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Status Report for Integrated Closure Activities at Technical Area 54

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☒ IMP-300-00-00 is not applicable to this document	
Hazard Categorization *(Check one)*	**Action- Official documentation is maintained on the document's traveler** *(Where applicable, check one)*
☐ Low	☐ No IWD is required, proceed with work
☐ Moderate	☐ Document is authorized to serve as Part I of the IWD ☐ A separate Part I, "Activity Specific Hazards Control Table," must be completed
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***Authorizing Signature:**		**Date**
Rick Alexander, NWIS-RLW	Rick Alexander	7-7-05

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HISTORY OF REVISIONS

Document Number	Issue Date	Action	Description
DIV-REPORT-0202, R.0	July 2005	New Document	

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1.0 PURPOSE AND SCOPE

This report describes the status of integrated planning activities associated with closure of Area L/MDA L and Area G/MDA G at Technical Area (TA)-54 at Los Alamos National Laboratory (LANL). These integrated planning activities were initiated as part of Task 2 of the TA-54 Engineering Study (LANL, April 2004), which was sponsored by the LANL's Principal Associate Director for Nuclear Weapons Programs (PADNWP). The task was designed to integrate the requirements and activities associated with and impacted by closure of Area L/MDA L and Area G/MDA G into a single planning approach and schedule for each area. The responsibilities for these requirements and activities reside within two LANL divisions, namely the Nuclear Waste and Infrastructure Services Division (NWIS) and the Environmental Stewardship Division (ENV). However, the funding responsibilities (DOE Defense Programs (DP) or Environmental Management (EM) program resources) associated with the integrated closure activities will need to be identified (and agreed upon) as part of future planning activities. Personnel from both divisions have participated in the planning and coordination activities in order to address the study objectives. The primary objectives of Task 2 of the TA-54 Engineering Study (LANL, April 2004) include:

- Identifying and defining regulatory requirements and activities associated with closure at each area
- Identifying functional needs/requirements related to existing waste operations located within the closure areas and defining specific activities for vacating the closure areas and re-locating/consolidating active waste operations elsewhere
- Developing closure and waste operations needs/requirements/activities for each area into an integrated schedule utilizing a maintainable planning tool

The principal regulatory driver behind closure at both of these areas is the Compliance Order on Consent (Consent Order) (NMED, March 2005) for corrective action, which was signed by the New Mexico Environment Department (NMED), the United States Department of Energy (US DOE) and the University of California (UC) on March 1, 2005. The Consent Order replaces the corrective action requirements of the Hazardous and Solid Waste Amendments (HSWA) Module (Module VIII) of LANL's Hazardous Waste Facility Permit (USEPA, April 1994). It contains requirements for investigation and cleanup of solid waste management units (SWMUs) and areas of concern (AOCs), including technical requirements for implementing investigations, conducting corrective measures, and preparing documents, as well as enforceable deadlines for submitting documents and completing corrective actions. With respect to Areas L and G at TA-54, the Consent Order requires LANL to complete corrective action activities at SWMUs and AOCs associated with Material Disposal Areas (MDAs) L and G by 31 December 2010 and 29 December 2015, respectively.

The status (to date) of integrated planning activities (and Task 2 of the TA-54 Engineering Study) associated with closure of Area L/MDA L and Area G/MDA G are presented herein. Section 2.0 describes the activities and approach of the engineering study. Section 3.0 presents planning information regarding Area L/MDA

L while Section 4.0 presents planning information regarding Area G/MDA G. Lastly, Section 5.0 provides a summary and recommendations associated with continued planning associated with integrated closure.

2.0 STUDY DESCRIPTION

2.1 APPROACH

Task 2 of the TA-54 Engineering Study was designed to integrate the requirements and activities associated with and impacted by closure of Area L/MDA L and Area G/MDA G into a single planning approach and schedule for each area. Because ENV and NWIS are jointly responsible for these requirements and activities, personnel from both divisions have collectively supported the objectives of the study. In order to ensure that the study approach addressed all requirements/activities/functional needs for each closure area, personnel from the following organizations provided input:

- NWIS–Radioactive Liquid Waste Group (RLW),
- NWIS–Solid Waste Operations Group (SWO),
- NWIS–Nuclear Assurance Group (NA),
- NWIS–Transuranic Waste Program (TP),
- ENV–Environmental Remediation and Surveillance Project (ERS), and
- ENV–Environmental Characterization and Remediation Group (ECR).

At the beginning of the study, NWIS and ENV personnel agreed to focus initial efforts on identifying and defining the closure requirements and activities and waste operations functional needs/requirements and activities for Area L/MDA L. This strategy allowed for development of integrated activities for a small area involving only mixed low-level waste (MLLW) and chemical and hazardous (Chem/Haz) waste operations. Many of the common planning elements (like regulatory approach) developed for Area L/MDA L are then applied in Area G/MDA G, which is more complicated as it is much larger in size and involves more diverse waste operations.

2.2 STUDY ACTIVITIES

Requirements and activities associated with closure and waste operations were identified, developed, integrated utilizing a visual software model as part of implementing study activities. Notably, some of the study activities are in progress. All of the activities should be routinely maintained and/or updated as new information becomes available or as conditions change. The activities associated with Task 2 of the TA-54 Engineering Study (LANL, April 2004) are presented and discussed in the following sections.

2.2.1 Structure Verification

This activity involved collecting and generating current information regarding the existing structures at Areas L and G to assist with integrated closure activities. Existing structure maps, LANL's Mother Of All Database Systems (MOADS), and visual verification were utilized to collect and document relevant information

regarding existing structures that will be impacted by closure activities at Areas L and G. Compiled information consists of structure numbers, structure description/use, regulatory status, square footage, construction type, photographs, and preliminary indication of structure status (i.e., RCRA closure, decontamination and decommissioning (D&D)) with regard to integrated closure activities. Summaries of structure information for Areas L and G (and the TA-54 administration area) are found in Appendices A1 and A2, respectively. The Area L structure summary has also been input into the Area L/MDA L model/planning tool.

Radiological screening of the fabric domes at Areas L and G was included in this activity for the purpose of collecting preliminary characterization data to determine possible disposition of each dome during closure/D&D. Radiological smears were collected from the fabric surface around the inside perimeter of each dome (extending from ground surface to approximately 9 feet in height). The results from this preliminary screening indicate that the domes are not grossly contaminated. Although this screening consisted of about 25% of the total screening necessary to make free release determinations (for re-use or off-site disposal), this preliminary information can be used for planning and cost development purposes.

2.2.2 Lead Stringers at Area L

The intent of this activity was to develop a decision-tree (and associated activities) to address disposition of the lead stringers (mixed low-level waste) stored in Shafts 36 and 37 at Area L. However, a path forward (including funding) was identified and implemented in September 2004. Completed activities associated with the lead stringers consisted of retrieval, repackaging, and shipment off-site for final disposal. Current status of this project is outlined below in Section 3.1.4. This activity is considered complete for the purposes of this study. Activity status can be tracked as part of overall integrated closure activities at Area L/MDA L; however, it has no impact on closure activities.

2.2.3 MLLW and Chem/Haz Waste Operations at Area L

The purpose of this activity for Area L was threefold: 1) define the activities associated with vacating MLLW and chemical and hazardous (Chem/Haz) waste operations from the closure area, 2) determine the functional needs/requirements for existing MLLW and Chem/Haz waste operations that need to continue to support LANL's mission, and 3) identify the activities associated with re-establishing MLLW and Chem/Haz operations elsewhere. The MLLW and Chem/Haz operations located in Area L that are evaluated as part of this activity consist of: storing waste, sampling/consolidation/re-packaging waste, and loading/unloading waste. The operations (and associated structures) impacted by closure will need to be closed/D&D/re-located prior to closure of MDA L and other subsurface disposal units. Evaluation of the functional needs/requirements for MLLW and Chem/Haz operations indicates that these operations can be consolidated into areas within Area L that will not be impacted by closure of MDA L and other subsurface units. The main activities associated with MLLW and Chem/Haz operations in Area L have been identified; some of them will require further refinement. Information regarding closure and consolidation activities for Area L is presented in Section 3.0.

2.2.4 Integrated Closure Activities at Area L/MDA L

This activity is ongoing and involves developing the relational workflow diagrams for the activities and work scope elements identified during the study associated with waste operations at Area L and closure of MDA L, and then integrating the activities into a single planning approach and schedule. The workflow diagrams, as well as other relevant information gathered during the study, were developed into a plan for integrated closure and presented using the visual software model. Results (to date) of identification and integration of closure activities for Area L/MDA L is presented in Section 3.5.

2.2.5 TRU Waste and LLW Operations at Area G

The purpose of this activity for Area G was threefold: 1) define the activities associated with vacating active transuranic (TRU) waste and low-level waste (LLW) operations from the closure area, 2), determine the functional needs/requirements for TRU and LLW operations that need to continue to support LANL's mission, and 3) identify the activities associated with re-establishing TRU and LLW operations elsewhere. This activity is in early stages of development for TRU waste operations at Area G, but is significantly more advanced for LLW operations at Area G. Information regarding operations at Area G is presented in Section 4.0.

The high-level activities and functional needs/requirements that have been identified for completing TRU waste operations at the site are outlined in Section 4.3. They need to be further defined and developed into detailed plans and activities in order to support the overall plan for vacating and closing the site.

The LLW operations that need to be re-located (or replaced) as closure activities proceed through Area G include disposal operations and support operations (consisting of characterization/verification activities and volume reduction activities). These activities were addressed as part of Task 1 of the TA-54 Engineering Study (LANL, April 2004). The information resulting from Task 1 of the study includes a conceptual design for disposal cell layout and details within Zone 4 and identification of functional requirements/needs and preliminary siting for support operations. This information is provided in "Development of Zone 4, Area G, Technical Area 54" (LANL, April 2005); the activities associated with development of LLW support operations are summarized in Section 4.3.3.

2.2.6 Integrated Closure Activities at Area G/MDA G

This activity is in early stages and involves identifying the relational workflow diagrams associated with closure and operations activities at Area G/MDA G, and then integrating the activities into a single planning approach and schedule. Although LLW operations activities have been identified sufficiently to support this integration activity, the details associated with TRU waste operation plans and activities have yet to be established in order for relevant workflow diagrams and relationships to be developed for presentation with the planning tool/model. Identification of detailed TRU waste operations plans and activities is needed so that development of activities associated with closure, such as infrastructure modifications, RCRA closure and/or

D&D of structures can continue. High-level relational activities associated with closure and waste operations are presented in Section 4.5.

2.2.7 Costs

This effort is in progress and involves developing the costs associated with the integrated closure and waste operations activities identified for Area L/MDA L and Area G/MDA G. Preliminary costs for some activities/projects have been prepared; however, they require further review and evaluation prior to use. Based on the preliminary estimates, work activities are in various stages of definition and preparation methodologies vary by division and group as well as by activity and project. Adequate work definition and a consistent cost estimating methodology will need to be established in order to provide reliable information for planning purposes.

2.3 MODEL/PLANNING TOOL

METIS® was selected to present the strategic planning process and integrated closure activities for TA-54. It is a modeling toolset that uses logically grouped objects and relationships to create comprehensive yet understandable visual models for making strategic decisions. Activities, relationships, and decisions identified and gathered during this study regarding work ownership, scope, timing, and costs are mapped to generate an integrated and maintainable schedule associated with closure at Area L/MDA L. Most of this work was completed in a collaborative environment between personnel from both NWIS and ENV divisions. The METIS® model for Area L/MDA L can be updated as activities are completed, new information becomes available, or conditions change. Activities, relationships, and decisions needed to build the model for closure of Area G/MDA G are in the early stages of development; a model can be developed once this information is identified.

3.0 MDA L AND AREA L CLOSURE

3.1 REGULATORY REQUIREMENTS

Area L is a 2.58-acre site that has operated since 1959 and contains inactive subsurface and active surface waste managements units. Past operations include subsurface disposal of non-radioactive liquid chemical waste while current operations involve surface storage of MLLW and Chem/Haz waste.

