will continue until equipment has been cleaned to established levels. Provide the methodology for determining the prescribed established levels and provide these levels. Include contaminant-specific levels where applicable.*

LANL Response: Please refer to the response to Comment No. 65a.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 65a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the methodology or number of wash cycles necessary to achieve cleanup levels. This will have to be checked when the unit-specific closure sampling/plan is submitted.

69. *Section F.2.2.4.3, Areas Adjacent to the Storage Tank System*

a) *The Application states that random swipes will be taken from the area adjacent to the storage tank system. Revise the Application to include how many swipes will be taken, what percentages of area will be swiped, and the size of the swipe samples. Also, indicate that swipe samples will be taken for both hazardous and radiological constituents.*

LANL Response: Please refer to the response to Comment No. 65a.

Evaluation: The response to this comment is adequate. The response to Comment No. 65a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the details of collecting swipe samples.

b) *Clarify whether swipe samples will be taken from secondary containment systems.*

LANL Response: The swipe samples are to be taken from the surfaces in Rooms 401 and 434A adjacent to the storage tank system, this is the secondary containment.

Evaluation: The response to this comment is adequate.

c) *The Application states that swipe samples will be taken from sumps and drains. Discuss how the extent of contamination, for example to the trap or past the trap into the drain system, will be determined. If the swipe analysis indicates the presence of 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 must be sampled to ensure that soils have not been contaminated as a result of leakages. Revise the Application to address these issues.*

LANL Response: Please refer to the response to Comment No. 51e.

Evaluation: The response to this comment is adequate.

d) *The Application indicates that drains will be washed down. Clarify how a drain is washed down and clarify how wash water will be prevented from entering the drain lines.*

LANL Response: Please refer to the response to Comment No. 51e.

Evaluation: The response to this comment is adequate.

e) *The Application states that the wash cycles will continue until equipment has been cleaned to established levels. Provide the methodology for determining the prescribed established levels and provide these levels. Include contaminant-specific levels where applicable.*

LANL Response: Please refer to the response to Comment No. 65a.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 65a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the methodology or number of wash cycles necessary to achieve cleanup levels.

70. *Attachment F.2.2.5, Decontamination Equipment (40 C.F.R. §§ 264.112(b)(3-4) and 264.197)*

The Application discusses cleaning of equipment, but it does not discuss how the decontamination of equipment used during decontamination procedures of other equipment will be verified. Revise the Application to include procedures for the verification of decontamination of equipment and how levels of residual contamination will be determined.

LANL Response: Section F.2.2.6 provides detailed information for decontamination verification. This is inclusive of the decontamination equipment.

Evaluation: The response to this comment is adequate.

71. *Attachment F.2.2.6, Decontamination Verification (40 C.F.R. §§ 264.112(b)(3-5))*

a) *Sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination or acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination verification.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *The Application should provide a listing of expected contaminants (parameters) that may be present within the storage tank system. Revise the Application to include a listing of potential contaminants within the storage tank system.*

LANL Response: Please refer to the response to Comment No. 65a.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 65a.

c) *The Application states that the significance of increased constituent concentrations in contaminated wash down waters is to be determined using statistical methods defined in SW-846. The specific statistical methods that are to be applied must be provided in the Application. Revise the Application to include 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, define numerically a significant increase.

LANL Response: Please refer to the response to Comment No. 55c.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 55c.

d) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination verification and to address the investigation methods for detecting hot spots and the methods for verification of decontamination.*

LANL Response: Please refer to the response to Comment Nos. 50f and 55d.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment Nos. 50f and 55d.

e) *Decontamination verification for radionuclides must include swipe analyses of storage tank system surfaces and structures or other equipment that are to be left on site, in accordance with NRC Regulatory Guide 1.86, to verify radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to include the use of swipe sampling methods and to discuss how many swipes will be taken, the amount of coverage of surfaces requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

f) *In addition, surveying using appropriate radiation instruments, must 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. Revise the Application to provide for 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.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

g) *Decontamination verification of storage tank system surfaces for hazardous waste residues must be verified using swipe analysis, similar to that outlined in Comment e) above. Revise the Application to include swipe sampling methods and analysis for hazardous waste residues. The discussion should include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 50f.

h) *The Application states that an alternative demonstration of decontamination may be proposed and justified at the time of closure. Using an alternative method from that outlined in the Application for demonstrating decontamination would constitute a modification of the closure plan. The modified closure plan, outlining the alternative demonstration of decontamination, must be submitted to NMED for review and approval. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), a written notification of or request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan must be submitted to NMED. In addition, the requirements for a permit modification, also outlined in 40 C.F.R § 264.112(c), must be met. Revise the Application to address the written notification requirement.*

LANL Response: Please refer to the response to Comment No. 62.

Evaluation: The response to this comment is adequate.

72. *Attachment F.2.3.2, Liquid Sampling*

The Application states that samples of used wash water are to be collected and analyzed to determine when a structure or piece of equipment is deemed sufficiently decontaminated. However, this method appears to lead to uncertainty, as contamination can become diluted as wash water volume increases. Include a discussion regarding the frequency of analysis of the used wash water and provide the minimum and maximum surface area that will be cleaned using one volume of wash water.

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 50f.

73. *Attachment F.2.3.4, Sampling Handling and Documentation*

a) *The Application states that sample container surfaces will be screened for radiological contamination and decontaminated if necessary. Provide the methodology and proposed instrumentation for screening of samples. Also provide the criteria for determining if decontamination is necessary.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *Discuss special labeling and shipping requirements for radiological samples.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

Comment Nos. 74 - 88, Attachment F.3 – Closure Plan for the Cementation Unit

74. *Attachment F.3.1.1, Closure Performance Standard*

Delete "and post-closure" from the performance standard third bullet.

LANL Response: Please refer to the response to Comment No. 44.

Evaluation: The response to this comment is adequate.

75. *Attachment F.3.1.2, Partial and Final Closure Activities (40 C.F.R. §§ 270.14(b)(13), 270.14(b)(15-18), and 264.110 through 264.151)*

a) *Page F.3-1 states that the cementation unit includes the glovebox and associated structures and piping. Section F.3.1.2 refers to the cementation unit, ancillary equipment, and glovebox. Section F.3.2.4 is titled cementation unit and glovebox. Define what is included in the cementation unit and use the term consistently throughout.*

LANL Response: The cementation unit, glovebox, ancillary equipment, and associated secondary containment are described in Attachment 1 of the application.

Evaluation: The response to this comment is adequate.

b) *Discuss which structure(s) within the cementation unit may be left in service during closure activities.*

LANL Response: The cementation unit is connected to the TA-50-4 facility ventilation, and wet vacuum systems. At closure the piping and ductwork (i.e., ancillary equipment) associated with the unit will be removed to the header that connects them to the facility system. Please note that the facility systems are protected from contamination by vacuum traps, which will also be removed at closure. The facility portions of the ventilation and wet vacuum systems will be left in place to be used by other LANL missions.

In addition, the secondary containment surfaces (i.e., walls and floor) associated with the cementation unit will be decontaminated and left in place to be used by other LANL missions.

Evaluation: The response to this comment is adequate.

76. *Attachment F.3.1.9, Survey Plat and Post-Closure Requirements*

Any criteria used to demonstrate compliance that is not permitted in this Application will require a permit modification. Revise the Application to indicate that the requirements for a permit modification pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), will be followed in the event that an amendment to the closure plan is warranted.

LANL Response: The requirements of 20.4.1 NMAC, Subpart V, 264.112(c) are addressed in Section F.3.1.4.

Evaluation: The response to this comment is adequate.

77. *Attachment F.3.2, Closure Procedures*

The Application states that, if necessary, the closure plan will be modified and that the modified closure plan will be submitted to NMED for review and approval. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), a written notification of or request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan must be submitted to NMED. In addition, the requirements for a permit modification," also outlined in 40 C.F.R. § 264.112(c), must be met. Revise the Application to address the written notification requirement.

LANL Response: Please refer to the response to Comment No. 76.

Evaluation: The response to this comment is adequate.

78. *Attachment F.3.2.1, Estimate of Maximum Waste in Storage (40 C.F.R. § 264.112(b)(3))*

The Application must provide an estimate of the maximum inventory for each type of waste and within what components of the cementation unit that waste is contained. Revise the Application to include the maximum quantity of waste, waste type, and maximum capacity for the cementation unit.

LANL Response: Please refer to the response to General Comment No. 2.

Evaluation: The response to this comment is partially adequate. No information on inventory by waste type was provided, however, this information may be extracted from the Part A application.

79. *Attachment F.3.2.2, Description of waste (40 C.F.R. & 264.112(b)(3))*

The description of the waste includes several generalities, such as "typically," "generally," and "may." Revise the Application to remove these generalities and discuss all of the waste streams and waste types that will be treated in the cementation unit.

LANL Response: LANL will revise the application to remove the terms "typically," "generally," and "may." In addition, please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is adequate.

80. *Attachment F.2.2.3, Removal of Waste (40 C.F.R. §§ 264.112(b)(3-4)*

a) *The Application must address the requirements in 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)), which requires submittal of a detailed plan for waste removal. Revise the Application to include a detailed discussion of how waste will be removed from each of the components of the cementation unit.*

LANL Response: Solidified waste from the cementation unit will be removed and transported to a permitted CSU prior to disposal at a permitted facility as described in Section F.3.2.3. LANL intends to develop a unit-specific closure/sampling plan for the cementation unit at the time of its closure that is consistent with the operating record. This approach was discussed with Carl Will of the HWB on April 23 and June 7, 2002, regarding the closure of the TA-54 CSUs. LANL would like to establish the same approach for the TA-55 storage tank system as described below.

LANL intends to develop a unit-specific closure/sampling plan. This plan will utilize the operating record of the unit at the time of its closure to determine the hazardous constituents that were actually stored in the unit and to identify the nature and extent of spills (if any) that may have occurred. The use of the operating record will narrow the range of hazardous constituents to be sampled for and be more representative of the potential contamination at the unit. A list of potential hazardous constituents for the cementation unit is provided in Table F.3-2 and represents the breadth of EPA Hazardous Waste Numbers capable of being treated in the unit as identified in the "Los Alamos National Laboratory General Part A Permit Application," (LANL, 1998b).

In addition, this unit-specific closure/sampling plan will utilize the operating record of the unit to determine:

- The waste types that will be removed prior to and during closure.
- The final disposal destination for the waste in the tank component(s) and for any wastes generated as a result of the decontamination and disposal operations.
- The most recent procedures, technologies, and innovations to provide clean closure of the unit and protect human health and the environment.

Evaluation: The response to this comment is adequate. However, it is suggested that the reference to "...tank component(s)..." in the second bullet be changed to the "...cementation unit..."

b) *The Application must also address how removed waste will be handled. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(3)), the types of off-site hazardous waste management facilities to be used must be identified. Revise the Application to discuss the management and disposal of removed waste. If waste will be shipped to an off-site location, describe the types of waste that will be shipped to each specific off-site facility.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is adequate.

81. *Attachment F.3.2.4, Closure Procedures and Decontamination (40 C.F.R. § 264.112(b)(3-4))*

As outlined in 20.4.1.500 NMAC (incorporating 40 C.F.R § 264.112(b)(3) and (4)) a detailed description for the closure of each hazardous waste management unit must include 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 required to satisfy the closure performance standard. Subsections F.3.2.4.1 through F.3.2.4.3 do not provide information sufficient to fulfill these requirements.

LANL Response: LANL maintains that Attachment F.1 of the Permit Application meets the closure criteria set forth in the regulations with the following sections:

- Section F.3.2.4 - general decontamination information applicable to the cementation unit including PPE, pre-closure activities, and inspection criteria.
- Section F.3.2.4.1 - specific decontamination information for the cementation unit and the glovebox it is contained in.
- Section F.3.2.4.2 - specific decontamination information for the ancillary equipment associated with the unit.
- Section F.3.2.4.3 – specific decontamination information for the decontamination of the surface areas adjacent to the unit, which includes the secondary containment.
- Section F.3.2.5 - decontamination of the equipment used to conduct the closure.
- Section F.3.2.6 - verification method to ensure adequate decontamination.
- Section F.3.3 – sampling and analytical procedures including both soils and liquid.

Evaluation: The response to this comment is adequate. LANL should also note that information specific to this comment will be furnished in the unit-specific closure/sampling plan to be submitted just prior to unit closure.

82. *Attachment F.3.2.4.1, Cementation Unit and Glove Box*

a) *The Application states that the cementation unit equipment and glovebox will be either decontaminated, decommissioned, or dismantled depending on anticipated disposition or use after closure. Clarify whether this statement means that certain pieces of equipment may be decontaminated for future use.*

LANL Response: Please refer to the response to Comment No. 75b.

Evaluation: The response to this comment is adequate.

b) *Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)), a detailed description of all the steps needed to remove all hazardous waste residues and contaminated containment system components, equipment, and structures must be provided. The Application does not delineate how equipment and pieces of the cementation unit will be disassembled, broken down into container-sized pieces, and managed. Revise the Application to include a detailed discussion of all the steps for removing all hazardous waste residues and contaminated equipment components of the cementation unit and glovebox.*

LANL Response: The cementation unit and/or ancillary equipment to be closed will be removed and cut up into pieces that can be packaged into containers. Details regarding exactly how this will be provided in the unit-specific closure plan at the time of closure as discussed in the response to Comment No. 80a.

Evaluation: The response to this comment is adequate.

c) *Revise the Application to include a reference to the regulations that will be applicable for managing the containerized components and removed waste.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is inadequate since the regulatory citation was not provided in the response to Comment No. 80a.

d) *The Application states that sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination or acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination verification.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

e) *The Application should provide a listing of expected contaminants (parameters) that may be present in the cementation unit equipment and glovebox. Revise the Application to include a listing of potential contaminants in the cementation unit equipment and glovebox.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is adequate, but will require verification when the unit-specific closure/sampling plan is submitted to NMED prior to closure.

f) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination verification and to address the investigation methods for detecting hot spots and the methods for verification of decontamination.*

LANL Response: Please refer to the response to Comment Nos. 50f and 55d.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment Nos. 50f and 55d.

g) *Decontamination verification for radionuclides must include swipe analyses of cementation unit surfaces and structures or other equipment that are to be left on site, in accordance with NRC Regulatory Guide 1.86, to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to include the use of swipe sampling methods and to discuss how many swipes will be taken, the amount of coverage of the surface requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

h) *In addition, surveying using appropriate radiation instruments, must 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. Revise the Application to provide for 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.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

i) *Decontamination verification for hazardous waste residues must be verified using swipe analysis, similar to that outlined in Comment g) above. Revise the Application to include swipe sampling and analysis for hazardous waste residues. The discussion should include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate Refer also to the evaluation for Comment No. 50f.

j) *The Application states that the wash cycles will continue until equipment has been cleaned to established levels. Provide the methodology for determining the prescribed established levels and provide these levels. Include contaminant-specific levels where applicable.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 80a provides for decontamination methodologies in the unit-specific closure/sampling plan, which is to be developed and submitted prior to closure. When it is submitted, the plan must be checked to confirm that specific cleanup levels are included in the plan.

83. *Section F.3.2.4.2, Cementation Unit Ancillary Equipment*

a) *The Application states that ancillary equipment will be either decontaminated, decommissioned, or dismantled depending on anticipated disposition or use after closure. Clarify whether this statement means that certain pieces of ancillary equipment may be decontaminated for future use.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is partially adequate. The unit-specific closure/sampling plan is proposed for development prior to closure of the unit and will provide for clean closure through decontamination of equipment and containment surfaces, as well as disposal of waste and contaminated materials. This level of decontamination may allow future use of decontaminated equipment.

b) *Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 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 must be provided. The Application does not delineate how ancillary*

equipment will be disassembled, broken down into containerizable pieces, and managed. Revise the Application to include a detailed discussion of all the steps for removing all hazardous waste residue and contaminated ancillary equipment components of the cementation unit.