Non-radioactive liquid chemical waste was disposed in pits, shafts and impoundments at the site; all of these units used for disposal are inactive. Some of the inactive subsurface disposal units are SWMUs (comprising MDA L) subject to corrective action requirements and some are RCRA-regulated disposal units subject to RCRA closure and post-closure care requirements. Active waste management operations at the site consist of MLLW and Chem/Haz storage and processing (for off-site shipment and disposal). These wastes are managed in container storage units (CSUs), which are subject to RCRA permit and/or interim status requirements.

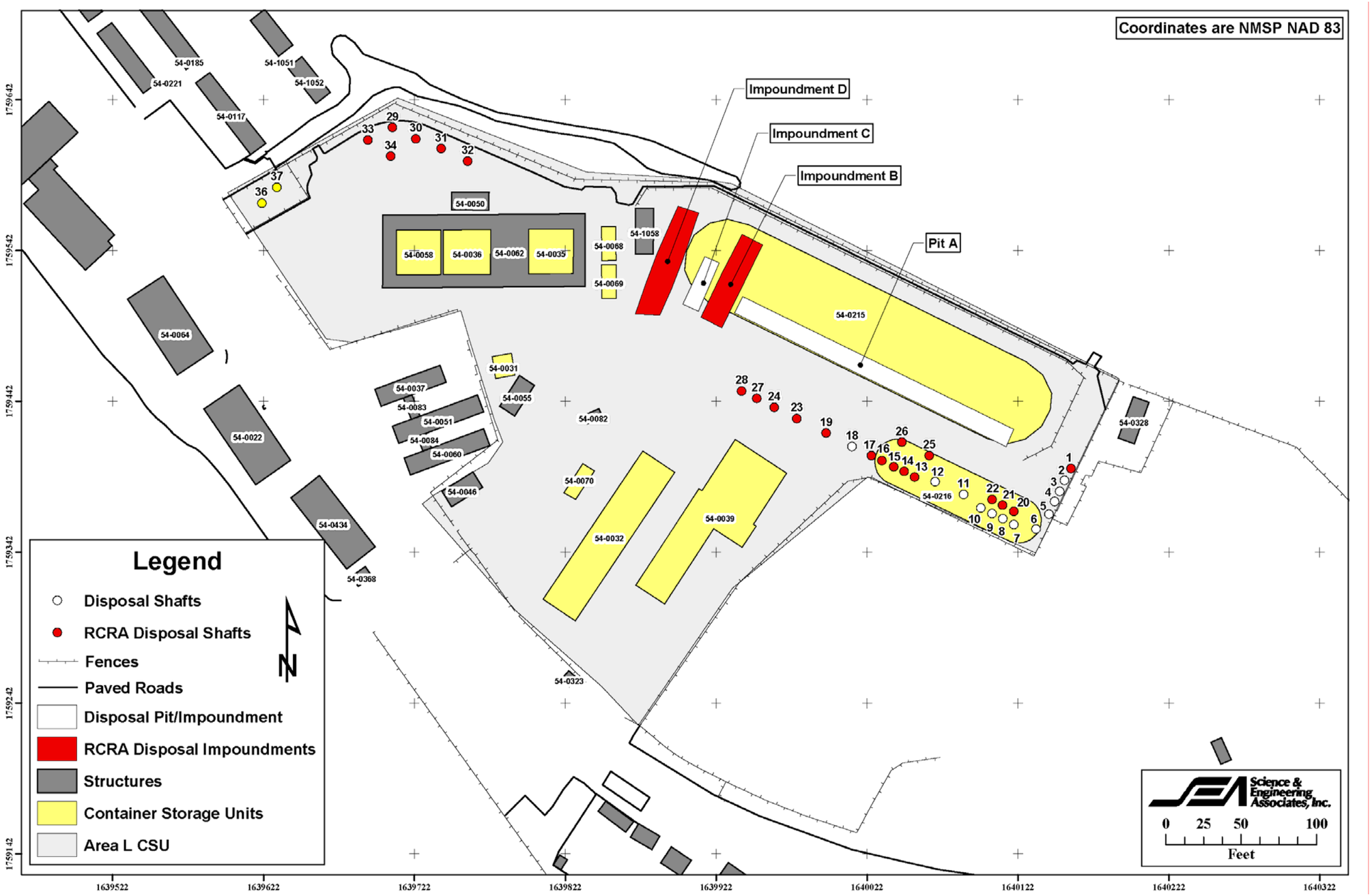


Figure 3.1-1. Waste Management Units at Area L/MDA L.

Because several types of waste management operations have occurred over time at the site, the waste management units (inactive and active) are subject to the requirements of several different regulatory programs. Figure 3.1-1 shows Area L/MDA L, including the inactive subsurface disposal units and surface CSUs. The waste management units at Area L/MDA L are placed into four categories; these categories are presented in Table 3.1-1 and discussed in the following sections.

Table 3.1-1. Summary of Waste Management Units at Area L/MDA L.

RCRA Disposal Units	Corrective Action Disposal Units (MDA L)	Aboveground CSUs	CSUs – Lead Stringer Shafts
Shafts 1, 13-17, and 19-34 Impoundments B and D	Shafts 2-12, and 18 Pit A Impoundment C	54-215, 54-216, 54-31, 54-32, 54-35, 54-36, 54-58, 54-68, 54-69, 54-70, 54-39*, and Area L CSU	Shafts 36 and 37

*Toxic Substances Control Act (TSCA) unit; included in RCRA Permit Application Renewal (LANL, June 2003)

3.1.1 RCRA Disposal Units

These inactive subsurface units were used for disposal of hazardous wastes after the effective date of the RCRA hazardous waste management regulations and are subject to RCRA closure and post-closure care requirements under 40 CFR 264 Subparts G and N. Some of these RCRA-regulated disposal units have been previously identified as SWMUs or AOCs subject to RCRA corrective action requirements. However, under the terms of the Consent Order (NMED, March 2005), these RCRA-regulated disposal units are no longer subject to corrective action requirements and are only subject to RCRA closure and post-closure care requirements.

Because the RCRA-regulated disposal units are physically interspersed with the corrective action disposal units (See Figure 3.1-1), it is not practical to address closure requirements for these subsurface units independently of the closure requirements for the corrective action disposal units. As a result, the Department of Energy Los Alamos Site Office (DOE LASO) has recently proposed closure of these RCRA-regulated disposal units (referred to as the Area L Landfill) under alternative closure requirements as allowed by the New Mexico Administrative Code (NMAC), which incorporates 40 CFR 264.110(c) (DOE LASO, March 2005). If approved, these RCRA-regulated disposal units will be closed as part of the MDA L corrective action closure activities.

3.1.2 Corrective Action Disposal Units

These inactive subsurface disposal units (referred to as MDA L) are subject to corrective action requirements under the Consent Order (NMED, March 2005). LANL is currently implementing an NMED-approved Investigation Work Plan for MDA L (LANL, December 2004) as part of corrective action activities to complete environmental characterization of the site. In addition, LANL is completing a pilot study to determine the effectiveness of soil vacuum extraction (SVE) for remediating the subsurface vapor phase volatile organic compound (VOC) plume. The Consent

Order (NMED, March 2005) schedule pertaining to MDA L requires the following activities and associated enforceable deadlines based on current scheduled document approval dates (these deadlines may be adjusted based on actual document approval dates):

- LANL must complete the environmental characterization and submit an Investigation Report by September 13, 2005
- LANL must submit a Corrective Measure Evaluation (CME) Report to NMED by January 31, 2007; NMED must approve the CME Report by May 31, 2007
- LANL must submit a Corrective Measure Implementation (CMI) Plan to NMED (for approval) within 90 days of NMED's selection of a final remedy
- LANL must complete implementation of the final remedy and submit a Remedy Completion Report by December 31, 2010

LANL is assuming that the final remedy to be selected by NMED involves a combination of capping the disposal units and operating a SVE system to treat/remediate the subsurface VOC vapor plume.

3.1.3 Aboveground CSUs

These CSUs are used for storage of containerized hazardous, mixed, and/or chemical (e.g., polychlorinated biphenyl (PCB)) wastes. The paved area within the Area L fenceline is also a CSU that can be used for storage of hazardous waste with no free liquids (See Figure 3.1-1). The CSUs (including TSCA unit 54-39) and the Area L CSU were included in the LANL TA-54 RCRA Permit Renewal Application (LANL, June 2003) and will be included in LANL's revised Hazardous Waste Facility Permit when it is issued by NMED. Some of the CSUs have been previously identified as SWMUs or AOCs subject to RCRA corrective action requirements. However, under the terms of the Consent Order (NMED, March 2005), these CSUs are no longer subject to corrective action requirements and are only subject to RCRA permit and interim status requirements. Although there is no regulatory deadline to close the CSUs, they are located on the surface above the subsurface units that must be closed. The CSUs that require closure will be "clean closed" under RCRA permit and/or interim status requirements, which require LANL to submit a sampling and analysis plan (SAP) to NMED. LANL will then implement the SAP and subsequently draft a closure certification report for NMED approval.

3.1.4 CSUs—Lead Stringer Shafts

These two below ground shafts were used for storage of lead stringers (mixed waste) from 1988 to 2004. The stringers were placed in storage to allow for adequate radioactive decay prior to final disposition. In September 2004, the stringers were removed, repackaged, and shipped off-site for final disposal. These CSUs are in the process of being clean closed under RCRA requirements. A SAP was prepared and submitted to NMED (for approval) in April 2005. LANL will then implement the SAP and subsequently draft a closure certification report for NMED approval. Closure of the lead stringer CSUs has no impact on closure activities at Area L/MDA L.

3.2 REGULATORY APPROACH AND ASSUMPTIONS

The intent of the approach for closure of MDA L (and the other subsurface disposal units) is the implementation of a single, comprehensive closure methodology that meets the requirements of both the Consent Order (NMED, March 2005) and the NMAC closure regulations.

The proximity of the corrective action and RCRA-regulated disposal units make it impractical to independently address the closure requirements of each type of waste management unit (refer to Figure 3.1-1). Therefore, the approach involves addressing closure of all of the subsurface disposal units under the corrective action requirements the Consent Order (NMED, March 2005). In order to accomplish this common approach, DOE LASO has proposed closure of the RCRA-regulated disposal units under alternative closure requirements as allowed by NMAC (DOE LASO, March 2005). Approval of this regulatory provision would permit the RCRA-regulated disposal units to be closed as part of corrective action activities for MDA L. If this regulatory approach is not utilized for closure of the RCRA-regulated disposal units, the planning, design, and implementation of closure for all subsurface disposal units will be need to be re-evaluated to determine how to address and implement closure for intermingled units that are subject to the differing regulatory approaches.

The CME options likely to be considered at MDA L (as part of corrective action activities) include removal of the buried waste inventory through excavation and off-site disposal, containment of the waste inventory by capping or in-situ stabilization, or treatment of the subsurface vapor plume by vapor extraction (or some combination of these options). LANL is assuming that the closure approach selected by NMED for implementation involves a combination of capping the disposal units and operating a SVE system to treat/remediate the subsurface VOC vapor plume.

Based on the above assumption, LANL is in the process of developing a conceptual cover design (for all of the subsurface units) and implementing a pilot study for a SVE system (LANL, April 2005). The conceptual cover design involves a 3-foot thick alternative RCRA cover that will be constructed over the two separate areas containing all of the disposal units, as shown in Figure 3.2-1. Although the effectiveness of the proposed SVE system is currently unknown, it is assumed that it will provide adequate treatment/remediation of the VOC vapor plume. If a different final remedy is selected, such as excavation of the waste inventory, the planning, design, and implementation will be considerably more complex and problematic. Significant issues to overcome involve health and safety and logistical concerns associated with attempting to excavate (containerized and un-containerized) liquid solvent wastes disposed in 65-foot deep shafts. Selection of the excavation alternative will significantly impact schedule and costs as well. Nevertheless, excavation of the waste inventory will be evaluated in the CME Report for MDA L.