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is partially adequate. The unit-specific closure/sampling plan is proposed for development prior to closure of the unit and will provide for clean closure through decontamination of equipment and containment surfaces, as well as disposal of waste and contaminated materials.

c) *Revise the Application to include a reference to the regulations that will be applicable for managing the containerized ancillary equipment components.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is inadequate since the regulatory citation was not provided in the response to Comment No. 80a.

d) *Sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination or acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination verification.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

e) *The Application should provide a listing of expected contaminants (parameters) that may be present in the ancillary equipment. Revise the Application to include a listing of potential contaminants in the ancillary equipment.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is adequate, but will require verification when the unit-specific closure/sampling plan is submitted to NMED prior to closure.

f) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination verification and to address the investigation methods for detecting hot spots and the methods for verification of decontamination.*

LANL Response: Please refer to the response to Comment Nos. 50f and 55d.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment Nos. 50f and 55d.

g) *Decontamination verification for radionuclides must include swipe analyses of surfaces and structures or other equipment that are to be left on-site, in accordance with NRC Regulatory Guide 1.86, to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to discuss how many swipes will be taken, the amount of coverage of the item requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

h) *In addition, surveying using appropriate radiation instruments, must 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. Revise the Application to provide for 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.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

i) *Decontamination verification for hazardous waste residues must be verified using swipe analysis, similar to that outlined in Comment g) above. Revise the Application to include swipe sampling and analysis for hazardous waste residues. The discussion should include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 650f.

j) *The Application states that the wash cycles will continue until equipment has been cleaned to established levels. Provide the methodology for determining the prescribed established levels and provide these levels. Include contaminant-specific levels where applicable.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 80a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the methodology or number of wash cycles necessary to achieve cleanup levels. This will have to be checked when the unit-specific plan is submitted.

84. *Attachment F.3.2.4.3, Areas Adjacent to the Cementation Unit Glovebox*

a) *The Application states that random swipes are to be taken from the area adjacent to the cementation unit glovebox. Revise the Application to include how many swipes will be taken, what percentages of area will be swiped, and the size of the swipe samples. Also indicate that swipes will be taken for both hazardous and radiological constituents.*

LANL Response: Please refer to the response to Comment No. 80a and LANL General Comment No. 1.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 80a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the details of collecting swipe samples. Also, the reference to LANL General Comment No. 1 does not address this NOD comment.

b) *Clarify whether swipes will be taken of secondary containment systems other than the floor.*

LANL Response: Swipe samples will be collected from the surfaces in Room 401 adjacent to the cementation unit, this is the secondary containment.

Evaluation: The response to this comment is adequate.

c) *Revise the Application to address investigation of any cracks or fractures in the floors and walls prior to decontamination activities.*

LANL Response: Please refer to the response to Comment No. 13c.

Evaluation: The response to this comment is partially adequate since Attachment F, not G, to the NOD Response provides some of the referenced photographs. Only photographs of the B40, B05, K13, and B45 CSUs are provided. Provide photographs for the Vault, Storage Pad, TA-55-185 CSUs, the storage tank system, the cementation unit, and the vitrification unit.

d) *The Application states that the wash cycles will continue until equipment has been cleaned to established levels. Provide the methodology for determining the prescribed established levels and provide these levels. Include contaminant-specific levels where applicable.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 80a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the methodology or number of wash cycles necessary to achieve cleanup levels. This will have to be checked when the unit-specific plan is submitted.

85. *Attachment F.3.2.5, Decontamination Equipment (40 C.F.R. § 264.112(b)(3-4))*

The Application discusses cleaning of equipment, but the Application does not discuss how the decontamination of equipment used during decontamination procedures of other equipment will be verified. Revise the Application to include procedures for the verification of decontamination of equipment and how levels of residual contamination will be determined.

LANL Response: Section F.3.2.6 provides detailed information for decontamination verification. This is inclusive of the decontamination equipment.

Evaluation: The response to this comment is adequate.

86. *Attachment F.3.2.6, Decontamination Verification (40 C.F.R. § 264.112(b)(5))*

a) *Delete the decontamination criteria. At closure, all hazardous waste and hazardous waste residues must be removed or decontaminated.*

LANL Response: The five criteria identified as means of achieving successful decontamination have been approved by NMED in past closure plans. These criteria provide a spectrum of methods that allow the necessary flexibility in the closure plan for conducting a closure. In the past, inordinate amounts of time have been spent modifying closure plans due to unforeseen circumstances that only allowed a single-option approach to successfully demonstrate decontamination. The multi-option approach has proven to be a successful and an expedient approach to conducting closures.

Evaluation: The response to this comment is adequate. **[Carl, this response presents a policy issue.]**

b) *The Application states that sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination of acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination verification. Also provide the regulatory limits for the hazardous constituents.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, this response presents a NMED policy issue that requires further consideration.]**

c) *The Application must provide a listing of expected contaminants (parameters) that may be present within the cementation unit. Revise the Application to include a listing of potential contaminants within the cementation unit.*

LANL Response: Please refer to the response to Comment No. 80a.

Evaluation: The response to this comment is adequate, but will require verification when the unit-specific closure/sampling plan is submitted to NMED prior to closure.

d) *The significance of increased constituent concentrations in contaminated wash down waters is to be determined using statistical methods defined in SW-846. The specific statistical methods that are to be applied must be discussed and provided in the Application. Revise the Application to include 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, define numerically a significant increase.*

LANL Response: Please refer to the response to Comment No. 55c.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 55c.

e) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination verification and to address the investigation methods for detecting hot spots and the methods for verification of decontamination.*

LANL Response: Please refer to the response to Comment Nos. 50f and 55d.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment Nos. 50f and 55d.

f) *Decontamination verification for radionuclides must include swipe analyses of surfaces, structures, or other equipment that are to be left on site, in accordance with NRC Regulatory Guide 1.86, to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to include the use of swipe sampling methods and discuss how many swipes will be taken, the amount of coverage of the surface requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

g) *In addition, surveying using appropriate radiation instruments, must 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. Revise the Application to provide for surveying 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.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

h) *Decontamination verification of cementation unit surfaces for hazardous waste residues must be verified using swipe analysis, similar to that as outlined in Comment f) above. Revise the Application to include swipe sampling of surfaces and analysis for hazardous waste residues. The discussion should include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 50f.

i) *The Application states that an alternative demonstration of decontamination may be proposed and justified at the time of closure. Using an alternative method from that outlined in the Application for demonstrating decontamination would constitute a modification of the closure plan. The modified closure plan, outlining the alternative demonstration of decontamination, must be submitted to NMED for review and approval. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), a written notification of or request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan must be submitted to NMED. In addition, the requirements for a permit modification, also outlined in 40 C.F .R. § 264 .112(c), must be met. Revise the Application to discuss the written notification requirement.*

LANL Response: Please refer to the response to Comment No. 76.

Evaluation: The response to this comment is adequate.

87. *Attachment F.3.3.2, Liquid Sampling (40 C.F.R § 264.112(b)(4))*

Samples of used wash water are to be collected and analyzed to determine when a structure or piece of equipment is deemed sufficiently decontaminated. However, this method appears to lead to uncertainty, as contamination can become diluted as wash water volume increases. Include a discussion regarding the frequency of analysis of the

used wash water and provide the minimum and maximum surface area that will be cleaned using one volume of wash water.

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 50f.

88. *Attachment F.3.3.4, Sampling Handling and Documentation (40 C.F.R. § 264.112(b)(4))*

a) *The Application states that sample container surfaces will be screened for radiological contamination and decontaminated if necessary. Provide the methodology and proposed instrumentation for screening of samples. Also provide the criteria for determining if decontamination is necessary.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *Discuss special labeling and shipping requirements for radiological samples.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

Comment Nos. 89 - 102, Attachment F.4 – Closure Plan for the Vitrification Unit

89. *Attachment F.4.1.1, Closure Performance Standard (40 C.F.R. § 264.11)*

Delete "and post-closure" from the performance standard third bullet.

LANL Response: Please refer to the response to Comment No. 44.

Evaluation: The response to this comment is adequate.

90. *Attachment F.4.1.2, Partial and Final Closure Activities (40 C.F.R. §§ 270.14(b)(13), 270.14(b)(15-18), and 264.110 through 264.151)*

a) *Define the vitrification unit and use the term consistently throughout.*

LANL Response: Please refer to the response to Comment No. 22.

Evaluation: The response to this comment is adequate.

b) *Discuss the structures within the vitrification unit that may be left in service during closure activities.*

LANL Response: The vitrification unit is connected to the TA-50-4 facility ventilation and wet vacuum systems. At closure, the piping and duct work associated with this unit will be removed to the header which connects them to the facility system. Please note that the facility systems are protected from contamination by vacuum traps, which will also be removed at closure. The facility portions of the ventilation and wet vacuum systems will be left in place to be used by other LANL missions.

Evaluation: The response to this comment is adequate.

91. *Attachment F. 4.1.9, Survey Plat and Post-Closure Requirements*
Any criteria used to demonstrate compliance that is not permitted in this Application will require a permit modification. Revise the Application to indicate that the requirements for a permit modification pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), will be followed in the event that an amendment to the closure plan is warranted.

LANL Response: The requirements of 20.4.1 NMAC, Subpart V, 264.112(c) are addressed in Section F.4.1.4.

Evaluation: The response to this comment is adequate.

92. *Attachment F.4.2, Closure Procedures*

The Application states that, if necessary, the closure plan will be modified and that the modified closure plan will be submitted to NMED for review and approval. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), a written notification of, or request for a permit modification to authorize a change in operating plans, facility design or the approved closure plan must be submitted to NMED. In addition, the requirements for a permit modification, also outlined in 40 C.F.R. § 264.112(c), must be met. Revise the Application to discuss the written notification requirement.

LANL Response: Please refer to the response to Comment No. 91.

Evaluation: The response to this comment is adequate.

93. *Attachment F.4.2.1, Estimate of Maximum Waste in Storage (40 C.F.R § 264.112(b)(3))*

The Application must provide an estimate of the maximum inventory for each type of waste and identify the components of the vitrification unit where that waste is contained Revise the Application to include for each component of the vitrification unit, the maximum quantity of waste, waste type, and maximum capacity.

LANL Response: Please refer the response to General Comment No. 2.

Evaluation: The response to this comment is partially adequate. Information on inventory by type of waste was not provided, however, this information may be extracted from the Part A application.

94. *Attachment F .4.2.3, Removal of waste (40 C.F.R. §§ 264.112(b)(3-4))*

a) *The Application must address the requirements in 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)), which requires the submittal of a detailed plan for waste removal. Revise the Application to include a detailed discussion of how waste will be removed from each of the components of the vitrification unit.*

LANL Response: Solidified waste from the vitrification unit will be removed and transported to a permitted CSU prior to disposal at a permitted facility as described in Section F.3.2.3. LANL intends to develop a unit-specific closure/sampling plan for the vitrification unit at the time of its closure that is consistent with the operating record. This approach was discussed with Carl Will of the HWB on April 23 and June 7, 2002, regarding the closure of the TA-54 CSUs. LANL would like to establish the same approach for the TA-55 storage tank system as described below.

LANL intends to develop a unit-specific closure/sampling plan. This plan will utilize the operating record of the unit at the time of its closure to determine the hazardous constituents that were actually stored in the unit and to identify the nature and extent of spills (if any) that may have occurred. The use of the operating record will narrow the range of hazardous constituents to be sampled for and be more representative of the potential contamination at the unit. A list of potential hazardous constituents for the vitrification unit is provided in Table F.4-2 and represents the breadth of EPA Hazardous Waste Numbers capable of being treated in the unit as identified in the "Los Alamos National Laboratory General Part A Permit Application," (LANL, 1998b).

In addition, this unit-specific closure/sampling plan will utilize the operating record of the unit to determine:

- The waste types that will be removed prior to and during closure.
- The final disposal destination for the waste in the unit and for any wastes generated as a result of the decontamination and disposal operations.
- The most recent procedures, technologies, and innovations to provide clean closure of the unit and protect human health and the environment.

Evaluation: The response to this comment is adequate.

b) *The Application must also address how removed waste will be handled. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(3)), the types(s) of off-site hazardous waste management facilities to be used must be identified. Revise the Application to discuss the management and disposal of removed waste. If waste will be shipped to an off-site location, describe the types of waste that will be shipped to each specific off-site facility.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is adequate.

95. *Attachment F.4.2.4, Closure Procedures and Decontamination*

As outlined in 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(3) and (4)), a detailed description for the closure of each hazardous waste management unit must include 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 required to satisfy the closure performance standard. Subsections F.4.2.4.1 through F.4.2.4.3 do not provide information to fulfill the requirements.

LANL Response: Attachment F.4 of the Permit Application meets the closure criteria set forth in the regulations with the following sections:

- Section F.4.2.4 - general decontamination information applicable to the vitrification unit including PPE, pre-closure activities, and inspection criteria.
- Section F.4.2.4.1 - specific decontamination information for the vitrification unit and glovebox.
- Section F.4.2.4.2 - specific decontamination information for the ancillary equipment associated with the unit.
- Section F.4.2.4.3 – specific decontamination information for the decontamination of the surface areas adjacent to the unit which includes the secondary containment.
- Section F.4.2.5 - decontamination of the equipment used to conduct the closure.
- Section F.4.2.6 - verification method to ensure adequate decontamination.
- Section F.4.3 – sampling and analytical procedures including both soils and liquid.

Evaluation: The response to this comment is adequate.

96. *Attachment F.4.2.4.1, Vitrification Unit and Glovebox*

a) *The Application states that the vitrification unit equipment and glovebox will be either decontaminated, decommissioned, or dismantled depending on anticipated disposition or use after closure. Clarify whether this statement means that certain pieces of equipment may be decontaminated for future use.*

LANL Response: Please refer to the response to comment Nos. 90b.

Evaluation: The response to this comment is adequate.

b) *Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)), a detailed description of all the steps needed to remove all hazardous waste residues and contaminated containment system components, equipment, and structures must be provided. The Application does not delineate how equipment or pieces of the vitrification unit will be disassembled, broken down into containerizable pieces, and managed. Revise the Application to include a detailed discussion of all the steps for removing all hazardous waste residue and contaminated equipment components of the vitrification unit.*

LANL Response: The vitrification unit and/or ancillary equipment to be closed will be removed and cut up into pieces that can be packaged into containers. Details regarding exactly how this will be provided in the unit-specific closure plan at the time of closure as discussed in the response to Comment No. 94a.

Evaluation: The response to this comment is adequate.

c) *Revise the Application to include a reference to the regulations that will be applicable for managing the containerized components and removed waste.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is inadequate since the regulatory citation was not provided in the response to Comment No. 94a.

d) *The Application states that sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination or acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination verification.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

e) *The Application must provide a listing of expected contaminants (parameters) that may be present in the vitrification unit equipment and glove box. Revise the Application to include a listing of potential contaminants in the vitrification unit equipment and glovebox.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is adequate, but will require verification when the unit-specific closure/sampling plan is submitted to NMED prior to closure.

f) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for*

the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination verification and to-address the investigation methods for detecting hot spots and the methods for verification of decontamination.

LANL Response: Please refer to the response to Comment Nos. 50f and 55d.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment Nos. 50f and 55d.

g) *Decontamination verification for radionuclides must include swipe analyses of surfaces, structures, or other equipment that are to be left on site, in accordance with NRC Regulatory Guide 1.86, to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to include the use of swipe sampling methods and to discuss how many swipes will be taken, the amount of coverage of the surface requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

h) *In addition, surveying using appropriate radiation instruments, must 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. Revise the Application to provide for surveying 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.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

i) *Decontamination verification for hazardous waste residues must be verified using swipe analysis, similar to that as outlined in the Comment g) above. Revise the Application to include swipe sampling and analysis for hazardous waste residues. The discussion should include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 50f.

j) *The Application states that the wash cycles will continue until equipment has been cleaned to established levels. Provide the methodology for determining the prescribed established levels and provide these levels. Include contaminant-specific levels where applicable.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 94a provides for decontamination methodologies in the unit-specific closure/sampling plan, which is proposed to be developed at the time of unit closure.

97. *Section F.4.2.4.2, Vitrification Unit Ancillary Equipment*

a) *The Application states that vitrification unit ancillary equipment will be either decontaminated, decommissioned, or dismantled depending on anticipated disposition or use after closure. Clarify whether this statement means that certain pieces of ancillary equipment may be decontaminated for future use.*

LANL Response: Please refer to the response to Comment No. 90b.