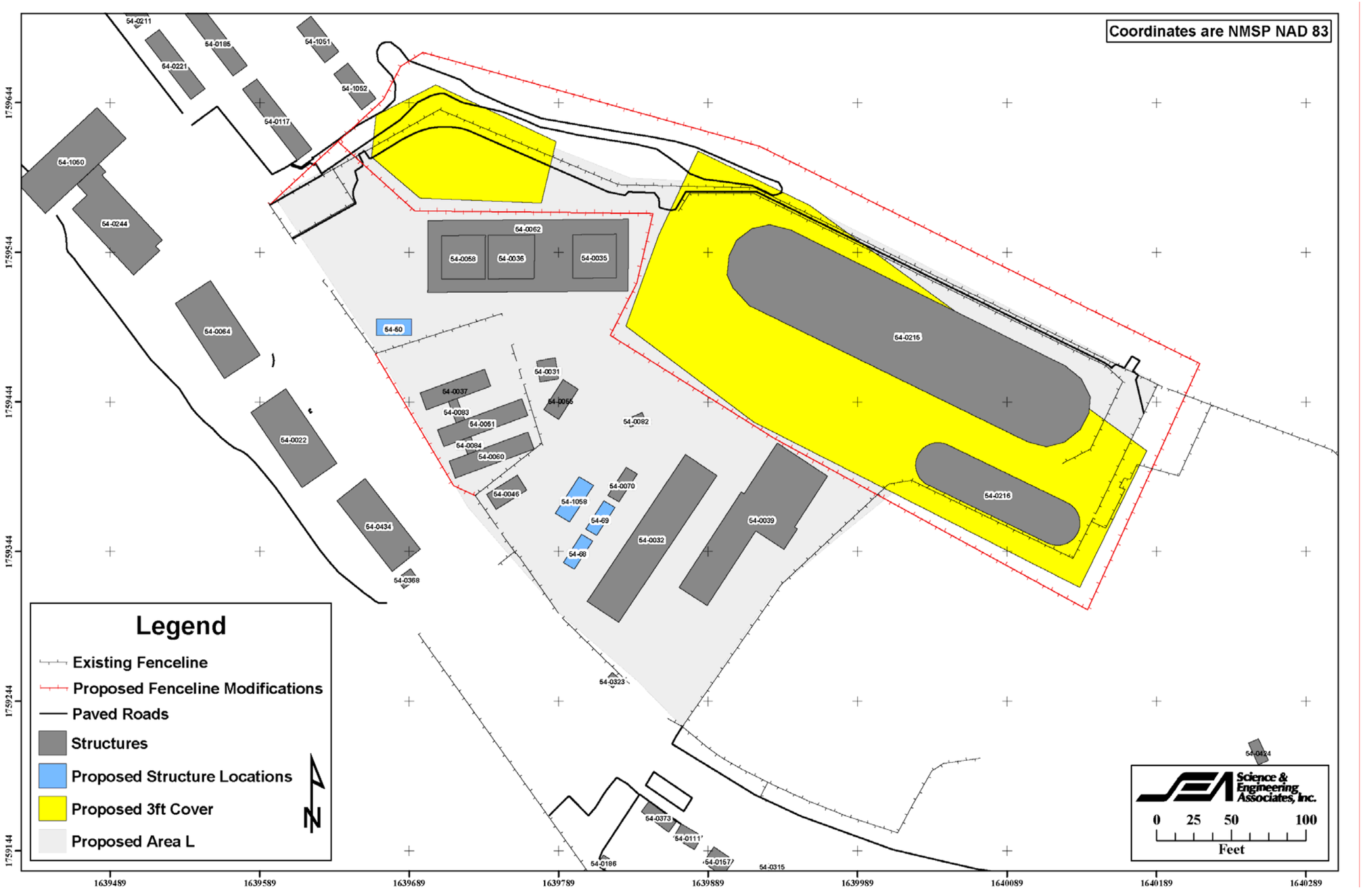


Figure 3.2-1. Conceptual Cover Design and Possible Re-location of CSUs/Structures.

3.3 WASTE MANAGEMENT OPERATIONS NEEDS/REQUIREMENTS

Active MLLW and Chem/Haz waste management operations that are needed to support LANL's mission will be impacted by closure activities at Area L/MDA L. In order to provide this support, evaluations of the functional needs/requirements for continued MLLW and Chem/Haz waste operations are needed to determine whether these operations can be consolidated into unaffected areas within Area L or need to be re-established at another location. Additionally, the activities associated with vacating the closure area as well as consolidating or re-locating operations need to be identified so that they can be integrated into the overall plan for the site.

The primary facilities (CSUs) associated with managing (storing, sampling, repackaging, and consolidating) MLLW and Chem/Haz waste at Area L, along with associated storage capacities, are summarized in Table 3.3-1.

Table 3.3-1. Area L CSUs and Associated Storage Volumes

CSU	Volume (m^3)	DEs*
54-31, waste storage shed	5	24
54-32, hazardous waste storage with canopy	65	312
54-35, waste storage pad	60	288
54-36, Perma-Con waste storage pad	50	240
54-39, PCB waste storage facility	155	744
54-58, waste storage pad	60	288
54-68, waste/lab pack storage unit	6.7	32
54-69, waste/lab pack storage unit	6.7	32
54-70, waste/lab pack storage unit	6.7	32
54-215, MLLW storage dome	989	4,752
54-216, gas cylinder storage dome	140	672
TOTAL	1,544	7,416

*drum equivalents

The PCB building and attached canopy (54-39) has been included in the list for planning purposes since it was included in the RCRA Permit Application Renewal (LANL, June 2003). The Area L CSU (the paved area within the fenceline) provides additional storage space.

The majority of waste managed at Area L is MLLW, with approximately 30 m^3 of legacy MLLW remaining in storage and 25 to 32 m^3 of MLLW generated annually over the past few years (LANL, September 2004b). Legacy MLLW will be processed and shipped off-site to various treatment and disposal facilities by the end of fiscal year 2005; hence there will be no operations required to accommodate legacy MLLW at Area L. Newly generated MLLW predictions are somewhat volatile and uncertain due to variations arising from funding, programmatic, and

schedule uncertainties (LANL, September 2004b). Over the next few years, minimum and maximum MLLW volume predictions range from approximately 15 to 165 m^3, with environmental restoration activities having the most significant impact on MLLW annual volume predictions (LANL, September 2004b). However, because of ongoing operations (at Area L) associated with processing and shipping of MLLW, there is no need to accommodate the maximum annual amount of MLLW at one time. As anticipated by NWIS-SWO personnel, MLLW requirements and needs at Area L (or another LANL treatment, storage, and disposal facility (TSDF)) consist of the ability to store and process approximately 35 m^3 at any given time.

Almost all Chem/Haz waste generated at LANL is managed as part of the Consolidated Remote Waste Storage Site (CRWSS) project (outside of Area L). The CRWSS project (operated by NWIS-SWO personnel) has established strategic locations across LANL as hazardous waste collection and consolidation sites, where waste can be accumulated for up to 90 days before direct shipment off-site for treatment and disposal. As a result, the amount of Chem/Haz waste that is received at Area L for storage and processing has been reduced by approximately 95%. Almost 1.0 M kg (translating to about 1,350 m^3) of Chem/Haz waste was shipped off-site during FY04; this amount is over 40% greater than predicted and presented in "Waste Volume Forecast" (LANL, September 2004b). However, there is no foreseeable impact to Area L from increases in the volume of Chem/Haz waste generated at LANL since the vast majority of Chem/Haz waste is managed at the CRWSSs. The CRWSS project is evaluating the need for a larger and more centralized CRWSS for Chem/Haz waste management; Dome 282 (and the surrounding area) at TA-54, Area J is currently being assessed for this purpose. As anticipated by NWIS-SWO personnel, Chem/Haz waste requirements and needs at Area L (or another LANL TSDF) consist of the ability to store and stage approximately 35 m^3 at any given time.

3.4 OPERATIONS APPROACH AND ASSUMPTIONS

MLLW and Chem/Haz waste needs and requirements involve the ability to store and process approximately 70 m^3 of waste at any given time. Based on the assumption that the selected remedy for MDA L (and the other disposal units) will be capping and the layout of the conceptual cover design, this evaluation indicates that waste operations can be consolidated into areas (at Area L) that will not be impacted by corrective action activities.

Figure 3.2-1 shows the layout of the conceptual cover design as well as a possible layout for re-locating CSUs/structures for site consolidation. To accommodate the corrective action activities of the two separate covers, CSUs 54-215 and –216 (and part of the Area L CSU) will need to be removed (closed) and CSUs 54-68 and -69 and modular structures 54-50 and –1058 will need to be re-sited to continue operations. Modification of the Area L fenceline (defining the Area L CSU), which results in the D&D of office structures 54-37, -51, -60, -83, and –84, is also necessary to complete this consolidation and partial closure approach for Area L. A permit modification will be required for CSUs that are re-located from the corrective action closure area to other sites within Area L, as well as for the fenceline modification defining the Area L CSU.

Modifications to subsurface power (vault) and water systems have also been identified in order to accommodate the corrective action activities of the two separate covers; other infrastructure modifications may be necessary.

Although closure of 54-215 and -216 represents a substantial decrease in the amount of container storage space at Area L, the remaining storage capacity and process abilities will be in excess of those needed/required for MLLW and Chem/Haz waste operations (70 m^3 at any given time). The final cover design may encroach on CSUs 54-35, -36, and –58 (along with overhead canopy 54-62). If so, CSUs 54-35 and –58 will be closed along with 54-215 and 216, CSU 54-36 (Perma-Con used for sampling/repacking/consolidation) will be closed or re-located (dependent on operating condition/design life), and canopy 54-62 will be removed as part of D&D activities. Even with these modifications, the remaining storage capacity and process abilities will be sufficient to accommodate MLLW and Chem/Haz waste operational needs/requirements at Area L.

Based on the evaluation of MLLW and Chem/Haz operational needs/requirements and the layout of the conceptual cover design, it is assumed that sufficient space will be available for consolidation and continuation of active MLLW and Chem/Haz waste within the area (at Area L) not impacted by corrective action closure activities. Selection and implementation of a different final remedy or modifications to the cover design could make consolidation of waste operations into unaffected areas within Area L implausible. If MLLW and Chem/Haz waste operations cannot be consolidated within Area L, they will need to be re-established at an existing or future LANL TSDF. The main activities associated re-establishing these operations include planning, design, and construction of an addition to an existing TSDF or a new TSDF. These activities will require modifying an existing RCRA permit or obtaining a new RCRA permit, respectively.

As planning activities proceed for Area L/MDA L, the approach and accompanying assumptions will need to be routinely reviewed and modified as necessary. Modifications to the assumptions based on re-evaluation or decisions regarding new assumptions can have significant impacts on the model of integrated activities presented in the following section.

3.5 INTEGRATED ACTIVITIES

Information, requirements, and activities identified during the study (and presented in the previous sections) were compiled and developed for presentation using the METIS® planning tool to demonstrate integrated closure for Area L/MDA L. The Area L/MDA L METIS® model (Attachment 1) visually presents the relationships associated with work ownership/responsibility, requirements and activities, workflows and timing, and other comprehensive information, such as physical layout and structure information (Appendix A1).

The main components presented on the Area L/MDA L METIS® model are the workflow diagram and the associated timeline, which were developed from the identified activities and requirements by NWIS and ENV personnel. The workflow diagram from the model (also presented as Figure 3.5-1) shows the relationships between the various activities that must be implemented as part of integrated closure at the site. The associated timeline for the activities shown in the workflow diagram is presented as Figure 3.5-2 and is constrained based on the requirements outlined in the Consent Order (NMED, March 2005).

The defined activities and requirements shown in the workflow diagram logically fit into two workflow paths; one associated with aboveground activities and one associated with closure of subsurface units. In general, the aboveground activities and requirements are the responsibility of NWIS and the activities and requirements associated with closure of the subsurface units are the responsibility of ENV. As indicated previously, the funding responsibilities (DOE DP or EM program) for the identified activities need to be determined (and agreed upon) as part of future planning activities. The activities and requirements shown in the two workflow paths have been outlined and discussed in previous report sections.

For aboveground activities, the approach depicted in the workflow involves:

- closing CSUs 54-215 (including fire water holding tank 54-328), -216, and part of the Area L CSU that are located on the surface above the subsurface units that must be closed as part of corrective action under the Consent Order (NMED, March 2005), and
- consolidating MLLW and Chem/Haz waste operations into the area unaffected by the cover, including modifications to infrastructure (power and water line), relocation of CSUs 54-68 and -69 and structures 54-50 and 1058, modification of the Area L fenceline, and D&D of structures 54-37, -51, -60, -83, and -84.

Under this approach, eight structures consisting of 20,961 ft^2 will undergo closure or D&D (structure information is in Appendix A1). If the footprint of the closure area expands (as outlined above in Section 3.2.2), four additional CSUs/structures (54-35, -36, 58, and –62) consisting of 6,468 sf^2 will also undergo closure or D&D. It is likely that the existing asphalt (and possibly concrete foundations) associated with closure and D&D at the site will be crushed and left onsite (rather than disposed off-site). The crushed material will likely be utilized as part of preparing the site for closure construction.

For activities associated with closure of the subsurface units, the workflow shows the activities and requirements that are necessary for completion of corrective action at MDA L (and other subsurface units), as outlined the Consent Order (NMED, March 2005). They involve the following:

- LANL must complete environmental characterization of MDA L and submit results in an Investigation Report to NMED by September 13, 2005. LANL is also completing a pilot study to determine the effectiveness of soil vacuum extraction for remediating the subsurface vapor phase VOC plume.

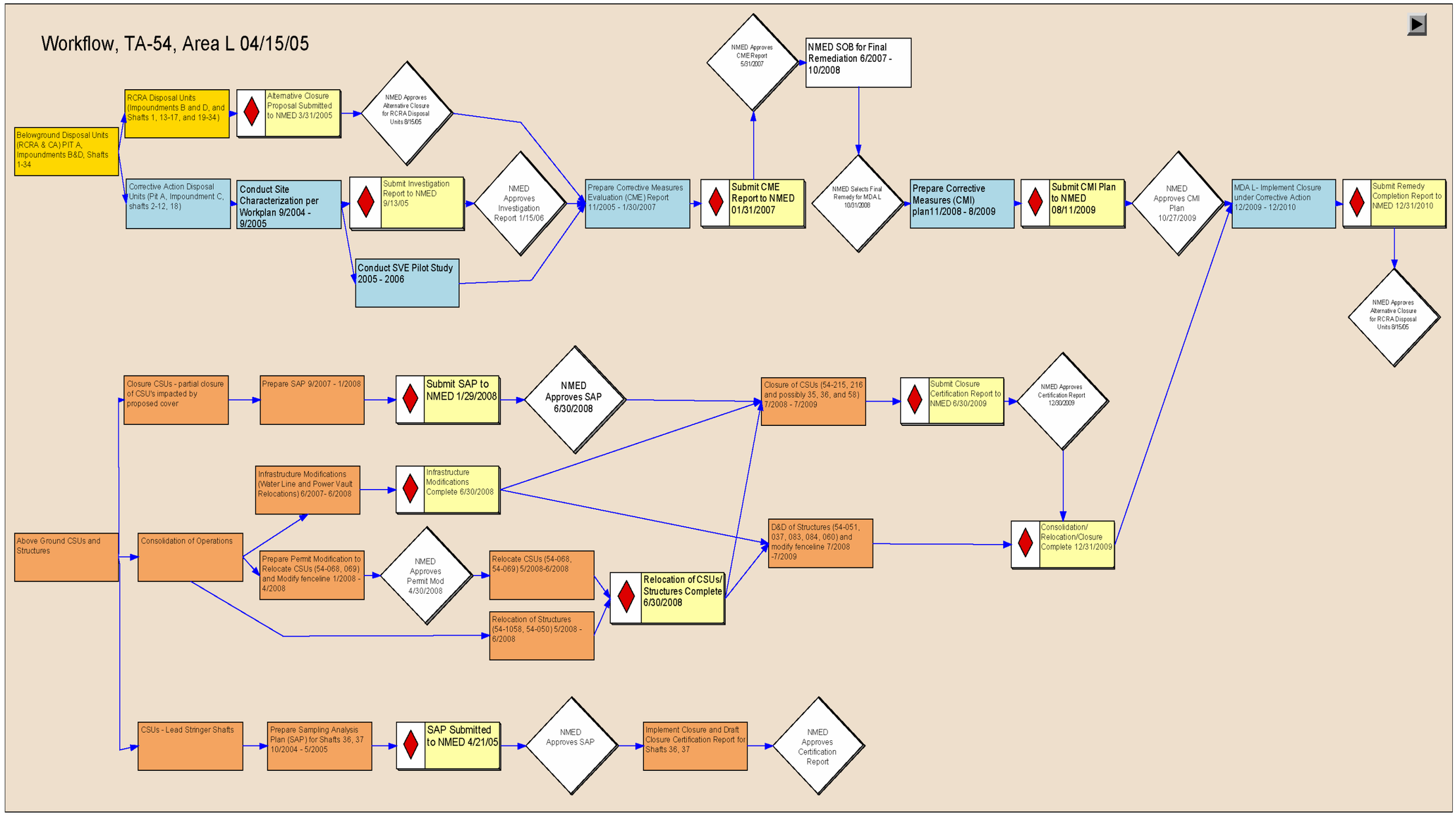
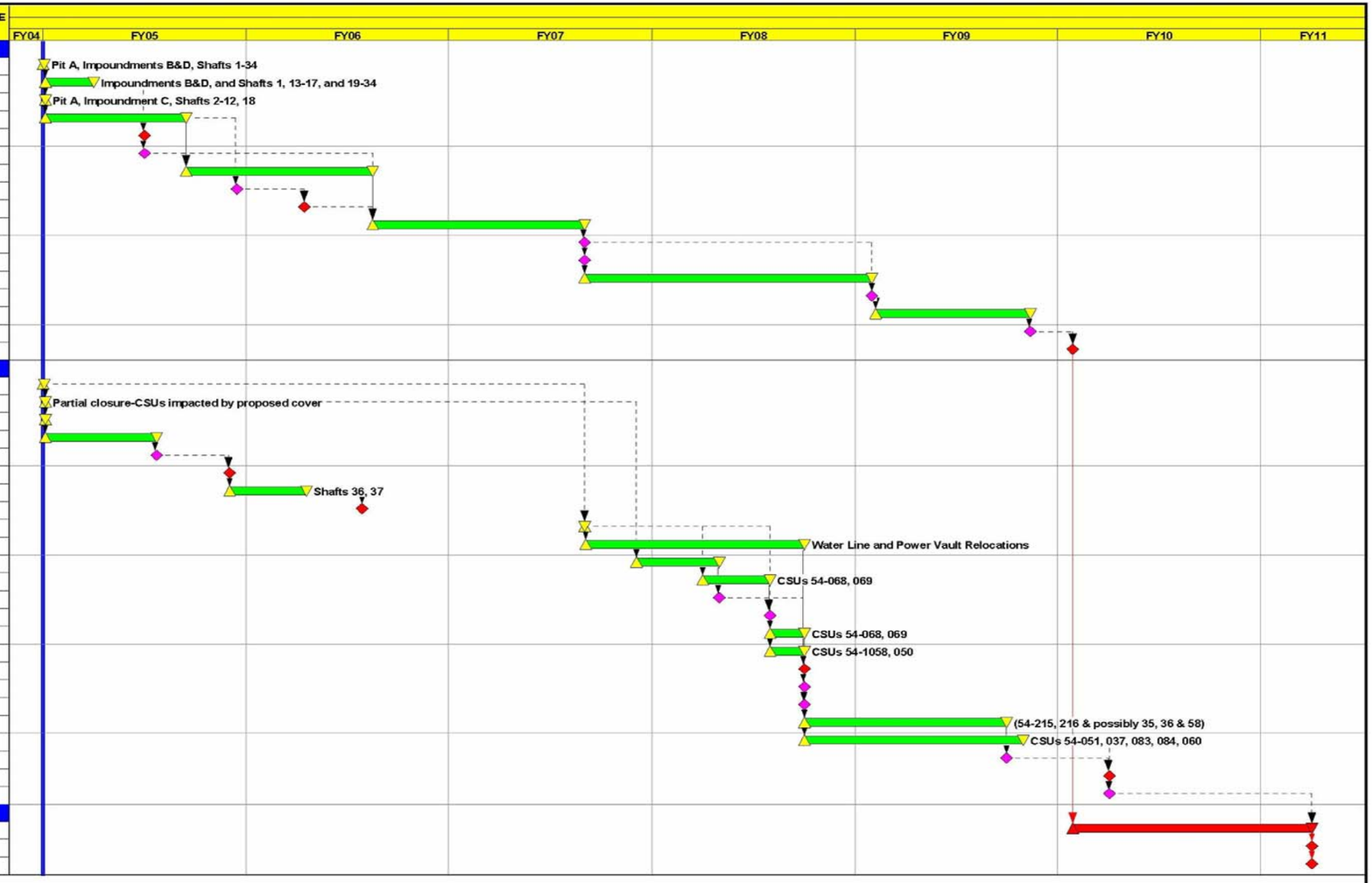


Figure 3.5-1. Workflow Diagram of Area L/MDA L Closure Activities.

Activity ID	Activity Description	Early Start	Early Finish	MILE
Belowground Disposal Units				
071	Belowground Disposal Units (RCRA/CA)	01OCT04	01OCT04	
111	RCRA Disposal Units	04OCT04	29DEC04	
121	Corrective Action Disposal Units	04OCT04	04OCT04	
051	Conduct Site Characterization per Workplan	05OCT04	13JUN05	
001	Alternative Closure Proposal Submitted to NMED		31MAR05*	L
101	NMED App Alternative Closure-RCRA Disp. Units		31MAR05	N
081	Conduct SVE Pilot Study	14JUN05	16MAY06	
011	Submit Investigation Report to NMED		13SEP05*	L
061	NMED Approves Investigation Report		13JAN06*	N
091	Prep Corrective Measures Evaluation (CME) Report	17MAY06	31MAY07	
021	Submit CME Report to NMED		31MAY07	L
031	NMED Approves CME Report		31MAY07	
041	NMED SOB for Formal Remediation	01JUN07	31OCT08	
131	NMED Selects Final Remedy for MDA L		31OCT08*	N
141	Prepare Corrective Measures (CMI) Plan	06NOV08	11AUG09	
151	Submit CMI Plan to NMED		11AUG09	L
161	NMED Approves CMI Plan		27OCT09*	N
Above Ground Disposal Units				
211	Above Ground CSUs and Structures	01OCT04	01OCT04	
221	Closure CSUs	04OCT04	04OCT04	
241	CSUs - Lead Stringer Shafts	04OCT04	04OCT04	
401	Prepare Sampling Analysis Plan for Shafts 36, 37	05OCT04	21APR05	
411	Submit SAP to NMED		21APR05	L
421	NMED Approves SAP		31AUG05*	N
431	Implement Closure & Draft Closure Cert. Report	01SEP05	18JAN06	
441	NMED Approves Certification Report		28APR06*	N
231	Consolidation of Operations	01JUN07*	01JUN07	
321	Infrastructure Modifications	04JUN07	30JUN08	
251	Prepare SAP	03SEP07*	29JAN08	
331	Prepare Permit Mods-Relocate CSUs,Mod Fenceline	01JAN08*	30APR08	
261	Submit SAP to NMED		29JAN08	L
361	NMED Approves Permit Mod		30APR08	N
371	Relocate CSUs	01MAY08	30JUN08	
381	Relocation of Structures	01MAY08*	30JUN08	
271	NMED Approves SAP		30JUN08*	N
341	Infrastructure Modifications Complete		30JUN08	L
391	Relocation of CSUs/Structures Complete		30JUN08	L
281	Closure of CSUs	01JUL08	30JUN09	
351	D&D of Structures and modify fenceline	01JUL08	30JUL09	
291	Submit Closure Certificaiton Report to NMED		30JUN09	L
301	NMED Approves Certification Report		31DEC09*	N
311	Consolidation/Relocation/Closure Complete		31DEC09	
Final Closure				
171	MDA L - Implement Closure under CA	28OCT09	31DEC10	
181	Submit Remedy Completion Report to NMED		31DEC10	L
191	NMED App. Alt. Closure for RCRA Disposal Units		31DEC10	N



Start Date 01OCT04
Finish Date 31DEC10
Data Date 01OCT04
Run Date 17MAY05 08:38

Early Bar
Progress Bar
Critical Activity

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MDAL

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MDA L/Area L Integrated ClosureTA-54

Sheet 1 of 1

Date	Revision	Checked	Approved

Figure 3.5-2. Timeline of Closure Activities at Area L/MDA L.