Evaluation: The response to this comment is partially adequate. The unit-specific closure/sampling plan is proposed for development prior to closure of the unit and will provide for clean closure through decontamination of equipment and containment surfaces, as well as disposal of waste and contaminated materials. This level of decontamination may allow future use of decontaminated equipment.

b) *Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(b)(4)), a detailed description of all the steps needed to remove all hazardous waste residues and contaminated containment system components, equipment, and structures must be provided. The Application does not delineate how vitrification unit ancillary equipment will be disassembled, broken down into containerizable pieces, and managed. Revise the Application to include a detailed discussion of all the steps for removing all hazardous waste residues and contaminated ancillary equipment components of the vitrification unit.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is partially adequate. The unit-specific closure plan is proposed for development prior to closure of the unit and will provide for clean closure through decontamination of equipment and containment surfaces, as well as disposal of waste and contaminated materials.

c) *Revise the Application to include a reference to the regulations that will be applicable for managing the containerized ancillary equipment components.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is inadequate since the regulatory citation was not provided in the response to Comment No. 94a.

d) *The Application states that sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination or acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination verification.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

e) *The Application must provide a listing of expected contaminants (parameters) that may be present in the vitrification unit. Revise the Application to include a listing of potential contaminants in the vitrification unit.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is adequate, but will require verification when the unit-specific closure/sampling plan is submitted to NMED prior to closure.

f) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination verification and to address the investigation methods for detecting hot spots and the methods for verification of decontamination.*

LANL Response: Please refer to the response to Comment Nos. 50f and 55d.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment Nos. 50f and 55d.

g) *Decontamination verification for radionuclides must include swipe analyses of surfaces, structures, or other equipment that are to be left on site, in accordance with NRC Regulatory Guide 1.86, to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to discuss how many swipes will be taken, the amount of coverage of the surface requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

h) *In addition, surveying using appropriate radiation instruments, must 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, present of fixed radiological contamination. Revise the Application to provide for surveying 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.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

i) *Decontamination verification for hazardous waste residues must be verified using swipe analysis similar to that as outlined in the Comment g) above. Revise the Application to include swipe sampling and analysis for hazardous waste residues. The discussion should include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate. Refer also to the evaluation for Comment No. 50f.

j) *The Application states that the wash cycles will continue until equipment has been cleaned to established levels. Provide the methodology for determining the prescribed established levels and provide these levels. Include contaminant-specific levels where applicable.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 94a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the methodology or number of wash cycles necessary to achieve cleanup levels. This must be checked when the unit-specific plan is submitted.

98. *Attachment F.4.2.4.3, Areas Adjacent to the Vitrification Unit Glovebox*

a) *The Application states that random swipes are to be taken from the area adjacent to the vitrification unit glovebox. Revise the Application to include how many swipes will be taken, what percentages of area will be swiped, and the size of the swipe samples. Also indicate that swipes will be taken for both hazardous and radiological constituents.*

LANL Response: Please refer to the response to Comment No. 94a and LANL General Comment No. 3.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 94a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the details of collecting swipe samples. Also, the reference to LANL General Comment No. 3 does not address this NOD comment. Please refer to the evaluation of the response to LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *Clarify whether swipes will be taken of secondary containment systems other than the floor.*

LANL Response: Swipe samples will be taken from the surfaces in Room 434A adjacent to the vitrification unit to determine the presence of hazardous constituents, if any. Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate.

c) *Revise the Application to address investigation of any cracks or fractures in the floors and walls prior to decontamination activities.*

LANL Response: Please refer to the response to Comment No. 13c.

Evaluation: The response to this comment is partially adequate since Attachment F, not G, to the NOD Response provides some of the referenced photographs. Only photographs of the B40, B05, K13, and B45 CSUs are provided. Provide photographs for the Vault, Storage Pad, TA-55-185 CSUs, the storage tank system, the cementation unit, and the vitrification unit.

d) *The Application states that the wash cycles will continue until equipment has been cleaned to established levels. Provide the methodology for determining the prescribed established levels and provide these levels. Include contaminant-specific levels where applicable.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is partially adequate. The response to Comment No. 94a proposes the development of a unit-specific closure/sampling plan near the time of unit closure, but does not specifically address the methodology or number of wash cycles necessary to achieve cleanup levels. Upon submittal, the unit-specific plan must be checked to ensure that it contains the information requested in Comment 98d.

99. *Attachment F.4.2.5, Decontamination Equipment (40 C.F.R. § 264.112(b)(3-4))*

The Application discusses cleaning of equipment, but the Application does not discuss how the equipment used during decontamination procedures of other equipment will be verified. Revise the Application to include procedures for the verification of decontamination of equipment and how levels of residual contamination will be determined.

LANL Response: Section F.4.2.6 provides detailed information for decontamination verification. This is inclusive of the decontamination equipment, if applicable.

Evaluation: The response to this comment is adequate.

100. *Attachment F.4.2.6, Decontamination Verification (40 C.F.R. § 264.112(b)(5))*

a) *The Application states that sampling and analysis will be used to demonstrate that hazardous constituents are not present above regulatory limits after closure. However, the Application does not address radiological decontamination or acceptable levels of radiological contamination for closure. Revise the Application to include a discussion of radiological decontamination levels and verification. Also provide the regulatory limits for the hazardous constituents.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *The Application must provide a listing of expected contaminants (parameters) that may be present within the vitrification unit. Revise the Application to include a listing of potential contaminants within the vitrification unit.*

LANL Response: Please refer to the response to Comment No. 94a.

Evaluation: The response to this comment is adequate, but will require verification when the unit-specific closure/sampling plan is submitted to NMED prior to closure.

c) *The Application states that the significance of increased constituent concentrations in contaminated wash down waters is to be determined using statistical methods defined in SW-846. The specific statistical methods that are to be applied should be discussed and provided in the Application. Revise the Application to include 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, define numerically a significant increase.*

LANL Response: Please refer to the response to Comment No. 55c.

Evaluation: The response to this comment is adequate.

d) *The practice of testing wash water for determination of decontamination can result in significant dilution of constituents. This method also does not allow for the detection of potential hot spots. Revise the Application to discuss the potential uncertainties associated with this method of decontamination*

verification and to address the investigation methods for detecting hot spots and the methods for verification of decontamination.

LANL Response: Please refer to the response to Comment Nos. 50f and 55d.

Evaluation: The response to this comment is adequate.

e) *Decontamination verification for radionuclides must also include swipe analyses of surfaces, structures, or other equipment that are left on site, in accordance with NRC Regulatory Guide 1.86, to verify that radioactive contamination has been adequately removed and that there are no remaining hot spots of unacceptable levels. Revise the Application to include the use of swipe sampling methods and discuss how many swipes will be taken, the amount of coverage of the surface requiring swipe sampling, and the method of analysis.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

f) *In addition, surveying using appropriate radiation instruments, must 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. Revise the Application to provide for surveying 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.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

g) *Decontamination verification of the vitrification unit for hazardous waste residues must also be verified using swipe analysis, similar to that as outlined in the Comment e) above. Revise the Application to include swipe sampling of surfaces and analysis for hazardous waste residues. The discussion must include how many swipes will be taken, percent surface coverage, and the method of analysis.*

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate.

h) *The Application states that an alternative demonstration of decontamination may be proposed and justified at the time of closure. Using an alternative method from that outlined in the Application for demonstrating decontamination would*

constitute a modification of the closure plan. The modified closure plan, outlining the alternative demonstration of decontamination must be submitted to NMED for review and approval. Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.112(c)), a written notification of or request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan must be submitted to NMED. In addition, the requirements for a permit modification, also outlined in 40 C.F.R. § 264.112(c), must be met. Revise the Application to discuss the written notification requirement.

LANL Response: Please refer to the response to Comment No. 91.

Evaluation: The response to this comment is adequate.

101. *Attachrnent F.4.3.2, Liquid Sampling (40 C.F.R. § 264.112(b)(4))*

The Application states that samples of used wash water are to be collected and analyzed to determine when a structure or piece of equipment is deemed sufficiently decontaminated. However, this method appears to lead to uncertainty, as contamination can become diluted as wash water volume increases. Include a discussion regarding the frequency of analysis of the used wash water and provide the minimum and maximum surface area that will be cleaned using one volume of wash water.