- LANL must prepare a CME Report (using results from the Investigation Report and the pilot study) to evaluate a range of alternatives for the closure of MDA L; the report will also recommend a final remedy. The CME Report must be submitted to NMED by January 31, 2007 and NMED must approve the CME Report by May 31, 2007.
- NMED will prepare a Statement of Basis (SOB) with a selection of a preliminary final remedy for MDA L, and schedule a public comment period to obtain input regarding the remedy selection. NMED will then select the final remedy for MDA L.
- LANL will prepare a CMI Plan for submittal to NMED (for approval) within 90 days of the final remedy selection. The CMI Plan shall include (among other elements): descriptions of final remedy, cleanup goals, and remediation system objectives; identification of personnel qualifications; detailed engineering drawings and specifications; construction, operations and maintenance, and waste management plans; and schedules for implementation and progress reports.
- LANL must implement the final remedy activities and submit a Remedy Completion Report to NMED by December 31, 2010.

As shown in the workflow diagram and the timeline, many of the integrated closure activities occur in parallel. The key relationship integrating aboveground and belowground activities (identified in both the workflow diagram and the timeline) shows that all aboveground activities need to be completed prior to implementing the final remedy for MDA L.

4.0 AREA G AND MDA G CLOSURE

4.1 REGULATORY REQUIREMENTS

Area G is a 63-acre site that has been used for a variety of waste management operations. It has been used for the disposal of radioactive waste since 1957, and is the only active LLW disposal facility at LANL. Several other waste management operations involving radioactive waste are also conducted at Area G. The operations include storage and characterization of TRU waste destined for disposal at the Waste Isolation Pilot Plant (WIPP) and storage of MLLW destined for offsite treatment and/or disposal.

Radioactive waste has been disposed in subsurface pits, shafts, and trenches at the site. All of the subsurface units used to dispose LLW are subject to the requirements of DOE Order 435.1, Radioactive Waste Management. Some of the LLW disposal units are also SWMUs or AOCs (comprising MDA G) subject to corrective action requirements, and some of the LLW disposal units are also RCRA-regulated disposal units subject RCRA closure and post-closure care requirements. TRU waste is also retrievably stored in some of the subsurface units. Once the TRU waste is removed from subsurface storage, the subsurface units are subject to the requirements outlined for the other disposal units (as appropriate). Aboveground waste management operations consist of storage and characterization of TRU waste and storage of MLLW; both waste types shipped off-site for treatment and/or disposal. These

wastes are managed in surface CSUs, which area subject to RCRA permit and/or interim status requirements.

As indicated, several types of waste management operations (involving a variety of waste types) have occurred over time at the site so the waste management units are subject to the requirements of several different regulatory programs. Figures 4.1-1 and 4.1-2 show the subsurface units and the CSUs (respectively) at Area G/MDA G. The waste management units at Area G/MDA G are placed into four categories; these categories are presented in Table 4.1-1 and discussed in the following sections.

4.1.1 LLW Disposal Units

All of the subsurface units used for radioactive waste disposal are regulated as LLW disposal units by DOE Order 435.1, Radioactive Waste Management, which requires that LLW be managed in a manner that protects worker and public health and safety and the environment. It outlines dose-based performance objectives for operation and closure of LLW disposal units, including preparing and maintaining site-specific radiological performance assessments and composite analyses (PA/CA) for LLW disposal facilities. In compliance with DOE Order 5820.2A (DOE, 1988), which was the predecessor to DOE Order 435.1, LANL prepared and issued the MDA G Performance Assessment and Composite Analysis (LANL, 1997) to evaluate the long-term performance of the disposal facility (utilizing a conceptual cover design for the site). A more robust conceptual design for a final closure cover was identified in 2002 (LANL, 2002) to address concerns regarding potentially higher erosion rates and possible limited post-closure maintenance of the site than those evaluated in the MDA G PA/CA (LANL, 1997). The conceptual design, which has been modified and refined since 2002, is being assessed as part of the PA/CA evaluations that are currently being revised to address changes in operational procedures, incorporate new knowledge about the disposal facility and site, and update the modeling approaches used to project the long-term performance of the disposal facility. The revised document anticipated to be submitted to DOE in 2005.

Some of the LLW disposal units have been used to dispose of polychlorinated biphenyl (PCB) waste. The current PCB disposal authorization incorporates operating requirements from the TSCA regulations, but does not include specific closure or post-closure care requirements other than those for record keeping and closure notification (USEPA, June 1996). Closure and post-closure care requirements in the PCB disposal authorization currently under review (for approval) by the US EPA consist of closure plan submittal and record keeping (USEPA, January 2001). Closure of these units is being incorporated into the PA/CA final closure cover for the site.

Additionally, some of these units are shafts that store retrievable TRU waste. TRU waste was placed into these shafts for retrievable storage for eventual disposal at a deep geologic repository (i.e., the WIPP). Once the TRU waste is retrieved from subsurface storage, these units remain subject to DOE Order 435.1 requirements as LLW disposal units. Closure of these units will be addressed with the final closure cover for the site.

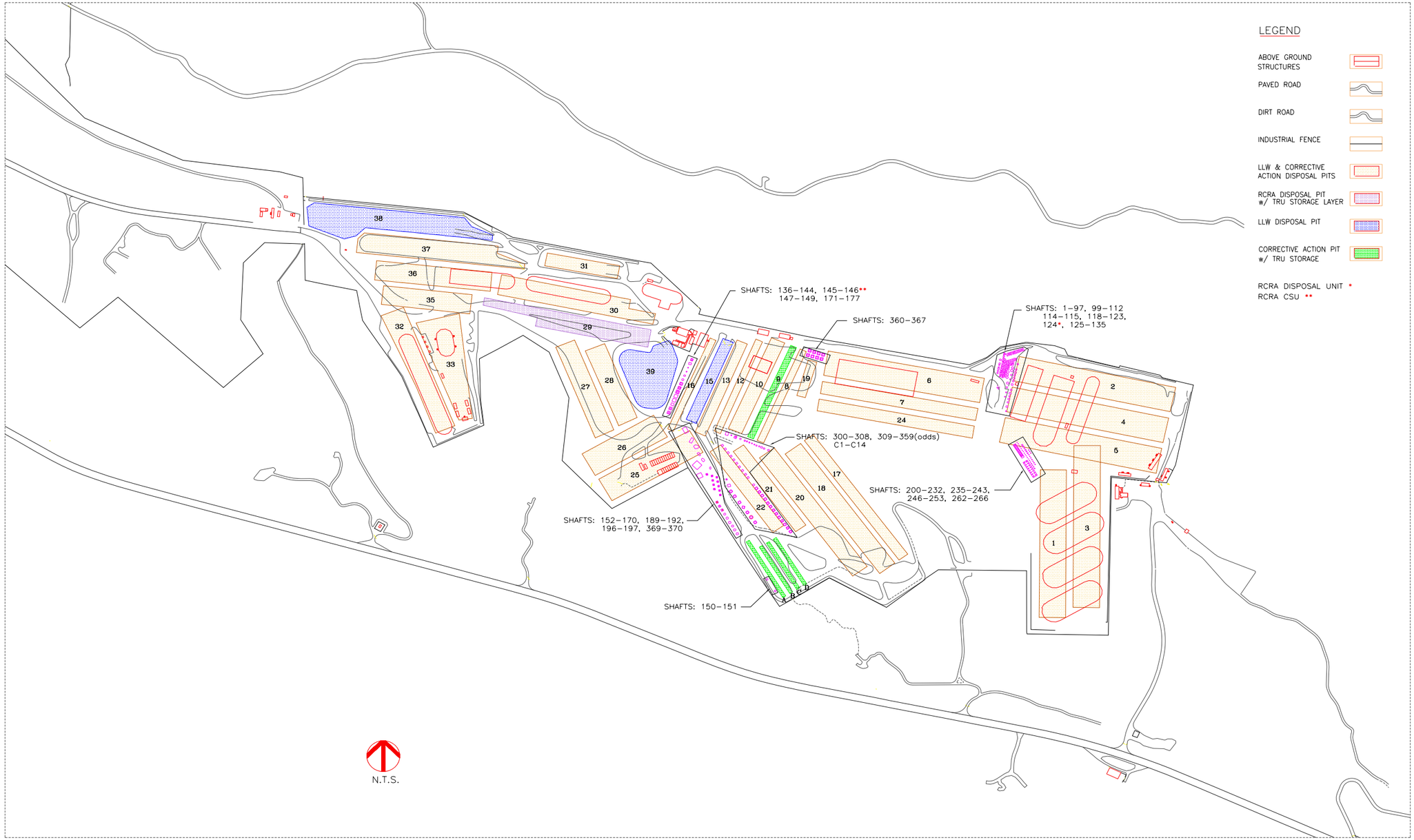


Figure 4.1-1. Subsurface Waste Management Units at Area G/MDA G.

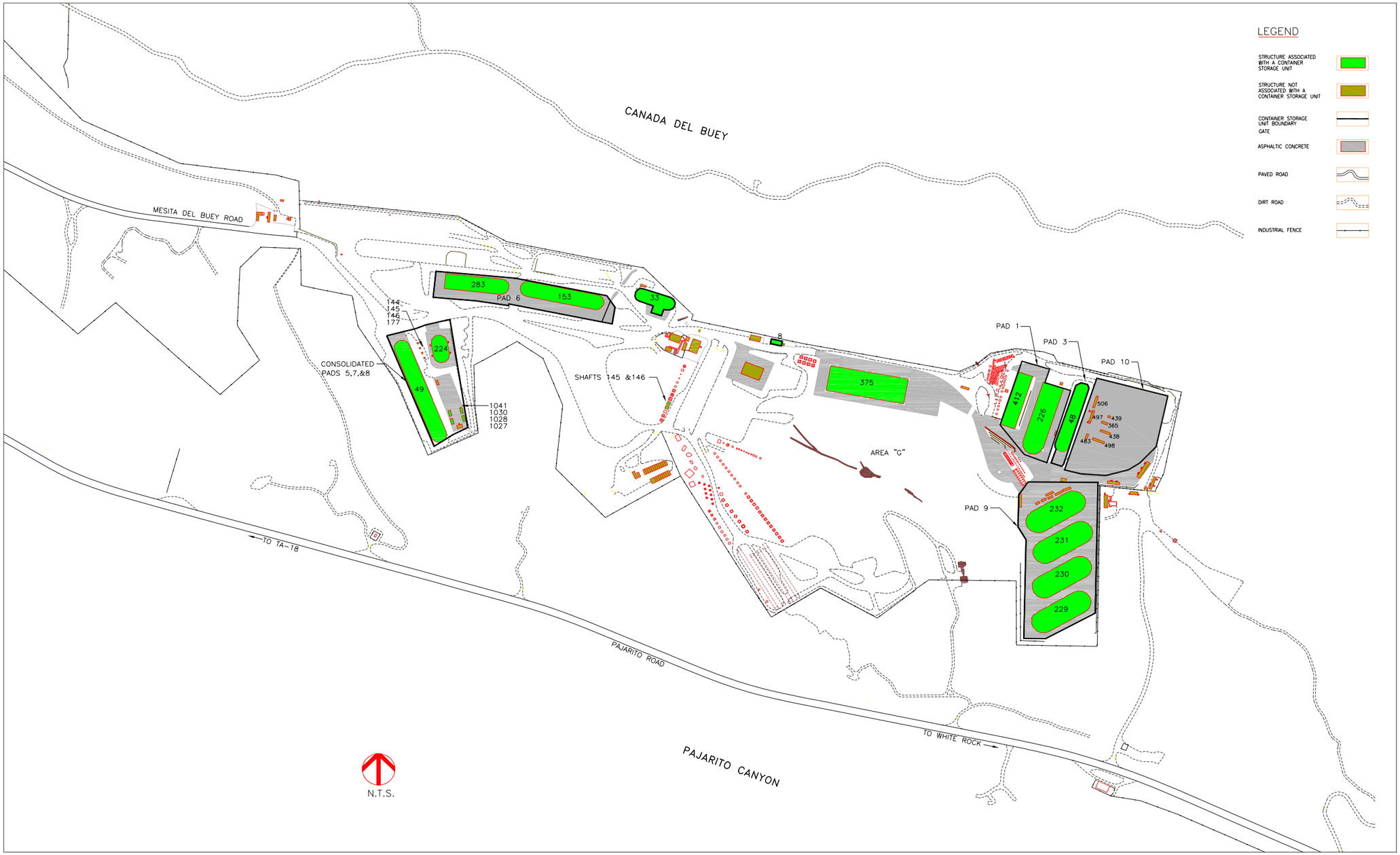


Figure 4.1-2. CSUs at Area G/MDA G.

Table 4.1-1. Summary of Waste Management Units at Area G/MDA G.

LLW Disposal Units						CSUs
		Corrective Action Disposal Units (MDA G)		RCRA Disposal Units		
	TRU Waste Storage		TRU Waste Storage		TRU Waste Storage	
Pit 15 Pits 38 and 39 Shafts 21, 23, 97, 137, 141-144, 147-149, 161-177, 197, 300, 301, 307, 308, 360-367, 369, 370 Shafts C11, C14, 321, 323, 325, 327, 329, 331, 333, 335, 339, 341, 343, 345, 347, 349, 351, 355, 357 Shafts[1] 309, 311, 313, 315, 317, 319, 337, 353, 359	Shafts 235-243, 246-253, 262-266, and 302-306	Pits 1-10, 12, 13, 16-22, 24-30, 32-33, 35-37 Pit 31 Shafts C1-C10, C12, C13, 1-20, 22, 24-96, 99-112, 114, 115, 118-123, 125-136, 138-140, 150-160, 189-192, 196	Pit 9 Trenches A-D Shafts 200-232 Shaft[1] 233	Pit 29 (below storage of TRU waste corrugated metal pipes (CMPs)) Shaft 124	TRU waste CMPs (stored atop Pit 29)	Pad 1 (54-226 and –412) Pad 3 (54-48) Pads 5, 7, and 8 (54-49, -224, -144 - 145, -146, -177, -1027, -1028, -1030, and –1041) Pad 6 (54-153 and –283) Pad 9 (54-229, -230, -231, -232) Pad 10 (formerly Pads 2 and 4) 54-8 54-33 54-375[2] Shafts 145 and 146

[1]unused/empty [2]included in RCRA Permit Application Renewal (LANL, June 2003)

4.1.2 Corrective Action Disposal Units

These subsurface units (comprising MDA G) were used to dispose radioactive waste possibly containing hazardous constituents, making them both LLW disposal units and corrective action disposal units. As a result, these units are subject to the requirements of DOE Order 435.1 (described above) and the Consent Order (NMED, March 2005). LANL is currently implementing an NMED-approved Investigation Work Plan for MDA L (LANL, September 2003) as part of corrective action activities to complete environmental characterization of the site. The Consent Order schedule pertaining to MDA G requires the following activities and associated enforceable deadlines based on current scheduled document approval dates (these deadlines may be adjusted based on actual document approval dates):

- LANL must complete the environmental characterization and submit an Investigation Report by September 8, 2005
- LANL must submit a CME Work Plan to NMED (for approval) by February 28, 2006
- LANL must submit a CME Report to NMED by April 30, 2007; NMED must approve the CME Report by September 12, 2007
- LANL must submit a CMI Plan to NMED (for approval) within 90 days of NMED's selection of a final remedy
- LANL must complete implementation of the final remedy and submit a Remedy Completion Report by December 29, 2015

LANL is assuming that the closure approach selected by NMED involves a combination of capping the disposal units and operating a SVE system to treat/remediate the subsurface VOC vapor plume. Because these corrective action units are also regulated as LLW disposal units, the closure approach for these units needs to address the requirements of bother DOE Order 435.1 and the Consent Order (NMED, March 2005). Based on review of both sets of requirements, the performance requirements for closure under DOE Order 435.1 are expected to also meet corrective action objectives for protection of human health and the environment established under the Consent Order (NMED, March 2005). As a result, the conceptual cover design being finalized for the PA/CA revision for all of the subsurface LLW disposal units will likely meet the corrective action objectives.

Some of these corrective action units have also been used to dispose of PCB waste; closure requirements for TSCA-regulated units were outlined above. It is expected that closure of these units will be incorporated into the final closure cover for the site. Additionally, other subsurface corrective action units are being used to store TRU waste. While retrieval of TRU waste does not constitute a corrective action under the Consent Order (NMED, March 2005), any potential releases of hazardous constituents during storage is subject to corrective action. Once the TRU waste is retrieved from subsurface storage (for eventual disposal at the WIPP), these units remain subject to the requirements of DOE Order 435.1 (as LLW disposal units) and requirements of the Consent Order (NMED, March 2005) (as corrective action disposal units).

4.1.3 RCRA Disposal Units

These two subsurface units were used to dispose radioactive waste as well as hazardous waste after the effective date of the RCRA hazardous waste regulations. Hence, in addition to being subject to DOE 435.1 requirements, these disposal units are also subject to RCRA closure and post-closure care requirements under 40 CFR 264 Subparts G and N. Both units were previously identified as SWMUs or AOCs subject to RCRA corrective action requirements; however, under the terms of the Consent Order (NMED, March 2005), they are no longer subject to corrective action requirements and only subject to RCRA closure and post-closure care requirements.

These units are physically interspersed with the corrective action disposal units comprising MDA G (and the other LLW disposal units). As a result, it is not practical to address closure requirements for these subsurface disposal units independently of the other disposal units. Since these circumstances are somewhat analogous to those at Area L/MDA, it is assumed that (at a future date) closure of these units will also be proposed under alternative closure requirements as allowed by NMAC, which incorporates 40 CFR 264.110(c). If approved, these RCRA-regulated disposal units will be closed as part of the corrective action closure activities for MDA G.

4.1.4 CSUs

These CSUs are used for storage of containerized MLLW and/or mixed TRU wastes. In general, the CSUs consist of asphalt pads and associated fabric domes and/or other structures. Two subsurface shafts are also included with these CSUs; they were used for MLLW storage for a brief period of time and are currently empty. All of these CSUs were included in the LANL TA-54 RCRA Permit Renewal Application (LANL, June 2003) and will be included in LANL's revised Hazardous Waste Facility Permit when it is issued by NMED. Although there is no regulatory deadline to close these units, they are located on the surface above the subsurface units that must be closed. Therefore, these units will be "clean closed" under RCRA permit requirements, which require LANL to submit a SAP to NMED. LANL will then implement the SAP and subsequently draft a closure certification report for NMED approval.

4.2 REGULATORY APPROACH AND ASSUMPTIONS

The intent of the approach for closure of all of the subsurface disposal units is the implementation of a single, comprehensive closure methodology that meets the requirements of all of the regulatory programs. Applicable closure requirements for the site include: PA/CA requirements under DOE Order 435.1, corrective action requirements under the Consent Order (NMED, March 2005), RCRA closure requirements under NMAC, and closure requirements under TSCA. The regulatory approach and assumptions are outlined below.

LANL is in the process of finalizing a conceptual cover design (for all of the subsurface units) as part of the revision for the PA/CA (required by DOE Order 435.1). This conceptual cover is being designed to address the long-term performance of the LLW disposal facility and will encompass all of the subsurface

disposal units (with the cover extending across the entire site). Based on review of both requirements, the performance requirements for the final closure cover under DOE Order 435.1 are expected to satisfy the corrective action objectives for protection of human health and the environment established under the Consent Order (NMED, March 2005). As a result, the conceptual cover design being finalized for the PA/CA revision for all of the subsurface LLW disposal units will likely meet the corrective action objectives. The final closure cover is also expected to address the closure requirements under TSCA for those units used for disposal of PCB wastes.

As indicated previously, the two RCRA-regulated disposal units (Pit 29 and Shaft 124) are physically interspersed with corrective action disposal units (comprising MDA G) (and the LLW disposal units) at the site. Since the layout and circumstances are analogous to those at Area L/MDA, it is assumed that (at a future date) closure of these units will also be proposed under alternative closure requirements as allowed by NMAC, which incorporates 40 CFR 264.110(c). If approved, these RCRA-regulated disposal units will be closed as part of the corrective action closure activities for MDA G. If this regulatory approach is not approved/utilized, design and implementation for separate approaches will need to be evaluated determine how to address closure for intermingled units that are subject to the differing regulatory requirements.

The CME options likely to be considered at MDA G (as part of corrective action activities) include removal of the buried waste inventory through excavation and off-site disposal, containment of the waste inventory by capping or in-situ stabilization, or treatment of the subsurface vapor plume by vapor extraction (or some combination of these options). LANL is assuming that the final remedy selected by NMED involves a combination of capping the disposal units and operating a SVE system to treat/remediate the subsurface VOC vapor plume. Based on this assumption, the PA/CA cover design (which will meet the performance requirements for LLW disposal units under DOE Order 435.1) will be evaluated and further refined (as necessary) during the CME for the corrective action units (comprising MDA G). Although the effectiveness of the proposed SVE system is currently unknown, it is assumed that it will provide adequate treatment/remediation of the VOC vapor plume. If a different final remedy is selected, such as excavation of the waste inventory, the planning, design, and implementation will be considerably more complex and problematic. Significant issues to overcome involve health and safety and logistical concerns associated with attempting to excavate wastes from subsurface pits, shafts, and trenches. Selection of the excavation alternative will significantly impact schedule and costs as well. Even so, excavation of the waste inventory will be evaluated in the CME Report for MDA G. The PA/CA final cover will still need to be constructed after implementation/construction of the final corrective action remedy (if the remedy is not incorporated as part of the PA/CA final cover).

Lastly, LANL is assuming that all TRU waste currently residing in subsurface storage will be retrieved and shipped to WIPP for final disposal. Once the TRU waste is retrieved, the subsurface units will be addressed with the final closure cover. However, some belowground TRU waste may be in packaging and/or storage configurations that are not amenable to retrieval and shipping due primarily to

combinations of worker safety issues, the complexity of retrieval processes, and/or high costs of retrieval operations. After further evaluation, DOE may determine that some TRU waste will be left in place for disposal. If left in place for disposal, the radionuclide inventory associated with the TRU waste needs to be included in the analyses to revise and maintain the site-specific PA/CA, under DOE Order 435.1. Additionally, these TRU disposal units will be subject to the requirements for TRU waste disposal outlined in 40 CFR 191, Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes (USEPA, 1985). The 40 CFR 191 performance objectives are significantly more demanding than those for the PA/CA under DOE Order 435.1, and involve lower off-site dose rates, intentional intruder scenarios, and a performance period up to 10,000 years. Re-evaluation under DOE 435.1 and analysis as part of 40 CFR 191 requirements will increase the complexity of the cover design (cover type and thickness), which will in turn affect the constructability and the implementation costs. Additionally, TRU waste that remains in corrective action units for disposal may impact the CME results as well as selection of the final remedy.

The design and approach presented above is intended to meet the requirements of all of the applicable regulatory programs, and result in a single comprehensive closure approach for all of the subsurface units.

4.3 WASTE MANAGEMENT OPERATIONS NEEDS/REQUIREMENTS

Active waste management operations at Area G include processing and disposal of LLW, storage of MLLW (destined for of-site treatment and disposal), and storage and characterization of TRU and mixed TRU waste (destined for WIPP disposal). The operations are needed to support LANL's mission; however, they will be impacted by closure activities at MDA G. In order to provide continued waste management support, the functional needs/requirements for each operation need to be determined in order to evaluate completion and re-location of operations as closure proceeds through the site.