LANL Response: Please refer to the response to Comment No. 50f.

Evaluation: The response to this comment is adequate.

102. *Attachment F.4.3.4, Sampling Handling and Documentation (40 C.F.R. § 264.112(b)(4))*

a) *The Application states that sample container surfaces will be screened for radiological contamination and decontaminated if necessary. Provide the methodology and proposed instrumentation for screening of samples. Also provide the criteria for determining if decontamination is necessary.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

b) *Discuss special labeling and shipping requirements for radiological samples.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

Comment Nos. 103 - 107, Attachment G – Container Storage

103. *Attachment G, Container Storage (40 C.F.R. §§ 270.15 and 264 Subpart I)*

The Application does not provide engineering drawings or figures for each CSU showing container layout, including waste placement by waste container type and locations of aisles. In addition, drawings must demonstrate locations of containment systems and flow of liquids to collection areas. Revise the Application to include these drawings for each CSU.

LANL Response: Engineering Drawings are provided as Figures G-1, G-2, G-3, and G-4 in attachment G of the Application. Additional Figures are provided in Attachment D of this NOD Response and provide one potential container layout for 55-gallon and SWB's at the CSUs for the purposes of determining capacity.

Evaluation: The response to this comment is partially adequate. The drawings should be revised to indicate gradient for liquid flow to sumps and collection points.

104. *Attachment G.1, Container Storage at TA-55 (40 C.F.R. §§ 270.14(h)(1 and 264.172)*

It is not clear that all types of waste containers to be used for storage of hazardous waste have been identified. The Application must identify all waste containers to be permitted for storage at all CSU's. Revise the Application to remove the term "but are not limited to" and indicate all the types of waste containers that will be used at all CSU's.

LANL Response: Please refer to the response to Comment Nos. 3a and b.

Evaluation: The response to this comment is adequate.

105. *Attachment G.2, Containment Systems (40 C.F.R. §§ 270.15(a)(1-5), 270 and 264.175)*

a) *For containers bearing liquid wastes, the Application does not provide the dimensions for containment systems and the number of containers, by container type, the containment systems are designed for. In addition, the calculations of the capacity of the containment system relative to waste containers must be provided. Revise the Application accordingly.*

LANL Response: Please refer to the response to Comment Nos. 3a and 9c.

Evaluation: The response to this comment is adequate.

b) *For containers that will not contain liquid wastes, the Application must provide the test procedures and results or other documentation for demonstrating that containers do not contain free liquids. The Application must also identify each specific type of waste that will be permitted for storage at each of the CSU's storage areas. Revise the Application accordingly.*

LANL Response: Please refer to the response to Comment No. 9a.

Evaluation: The response to this comment is adequate.

c) *The Application implies that since wastes to be stored at TA-55-4, B05, B45 and TA-55-185 will not contain liquids, secondary containment requirements are not required. While the secondary containment requirements outlined in 20.4.1.900 NMAC (incorporating 40 C.F.R. § 270.15(a)) are not applicable, the requirements of 20.4.1.900 NMAC (incorporating 40 C.F.R. § 270.15(b)), must be met. This includes demonstrating how the CSUs are designed to drain and remove liquids and how containers will be kept from contact with liquids. Revise the Application to address these issues.*

LANL Response: LANL will revise Attachment G to include the following:

> "The CSUs in TA-55-4 (B05 and B45), and TA-55-185 all reside in a building so run-on and run-off from storm events are not applicable. In the event of a water leak from facility systems the TA-55-4 basement has sumps to contain the liquid. On working days a daily inspection of each CSUs is usually conducted. Some drummed wastes are placed on pallets or stored in self-containment structures. Standard waste boxes are placed on pallets and our large waste boxes have raised legs. All waste items placed in TA-55-185 will either be placed on pallets or have raised legs."

Evaluation: The response to this comment is adequate.

d) *The Application implies that wastes to be stored at TA-55-4, B05, B45, and TA-55-185 include but are not limited to cemented, mixed heterogeneous, and vitrified wastes. Revise the Application to specify all wastes to be permitted for storage at TA-55-4, B05, B45, and TA-55-185.*

LANL Response: LANL will revise the application to indicate that the wastes allowed to be stored in TA-55 CSUs are identified in the General Part A.

Evaluation: The response to this comment is adequate in its intent, however, it must be verified by checking the revised TA-55 Part A Permit Application recently submitted to NMED by NMED.

106. *Attachment G.3, Special Requirements for Ignitable, Reactive and Incompatible Wastes (40 C.F.R. §§ 270.14(b)(9), 270.15(c-d), 264.17,264.176 and 264.177)*

a) *The Application must include engineering drawings or other data that will demonstrate the containers of ignitable or reactive waste are located 50 feet from the TA boundary. Revise the Application to include this figure(s).*

LANL Response: Please refer to Figure A-5 of the application.

Evaluation: The response to this comment is adequate.

b) *Provide specific policies that are in place to ensure that precautions are taken to include prevention of ignition, spontaneous ignition, and radiant heat.*

LANL Response: Please refer to the response to Comment No. 10b.

Evaluation: The response to this comment is adequate.

c) *The requirements for incompatible waste outlined in 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.177(c)) are not addressed. A storage container with incompatible hazardous waste must be separated from other materials or be protected from other materials by means of a berm, dike, wall, or other device. Revise the Application to clarify that incompatible wastes will be separated and segregated from other wastes and materials by means of a berm, dike, wall, or other specific means.*

LANL Response: Please refer to the response to Comment No. 10b.

Evaluation: The response to this comment is adequate.

d) *The Application must describe all processes that will be used to prevent reactions that may generate extreme heat, 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; or be a threat to human health or the environment. Revise the Application to include a discussion of these preventative processes.*

LANL Response: Please refer to the response to Comment No. 10b.

Evaluation: The response to this comment is adequate.

e) *Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.17(b)(4)), the Application must ensure the management of incompatible wastes within a CSU where secondary containment systems will be used and show that the presence of incompatible wastes will not cause the secondary containment system to leak, corrode, or fail. Revise the Application to discuss safeguards that are in place to ensure the compatibility of incompatible wastes with the secondary containment systems.*

LANL Response: Please refer to the response to Comment No. 10b.

Evaluation: The response to this comment is adequate.

107. *Attachment G.4, Air Emission Standards for Containers*

The Application refers to containers meeting the U.S. Department of Transportation (DOT) specifications of 49 C.F.R Part 178. Revise the Application to include a description of the specific specifications in 49 C.F.R Part 178 and the criteria for determining compliance with these specifications for each type of container to be used for storage at each CSU.

LANL Response: Please refer to the response to Comment No. 3a and Attachment B of this NOD Response.

Evaluation: The response to this comment is adequate.

Comment Nos. 108 - 110, Attachment H – Storage Tank System

108. *Attachment H.1, Design, Construction, Materials and Operation (40 C.F.R. §§ 270.16(b-d) and 264.191(b)(1 and 3))*

a) *Revise the Application to provide the criteria that will be used to determine whether wastes will be treated in the cementation unit or the vitrification unit.*

LANL Response: Wastes will be treated in the cementation unit or vitrification unit based upon the radionuclide and chemical content. Please refer to Attachment I, Section I.2 and Attachment J, Section J.2 for additional discussion regarding treatment effectiveness for each unit.

Evaluation: The response to this comment is adequate.

b) *Revise the Application to provide the radionuclide discard limit that will be used to determine if wastes will be transferred to the cementation unit pencil tank or, the pencil tanks.*

LANL Response: Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

c) *The Application states that if sample analysis indicates that concentrations are above the discard limit the solutions will be re-circulated. It is not clear from the Application how they will be re-circulated and what the re-circulation process does to lower concentrations, for example by dilution into other solutions. Provide a discussion of the re-circulation process and how this process will affect radionuclide concentrations in solutions.*

LANL Response: If the evaporator bottom solutions are above the plutonium discard limit they are sent back to the TA-55 recovery process where the plutonium is recovered for programmatic use. Please refer to LANL General Comment No. 3.

Evaluation: The response to this comment is inadequate. Please refer to NMED's evaluation of LANL General Comment No. 3. **[Carl, please note that this is a policy issue that requires NMED's consideration.]**

109. *Attachment H.3, Secondary Containment (40 C.F.R. §§ 270.16(g) and 264.193)*

a) *Information must be included in the Application that demonstrates, using calculations, that the external liner system is designed to contain 100 percent of the capacity of the largest tank within its boundary. Revise the Application to include these calculations.*

LANL Response: Please refer to the response to Comment No. 13b.

Evaluation: The response to this comment is adequate.

b) *The Application is not clear whether the floor, which will act as the secondary containment system, is sloped to allow collection of liquids. Discuss this issue.*

LANL Response: The floor is not sloped to allow for the collection of liquids. Please refer to the response to Comment No. 13b.

Evaluation: The response to this comment is adequate.

c) *The reinforced concrete floor that will serve as the containment system must be demonstrated to be free of cracks or gaps. Provide this information.*

LANL Response: Please refer to the response to Comment No. 13c.

Evaluation: The response to this comment is partially adequate since Attachment F, not G, to the NOD Response provides some of the referenced photographs. Only photographs of the B40, B05, K13, and B45 CSUs are provided. Provide photographs for the Vault, Storage Pad, and TA-55-185 CSUs; the storage tank system; the cementation unit; and the vitrification unit.

d) *Revise the Application to include a statement that the containment system is designed to completely surround the storage tank system.*

LANL Response: Please refer to the response to Comment No. 13d.

Evaluation: The response to this comment is adequate.

e) *The Application states that any accumulated liquids will be removed as soon as possible. Revise the Application to include the requirements of 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.193(c)(4)) that all hazardous waste and accumulated liquids must be removed from the secondary containment system within 24 hours, unless Permittees demonstrate to NMED that removal of the hazardous waste or accumulated liquids cannot be accomplished in 24 hours, in which case the hazardous waste and liquids must be removed in as timely a manner as possible to prevent harm to human health and the environment.*

LANL Response: Please refer to the response to Comment No. 16b.

Evaluation: The response to this comment is adequate.

110. *Attachment H.4, Special Requirements for Ignitable, Reactive and Incompatible Wastes (40 C.F.R. §§ 66 270.16(g-h). 264.17.264.198 and 264.199)*

In the event that ignitable or reactive waste is stored in any part of the storage tank system, the following must be either provided or demonstrated. Revise the Application to address these issues:

a) *Provide the operating pressure and temperature specifications for the tanks;*

b) *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;*

c) *Demonstrate that the wastes are not placed in the same tank system unless there is compliance with 20.4.1.500 NMAC (incorporating 40 C.F.R § 264.17(b));*

d) *Demonstrate that the waste is stored or treated in a manner such that it protects against ignition or reaction;*

e) *Demonstrate that the requirements are met for the maintenance of protective distances between waste management areas and any public ways, streets, alleys, or adjoining property lines;*

f) *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 C.F.R § 264.17(b)) to prevent reactions; and*

g) *Indicate whether the tank system is used solely for emergencies.*

LANL Response: Please refer to the response to Comment No. 14.

Evaluation: The response to this comment is adequate.

Comment Nos. 111 - 112, Attachment I – Cementation Unit

111. *Attachment I.3.3, Protection of the Atmosphere (40 C.F.R. §§ 270.23(b-c) and 264.601(a-c))*

The cementation unit has a system of negative pressure zones and high-efficiency particulate filters (HEPA) 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 Application must address how releases to the atmosphere will be prevented in the event of a power outage causing a temporary shutdown of the negative pressure zones and HEPA filter system. In addition, the Application must address how long the system will be shut down before the backup generators can be activated to operate the cementation unit pressure regulation system. Revise the Application to address these issues.

LANL Response: LANL will revise the application to include the following:

> "The cementation unit is contained inside a glovebox that is connected to the TA-55-4 facility ventilation system. The HEPA filters on the glovebox are on the air intake side of the ventilation and are designed to prevent escape of contamination from the glovebox in the event of a power failure. TA-55-4 is equipped with a backup generator that re-establishes power to all vital systems which provides exhausts to the glovebox. The unit is a batch waste treatment system, if a power failure occurs all operations cease inside the glovebox until power is restored."

Evaluation: The response to this comment is adequate.

112. *Attachment I.4, Special Requirements for Ignitable, Reactive, and Incompatible Wastes (40 C.F.R. §§ 270.14(b)(9), 264.17, 264.198 and 264.199)*

In the event that ignitable or reactive waste is stored in any part of the cementation unit, the following must be either provided or demonstrated. Revise the Application to address these issues.

a) *Provide the operating pressure and temperature specifications for the system and associated tanks;*
b) *Demonstrate that waste is treated, rendered, or mixed before or immediately after placement in the system so that it no longer is ignitable or reactive;*
c) *Demonstrate that the wastes are not placed in the same system unless there is compliance with 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.17(b));*
d) *Demonstrate that the waste is stored or treated in a manner such that it protects against ignition or reaction;*
e) *Demonstrate that the requirements are met for the maintenance of protective distances between waste management areas and any public ways, streets, alleys, or adjoining property lines;*
f) *Provide procedures assuring that hazardous waste will not be placed in a system 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 C.F.R. § 264.17(b)) to prevent reactions; and*
g) *Indicate whether the system is used solely for emergencies.*

LANL Response: Please refer to the response to Comment No. 19a.

Evaluation: The response to this comment is adequate.

Comment Nos. 113 - 117, Attachment J – Vitrification Unit

113. *Attachment J.1.4, Off-Gas System (40 C.F.R. § 270.23(a))*

a) *This Section describes a caustic scrubber column for cleaning the off-gas. The rationale for the choice of a caustic scrubber is not provided. Identify and provide 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 and the outlet concentrations for each contaminant.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is complete, but only partially adequate. The analyses of the calcining off gases and the scrubber exit gas and the design efficiency of the scrubber are given in The Mass and Energy Balance. The efficiency of the scrubber for conversion of NO_2 to NO is given as 99%. Back calculating from the scrubber outlet concentration of NO and the inlet concentration of NO_2 produces an efficiency of 69%. This is close to the maximum theoretical efficiency for scrubbing NO_2 with caustic. Correct this figure or explain how the 99% value will be obtained. The efficiency of the scrubber for removal of SO_3 is given as 80%. It is likely to be difficult to achieve

this efficiency in practice since SO_3 tends to form a submicron aerosol in moist air. Such an aerosol will not be removed efficiently by a packed column.

b) *The description of the scrubber is incomplete in that it does not identify the type or size of the packing nor the concentration of caustic (or pH) of the scrubber solution. Provide this information.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate. The scrubber is described in Section 5.3. The diameter of the column and height of packing are provided, but the size and type of packing are not given. Provide this information.

c) *The second paragraph indicates that the off-gas will be cooled by a quencher before entering the scrubber. This quencher is not described and the temperature to which the gas will be cooled is not given. Revise the Application to provide a description of the quencher and indicate the design outlet temperature.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate. The quench function is described in Section 5.3 as: "...caustic solution will be injected into the line via a T-connection..." The method of injection or atomization is not described. The Heat and Material Balance, Section 3, describes the quencher as a "venturi-type" device. The quencher shown in Figure 2 appears to match the Section 5.3 description. Reconcile these two divergent descriptions and provide additional detail on the construction of the quencher.

d) *The scrubber is stated to exhaust to the building wet/dry vacuum system. This system is not described. Revise the Application to provide a brief description of this system, oriented towards its ability to control any contaminants remaining in the scrubber exhaust.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate. The wet/vacuum system is mentioned in Section 5.3, but no description is provided.

e) *Once the off-gas system has been constructed, a performance evaluation must be completed to determine the effectiveness of the system. The evaluation must 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.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate. This subject is not mentioned in the final design report, which is generally not a good vehicle for such a discussion.

f) *As it is unlikely that a 100 percent control efficiency for mercury can be obtained, measurements of the actual control efficiency must be made. Also, the amount of mercury that is actually vaporized must be determined. Include these in the performance evaluation.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate. The ability of the scrubber to control any vaporized mercury is not discussed. This document does not discuss whether any mercury is contained in the waste to be calcined.

g) *In addition, provide a detailed plan for how the performance evaluation will be conducted, including how and where within the system influent and effluent samples will be taken, how these samples will be evaluated and against what performance criteria, and the specific constituents that will be monitored.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate. This subject is not mentioned in the final design report, which is generally not a good vehicle for such a discussion.

h) *During start up and shut down 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 parameters specified in the Application. Revise the Application to discuss start up and shut down procedures.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate. The Operating Procedure Outline mentions adding caustic to the scrubber tank but does not specifically state when the scrubber recirculation is started or whether it is maintained between batches.

i) *Discuss monitoring that will be conducted to ensure continued operational effectiveness of the off-gas system.*

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate. Monitoring of the off-gas system is not mentioned.