4.3.1 Current TRU Waste Operations Needs/Requirements

TRU waste operations at Area G include storage and characterization of TRU and mixed TRU waste destined for disposal at the WIPP. All TRU waste will need to be managed and shipped off-site in order to vacate the site to accommodate closure. The activities and projects associated with completing TRU waste operations at Area G are in early stages of development and planning; therefore, detailed execution plans are not complete at this time. TRU waste management projects are being defined in terms of contact-handle (CH) TRU waste and remote-handled (RH) TRU waste. NWIS is preparing five Project Management Plans (PMPs) for CH TRU waste management operations and activities, they are:

- Characterization operations
- Processing operations at the Decontamination and Volume Reduction System (DVRS) facility
- Pit 9 retrieval activities

- CMP retrieval activities
- Trenches A-D retrieval activities

A separate PMP is being prepared to address retrieval activities for RH TRU waste stored in 55 shafts (shafts 235-243 and 246-253, shafts 302-306, and shafts 200-232). Additionally, retrieval of CH TRU waste in 5 shafts (shafts 262-266) will likely be included in the RH TRU waste management project.

A high-level overview of activities and known functional needs/requirements for completing TRU waste operations at Area G/MDA G is presented below.

4.3.1.1 CH TRU Waste Operations and Activities

CH TRU waste is stored aboveground in CSUs and storage areas and belowground in pits, trenches, and shafts. CH TRU waste management involves characterization and processing operations, retrieval activities, and shipment of all legacy and newly generated CH TRU waste. The estimated CH TRU waste volume is 10,000 m^3 (50,000 DEs), including approximately 8,400 m^3 (42,000 DEs) currently stored at Area G (above and belowground) and 1,600 m^3 (8,000 DEs) of newly generated CH TRU waste that is estimated to be generated and stored at Area G by 2012. The "Quick-to-WIPP" (QTW) subset of approximately 2000 high-wattage drums is included as part of CH TRU waste. These drums have been prioritized for accelerated characterization, certification, and shipment as they contain almost 60% of the radioactive material-at-risk (MAR) at Area G.

4.3.1.1.1 Characterization, Processing, and Shipping Operations

All CH TRU waste must be characterized prior to shipment; characterization activities that are part of the existing certified characterization program include non-destructive examination (NDE), visual examination (VE), non-destructive assay (NDA), and headspace gas sampling and analysis (HGAS). Once data collected from the characterization process is reviewed and accepted, containers are loaded into TRUPACT II containers for shipment to WIPP.

Existing characterization and shipping operations are summarized below:

- NDE is used to verify waste matrix codes (as assigned by acceptable knowledge (AK)), physical form of the waste, and the absence of prohibited items. TRU waste containers with prohibited items, which must be remediated prior to completing the characterization process, are segregated and sent for prohibited item disposition (PID) (see processing/repackaging operations below). Current NDE equipment at Area G consists of two Real-Time Radiography (RTR) units (one is currently offsite being re-furbished).
- VE is completed within various scenarios: 1) in lieu of RTR results, 2) during repackaging operations, and 3) for quality control purposes to verify RTR results on a statistical subset of drums. Currently, VE of drums occurs in two locations: 1) the glovebox at the Waste Characterization, Reduction, and Repackaging (WCCR) facility (which is a Hazard Category 3 (HC-3) facility) located at TA-50, and 2) the perma-con units within domes (radiological facilities) at Area G.

- NDA is used to measure the qualitative and quantitative isotopic inventory of TRU waste containers. Current NDA equipment at Area G consists of two Fixed-Energy Response Function Analysis with Multiple Efficiency (FRAM) units, a portable Tomographic Gamma Scanner (TGS) unit, and two High Efficiency Neutron Counter (HENC) units (one has yet to be certified under the existing certified characterization program).
- HGAS sampling and analysis is used to determine the concentration of VOCs in the container headspace. Current sampling and analysis facilities at Area G consist of two equilibration areas and a modular analytical laboratory. Samples can also be collected and shipped to an off-site laboratory for analysis.
- Once data collected from the characterization process is reviewed and accepted, containers are assembled into payloads, loaded into TRUPACT II containers, and shipped to WIPP. Currently, payload assembly and TRUPACT II loading are completed at the shipping bay at the Radioassay and Nondestructive Testing (RANT) Facility located at TA-54 West.

Some CH TRU waste requires processing or repackaging (RPK) prior to completing characterization activities. Existing processing and RPK operations are summarized below:

- Processing and RPK operations are currently conducted at the glovebox at the WCCR facility (which operates as a HC-3 facility) at TA-50. Processing/remediation of drums is required for PID (when identified by RTR) and RPK is required when a drum exceeds the wattage limit threshold for shipping (requiring repackaging into multiple drums).
- Processing operations are conducted at the DVRS facility (which currently operates as a radiological facility) at Area G. Processing of oversized crates and fiberglass-reinforced plywood (FRPs) boxes is required since these large items cannot be characterized with the existing characterization equipment. Processing operations include decontamination, size-reduction, and segregation into LLW and TRU waste streams, and packaging into standard waste boxes (SWBs) or 55-gallon drums. LLW is disposed onsite and TRU waste enters the characterization process.
- Processing and RPK operations are in the process of being established at a glovebox at the DVRS facility at Area G for a campaign of approximately 170 QTW drums with radioactivity levels that require operations to be conducted in a HC-2 facility. The operations will be conducted for a limited 5-month campaign; glovebox operations will include VE, PID, and RPK (from a single drum into multiple drums). Once the campaign is complete, the glovebox will be removed from the DVRS facility.

There are a number of functional needs/requirements that must be addressed in order to efficiently and effectively characterize, process, repackage, and ship CH TRU waste (as part of completing TRU waste operations at Area G/MDA G. These needs are summarized in the table below:

Table 4.3.1.1.1-1. Summary of Characterization, Processing, RPK, and Shipping Needs for CH TRU Waste

Functional Needs/Requirements	Likely or Possible Remedy
Additional NDA capabilities to replace the FRAM and TGS units (which are prototypes that have far exceeded design intent)	Obtain IQ3 unit to replace FRAM and TGS to swiftly and accurately provide qualitative and quantitative assays to segregate LLW and determine plutonium isotopics and other TRU isotope ratios
Additional NDA capability to assay 85-gallon drums and SWBs; SWBs are currently stored aboveground and will be generated from CMP retrieval and processing/RPK (see below)	Obtain SuperHENC or multiple purpose crate counter (MPCC) to conduct campaign to address SWB assays
Additional radiological facility to provide VE/PID/RPK capabilities for drums (to initially complement operations at WCRR and Dome 231 perma-con)	Construct additional perma-con in Dome 224 to conduct VE/PID/RPK of drums
Additional HC-3 capabilities to provide VE/PID/RPK for drums (to initially complement operations at WCCR); however, WCCR operational life limited to approximately 2 years	Obtain, site, complete AB requirements, and install Mobile Visual Examination and Repackaging (MOVER) at Area G to conduct VE/RPK/PID for drums
HC-2 capabilities to provide VE/PID/RPK for drums	Obtain, site, complete AB requirements, and install Modular Repackaging (MORK) unit at Area G to conduct VE/RPK/PID for drums
HC-3 processing operations (decontamination, size-reduction, segregation, and packing into SWBs or 55-gallon drums) for oversize crates and FRP boxes stored aboveground and belowground in Pit 9	Complete AB requirements and facility modifications to upgrade the DVRS to HC-3 facility to process oversize crates and FRP boxes
HC-2 processing operations (decontamination, size-reduction, segregation, and packing into SWBs or 55-gallon drums) for oversize crates and FRP boxes stored aboveground and belowground in Pit 9	Complete AB requirements and facility modifications to upgrade the DVRS to HC-2 facility (for limited campaign) to process oversize crates and FRP boxes **OR** Design and fabricate HC-2 modular unit, complete siting and AB requirements, and install at Area G to process oversize crates and FRP boxes **OR** Store oversize crates and FRP boxes (requiring HC-2 facility for processing) at Area G, then transport to new TRU processing facility once operational (see section 4.2.2)
Additional facility/location for assembling payloads and loading TRUPACT II containers (for shipment to WIPP)	Identify location, design, complete siting and AB requirements, and install loading equipment into second loading bay

4.3.1.1.2 Retrieval Activities

CH TRU waste is retrievably stored belowground in Pit 9, on top of Pit 29, and in Trenches A-D. All CH TRU waste stored belowground will need to be retrieved; most of this waste will require some additional processing or RPK (because of existing packaging configurations) prior to characterization and shipment to WIPP. The CH TRU waste retrieval projects are summarized below:

- Pit 9 retrieval project will excavate and recover approximately 1,560 m^3 of CH TRU waste packaged within drums (30-, 55-, and 85-gallon drums) and FRP boxes from Pit 9. TRU waste drums must be washed and vented prior to storage, characterization, and shipment to WIPP. TRU waste crates will initially be stored onsite, then undergo processing (decontamination, size-reduction, and/or segregation, and packaging into SWBs or 55-gallon drums) prior to characterization and shipment to WIPP. Functional needs/requirements for HC-3 and HC-2 processing/RPK operations for oversized crates and FRPs are included in Table 4.2.1-1 above.
- CMP retrieval project will excavate and recover approximately 442 m^3 of CH TRU waste consisting of 158 CMPs containing concreted wastewater treatment sludge from the top of Pit 29. Upon retrieval, radiological surveys of the CMPs will be conducted, and any exterior contamination will be fixed or decontaminated before placing the CMPs into onsite storage. Processing operations utilizing a diamond saw (or equivalent) will be required to cut and package the CMPs into SWBs for characterization and shipping purposes.
- Trenches A-D retrieval project will recover approximately 335 $m^3$of CH TRU waste packaged within 30-gallon metal drums placed within concrete lined casks from Trenches A-D. It is not known whether the concrete lined casks will be retrieved intact or whether the individual 30-gallon drums will be retrieved from casks (which will then remain belowground). Upon retrieval, radiological surveys of the casks or drums will be conducted, and any exterior contamination will be fixed or decontaminated before placement into onsite storage. Processing/RPK operations or will be required to place the 30-gallon drums into configurations that can be characterized and then shipped to WIPP. Approximately half of the drum inventory exceeds the wattage limit threshold for shipping and will require RPK into multiple drums prior to characterization and shipment to WIPP. Gas generation testing is an option that may be used to limit the number of drums requiring RPK. Drums that do not exceed the wattage limit for shipping will likely be overpacked into 55-gallon drums for characterization and shipping purposes.

There are a number of functional needs/requirements that must be addressed in order to efficiently and effectively process or RPK retrieved CH TRU waste (as part of completing TRU waste operations at Area G/MDA G). These needs are summarized in the table below:

Table 4.3.1.1.2-1. Summary of Processing/RPK Needs for Retrieved CH TRU Waste.

Functional Needs/Requirements	Likely or Possible Remedy
Drum washing capabilities for drums from Pit 9	Complete AB requirements and re-install MART washers in Dome 33
Drum venting capabilities for 55-gallon drums from Pit 9	Complete AB requirements and operate Drum Venting System (DVS) in Dome 33
Drum venting capabilities for 30- and 85-gallon drums from Pit 9	Complete AB requirements for contractor to vent 30- and 85-gallon drums **OR** Complete AB requirements and modify and operate Drum Venting System (DVS) in Dome 33 for 30- and 85-gallon drums
HC-2/3 processing capabilities for cutting CMPs into lengths that can be packaged into SWBs	Complete AB requirements and facility modifications for DVRS to accommodate using a diamond saw to cut CMPs into lengths that can be packaged into SWBs **OR** Design and fabricate modular glovebox-type unit specific to this activity, complete siting and AB requirements, and install unit to cut CMPs into lengths that can be packaged into SWBs **OR** Store CMPs at Area G, then transport to new TRU processing facility once operational (see section 4.2.2)
HC 2/3 gas generation testing for some TRU waste from Trenches A-D (to limit/focus RPK operations)	Obtain equipment, identify site/facility, complete AB requirements, and install gas generation testing to focus/limit RPK operations for TRU waste from Trenches A-D
HC-2/3 RPK operations for 30-gallon drums from Trenches A-D (repackaging into multiple 55-gallon drums)	Complete AB requirements and facility modifications for DVRS (for limited campaign) to accommodate glovebox for RPK of 30-gallon drums into multiple drums acceptable for characterization and shipment **OR** Design and fabricate HC-2/3 modular glovebox-type unit specific to this activity, complete siting and AB requirements, and install unit for RPK of 30-gallon drums into multiple drums acceptable for characterization and shipment **OR** Store drums and/or casks at Area G, then transport to new TRU processing facility once operational (see section 4.2.2)

4.3.1.2 RH TRU Waste Operations and Activities

Approximately 96 m^3 of RH TRU waste is retrievably stored belowground in 55 shafts: shafts 302-306, shafts 235-243 and 246-253, and shafts 200-232. These shafts are located within two shaft fields at Area G and contain RH TRU waste in various packaging and storage configurations. As indicated above, retrieval of CH TRU waste from shafts 262-266 will likely be included in the single RH TRU waste management project (since these shafts are located within one of the RH shaft fields).