114. *Attachment J.1.5, Glove Box (40 C.F.R. § 270.23(a))*

The Application states that a small cooling system for the glovebox 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. Revise the Application to include a description and design of the cooling system, operating conditions, and the location of the cooling system in the glovebox.

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is adequate. The description of the glove box in Section 5.4 mentions, but does not describe, the glovebox cooling system. Figure 2 shows that a stream of air is extracted from the glove box, cooled by cool water and reinjected into the box.

115. *Attachment J.2, Vitrification Unit Demonstration of Treatment Effectiveness C.F.R. § 270.23(d)*

The Application States that the Permittees will implement appropriate waste management options for mercury in the scrubber solution. Revise the Application to provide these waste management options.

LANL Response: Please refer to LANL General Comment No. 5.

Evaluation: This response is inadequate since the subject is not mentioned.

116. *Attachment J.3.3, Protection of the Atmosphere (40 C.F.R §§ 270.23(b-c) and 264.601(c))*

a) *The vitrification unit has a system of negative pressure zones and 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 Application must address how releases to the atmosphere will be prevented in the event of a power outage causing a temporary shutdown of the negative pressure zones and the off-gas system. In addition, the Application must address how long the system will be shut down until the backup generators can be activated to operate the vitrification unit pressure regulation system. Revise the Application to address these issues.*

LANL Response: LANL will revise the application to include the following:

"The negative pressure on the melter and off-gas system is provided by the facility wet vacuum system. In the event that the wet vacuum system goes down, the melter will be shut down. Gases in the system at the time of shut down will continue to exhaust through the off-gas system (which will remain operating – pumps are connected to a independent UPS) until the internal pressure of the melter cannot overcome the pressure drop associated with the scrubber packing (approximately 5 psi). No release to the glove box or room is anticipated in the event of wet vacuum failure."

Evaluation: This response is adequate. LANL states that the gas remaining in the melter will exhaust through the system until the pressure in the melter cannot overcome the pressure drop in the scrubber (approximately 5 psi). This implies that a 5 psi pressure may remain in the melter but, even if the design pressure drop is 5 psi, on shutdown the gas flow rate will decrease significantly and the scrubber recycle pump will probably shut down resulting in a much lower resistance in the scrubber column.

b) *This Section describes the fugitive emission prevention system. It does not appear that a fan in the off-gas system is used and that the building wet/dry vacuum system provides the suction to move the gas. Revise the Application to specify that the system will keep the off-gas system at a pressure below that of the glove box and describe how this is achieved.*

LANL Response: LANL will revise the application to include the following:

"The wet vacuum system maintains the off-gas system and the melter at a negative pressure relative to the glove box. The glove box is maintained at a negative pressure relative to the room through the Zone 1 ventilation system. These systems are independent and maintained at the desired set points through associated control systems."

Evaluation: This response is adequate.

c) *It appears that cascaded levels of negative pressure are being used to collect fugitive emissions. Revise the Application to include the methods that the facility glovebox exhaust system will employ to control what is collected.*

LANL Response: LANL will revise the application to include the following:

"The facility-wide ventilation system is designed to maintain a series of progressively more negative pressure zones (i.e., air flows from the PF-4 corridors into the rooms, then into the gloveboxes) and is then discharged into the Zone 1 ventilation system. Air flowing through Zone 1 passes through 3 stages of HEPA filters before being discharged through a stack to the environment. Zone 1 does not provide for the removal of chemical constituents unless they are in a particulate form."

Evaluation: This response is adequate. The Zone 1 ventilation system contains 3 stages of HEPA filters.

d) *The HEPA filter on the glovebox will not control NOx emissions that might get into the glovebox. Discuss whether NOx will be controlled and if NOx will be vented to the atmosphere.*

LANL Response: Gases released into the glovebox will pass into the Zone 1 ventilation system. This system does not prevent the release of NO_x to the environment.

Evaluation: This response is adequate. NOx in the off-gas is partially controlled by the scrubber attached to the melter, but NOx that is released to the glove box will not be controlled by the Zone 1 ventilation system.

117. *Attachment J.4, Special Requirements for Ignitable, Reactive, or Incompatible Wastes (40 C.F.R. §§ 270.14(b)(9), 264.17, 264.198 and 264.199)*

While no ignitable, reactive, or incompatible wastes will be treated in the vitrification unit, the unit is located in the same room and utilizing the same secondary containment

system as the storage tanks, which may be used for ignitable, reactive, or incompatible wastes. Therefore, the Application must address the potential for contact of these wastes with the vitrification unit and associated waste streams in the event of a leak of either ignitable, reactive, or incompatible waste from either the storage tank system, cementation unit or vitrification unit.

LANL Response: Please refer to the response to Comment No. 19b.

Evaluation: This response is adequate. The response to Comment No. 19b states that there is no incompatibility issue.

Comment Nos. 118 - 121, Attachment K – Waste Management Practices

118. *Attachment K.2.4, Aisle Space Requirements (40 C.F.R. § 264.35)*

The requirements for aisle space as outlined in 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.35) state that aisle space must be maintained that will allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the facility in an emergency. It is not apparent that the proposed aisle space meets this requirement. Revise the Application to indicate that a minimum aisle space of three feet will be used, or provide adequate justification for the use of a smaller aisle space.

LANL Response: Please refer to the response to Comment No. 4a.

Evaluation: The response to this comment is adequate.

119. *Attachment K.3.4, Mitigating Effects of Power Outages (40 C.F.R. §§ 270.14(b)(8) and 264 Subpart C)*

The Application states that, in the event of a power outage, portable generators are available. This statement allows that there is no immediate backup generator system that would provide immediate power in the event of an outage. This is especially a concern for the off-gas system of the vitrification unit. Provide a discussion regarding the prevention of process upsets and system failures in the vitrification unit off-gas system in the event of a power failure.

LANL Response: The cementation unit is contained inside a glovebox that is connected to the TA-55-4 facility ventilation system. The HEPA filters on the glovebox are on the air intake side of the ventilation and are designed to prevent escape of contamination from the glovebox in the event of a power failure. TA-55-4 is equipped with a backup generator that re-establishes power to all vital systems which provides exhausts to the glovebox. The unit is a batch waste treatment system, if a power failure occurs all operations cease inside the glovebox until power is restored.

Evaluation: The response to this comment is inadequate as it addresses the cementation unit and not the vitrification unit.

120. *Attachment K.3.6, Preventing Releases to the Atmosphere (40 C.F.R. §§ 270.14(b)(8) and 264 Subpart C)*

As discussed in previous comments, a performance evaluation demonstrating the effectiveness of the vitrification system's off-gas unit must be provided to demonstrate that there will be no releases of either hazardous or radiological constituents to the atmosphere. Include a reference to the vitrification off-gas system performance evaluation.

LANL Response: Please refer to LANL General Comment No. 2.

Evaluation: The response to this comment is inadequate. Revise the permit application to address the conduct of a vitrification off-gas system performance evaluation.

121. *Attachment K.4.1, Hazardous Waste Report (Biennial Report)*

Pursuant to 20.4.1.500 NMAC (incorporating 40 C.F.R. § 264.75), the biennial report must cover activities during the previous calendar year only. The Application indicates that more than one calendar year may be covered by the report. While some activities may overlap into more than one year, the report should focus on one calendar year. Clarify that the report will primarily address only the previous calendar year.

LANL Response: Section K.4.1 states the following:

"The report will cover facility activities during the previous calendar year..."

Evaluation: The response to this comment is adequate.