RH TRU waste operations will involve retrieval activities from the shafts, followed by processing or RPK operations, characterization operations, and shipment to WIPP. The projects and work associated with these RH activities and operations need to be completed in order to conclude TRU waste operations at Area G/MDA G. However, RH TRU waste activities and operations are more difficult to assess and plan than those for CH TRU waste. In addition to high surface dose levels (requiring remote handling) increasing the complexity of managing and implementing RH TRU waste activities and operations, much of the regulatory framework associated with RH TRU waste has yet to be finalized. The NMED is reviewing a Class 3 permit modification that incorporates a RH TRU waste certified program into the WIPP Waste Analysis Plan (WAP). The permit modification also modifies characterization requirements (for both CH and RH TRU waste) where AK may be determined by NMED to be sufficient for characterization purposes (rather than waste characterization measurements). The timeframe associated with completing the regulatory cycle and receiving approval of the Class 3 permit modification to the WIPP WAP is not known at this time.

The functional needs and requirements associated with RH TRU waste retrieval, processing, RPK, characterization, and shipping have yet to be completed. Some belowground RH TRU waste may be in packaging and/or storage configurations that are not amenable to retrieval and shipping due primarily to combinations of worker safety issues, the complexity of remote retrieval processes, and/or high costs of retrieval operations. As a result, NWIS is currently preparing a white paper to identify a potential path forward for each of the retrievable RH TRU waste types and storage configurations in order to determine final disposition options. Each packaging and storage configuration, as well as preliminary proposed options for final disposition, are summarized in the following sections.

4.3.1.2.1 Shafts 302-306

Shafts 302-306 are carbon steel lined 10-foot diameter shafts that store approximately 51 m^3 of RH TRU waste consisting of hot cell liner boxes (decommissioned gloveboxes from LANL hot cells). The legs were removed from the gloveboxes, which were then packaged in steel boxes and retrievably stored in Shafts 302-306 (one steel box to a shaft). These five shafts are adjacent to Trenches A-D and in an area near the southern edge of the mesa that is subject to significant long-term erosion and stability concerns. As with retrieval of CH TRU waste in Trenches A-D, RH TRU waste retrieval from Shafts 302-306 is necessary for long-term protection of public health and safety and the environment. Because of the close proximity of these trenches and shafts, retrieval of the RH TRU waste in Shafts 302-306 should be

planned in parallel with retrieval of CH TRU waste in Trenches A-D. Completion of these retrieval activities will conclude all TRU waste operations within this portion of Area G/MDA G.

The general steps identified for retrieval of the RH TRU waste in Shafts 302-306 include: 1) retrieval of the steel boxes from each shaft, 2) placement of the steel boxes into fabricated shielding containers, and 3) storage onsite at Area G for future processing, RPK, and/or characterization activities. Once the requirements and criteria for RH TRU waste are established, additional planning activities will need to identify and develop the functional needs/requirements for characterization, RPK, processing, and/or shipping of this RH TRU waste.

4.3.1.2.2 Shafts 235-243 and 246-253

Shafts 235-243 and 246-253 are steel lined three-foot diameter shafts that store canisters containing heterogeneous debris (cleaning wastes and materials, tools, and contaminated equipment) generated from activities associated with cleanout and decommissioning of LANL hot cells. Each of the 17 shafts contains a single 1-m^3 canister. Twelve of the canisters contain numerous 1.5-gallon cans of waste packaged into 55-gallon drums, while the remaining five canisters contain large debris items and hardware directly packaged into 55-gallon drums. Substantial and detailed historical information exists regarding the packaging and characterization of this RH waste. As a result, NWIS is in the process of preparing AK (and other) documentation to complete the characterization process (in lieu of additional measurements), as allowed by the proposed permit modification under review by NMED (outlined above). Once NMED has approved the permit modification (outlined above), documentation can be finalized and submitted to NMED to determine/approve that the compiled documentation is sufficient for characterization of this RH TRU waste.

It is believed that the AK (and other) documentation will be considered sufficient to complete characterization (without further measurements), and packaging is acceptable (no processing or RPK required) for shipment and disposal at WIPP. As a result, the RH TRU waste in shafts 235-243 and 246-253 is readily retrievable. The general steps identified for retrieval of the RH TRU waste in these 17 shafts include: 1) completing and submitting (to NMED) AK characterization documentation, 2) retrieving the canisters and placement into the WIPP 72B casks, and 3) transporting the casks to WIPP.

4.3.1.2.3 Shafts 200-232

Shafts 200-232 are one-foot diameter shafts with carbon steel pipe liners that store approximately 27 m^3 of RH TRU waste consisting of hot cell debris (metals, inorganic solids, and combustible solids). The debris was packaged into one-gallon cans; numerous cans were dropped into each of the lined shafts. Because of this packaging and storage configuration, this RH-TRU waste will be problematic to retrieve, process, package, and characterize for shipment to WIPP. Additionally, it is not known whether the integrity of the carbon steel shaft liners or the individual cans have remained intact (during placement and over time). Issues regarding worker

safety, development of the physical/mechanical retrieval methods, and costs will impact retrieval of RH TRU waste from shafts 200-232.

Preliminary planning has identified the possible need to design and construct an onsite facility to accommodate retrieval, processing, packaging, and characterizing this RH TRU waste. Functional needs and requirements for this facility have yet to be developed. In addition to this retrieval alternative, NWIS is evaluating two other alternatives (as part of the NWIS white paper development) that do not involve recovering the RH TRU waste from shafts 200-232. These alternatives are: 1) leave the current packaging and storage configuration of RH TRU waste inplace as final disposal, and 2) use concrete to entomb the current packaging and storage configuration of RH TRU waste inplace as final disposal. The final Area G/MDA G cover would be placed over the RH TRU waste disposal shafts in either of these alternatives. As indicated previously, any TRU waste remain belowground for disposal will require additional evaluation for the PA/CA (under DOE 435.1) and new analysis as part of 40 CFR 191 requirements; the evaluation and analysis will likely increase the complexity of the cover design (cover type and thickness), which will in turn affect the constructability and the implementation costs.

4.3.1.2.4 Shafts 262-266

Shafts 262-266 are lined shafts that store approximately 7 m^3 of tritium co-contaminated CH TRU waste. This waste was packaged into stainless containment vessels, which were specifically designed as secondary containment for the tritium co-contaminated TRU waste. Each of the five shafts contains a single vessel of CH TRU waste. This CH TRU waste can be readily retrieved and stored aboveground; however, the current packaging configuration cannot be characterized or shipped to WIPP. Existing documentation regarding packaging and characterization needs to be evaluated to determine how to processing, package, and characterize this waste for shipment to WIPP.

4.3.1.3 Summary

All CH and RH TRU waste operations and activities will need to be planned and coordinated carefully. Characterization, processing, RPK, and shipping operations will need to effectively vacate aboveground storage space and reduce/manage aboveground MAR (limit of 150,000 PECi (plutonium-equivalent Curies)) so that retrieval activities (and associated processing or RPK operations for retrieved TRU waste) can proceed. Because retrieval activities represent changes/modifications to the Area G documented safety analysis (DSA) (LANL, April 2003), as approved by the safety evaluation report (SER) (USDOE NNSA LASO, November 2003), they will likely be addressed as part of an Area G DSA addendum or a new DSA. The belowground TRU waste volumes and associated MAR that will need to be managed (as TRU waste is retrieved) are shown in the following table.

Table 4.3.1.3-1. Summary of Belowground TRU Waste Volumes and Associated MAR

Storage Location	Volume (m^3)	Volume (DEs)	MAR (PECi)
Belowground CH TRU Waste			
Pit 9	1,560	7,500	6,018
CMPs on top of Pit 29	442	2,127	10,755
Trenches A-D	335	1,611	93,871
Belowground RH TRU Waste			
Shafts 302-306	51	241	.51
Shafts 235-243, 246-253	17	81	146
Shafts 200-232	27	132	98
Shafts 262-266[1]	7	32	3

[1]CH TRU waste included in RH TRU waste retrieval project

In addition to managing aboveground storage space and MAR, detailed plans (including location and sequencing/timing) for TRU waste operations and activities will need to be coordinated and integrated with the identification and development of activities supporting site closure (such as infrastructure modifications, closure of RCRA CSUs, D&D of structures, and cover construction).

4.3.2 Future TRU Waste Needs/Requirements

As TRU waste operations conclude (followed by closure) at Area G, TRU waste operations required to support ongoing LANL missions will need to developed at a new location. Future options for providing capabilities and facilities for the management of newly generated TRU waste were evaluated in "An Evaluation of LANL Post Legacy TRU Waste Management" (LANL, October 2004). The study identified the need for TRU waste characterization, storage, large package decontamination and volume reduction, and loading capabilities. The evaluation assessed several options to accommodate these capabilities and concluded that all TRU waste operations be consolidated into a single area (to minimize impacts of transportation and associated road closures). The study recommends construction of a new TRU waste management facility in the TA-55/TA-50 area and is anticipated to be a HC-2 and Performance Category (PC) 2 facility (per DOE Standards 1027 and 1021, respectively). Functional needs/requirements should be developed so that the conceptual design process can identify major design features, and cost, and a detailed siting study should be completed to identify a suitable location for the facility. Preliminary TRU waste operating space estimates range from 10,000 to 30,000 sf^2.

4.3.3 LLW Operations Needs/Requirements

As closure activities proceed through the active portion of Area G, several LLW activities required to support LLW disposal operations in Zone 4 will need to be moved and re-established elsewhere. Necessary support activities were evaluated as part of Task 1 of the TA-54 Engineering Study (LANL, April 2004); the activities include LLW characterization/verification operations LLW volume reduction

(compaction) operations. Currently, LLW characterization/verification operations are located in building 54-2 and compaction operations are located in 54-281; both of these building are situated in the active portion of Area G. The functional requirements for each operation have been developed and a preliminary site layout has been proposed in "Development of Zone 4, Area G, Technical Area 54" (LANL, April 2005). This information can be further evaluated and developed for conceptual design for characterization/verification and compaction operations.

As part of the LLW future plans, disposal operations will expand into existing area of Zone 4, and then the footprint of Zone 4 will expand westward (into the current administration area) to accommodate the support facilities consisting of verification/characterization and compaction operations. This expansion will also involve the re-location of the access gate for entrance/exit into Zone 4 (and Area G), the addition of a new access control structure, and the removal/relocation of several office trailers and storage sheds.

These proposed activities are shown on Figure 4.3.3-1 and summarized below:

- The access control and monitoring building is proposed as a 1,200 to 1,500 square foot, single story administrative building (steel manufactured building or portable/modular building) located near the modified entrance to Zone 4 (and Area G). The building will provide a physical control point for access to Zone 4 (and Area G) and a support area for radiological program needs.
- The characterization/verification building is proposed as a 2,500 to 3,200 square foot single story building located in the expanded Zone 4 area. The building is anticipated to be a HC-3 and PC-2 facility (per DOE Standards 1027 and 1021, respectively).
- The compactor building is proposed as a 3,000 to 5,000 square foot, single story building located near the site of the current access control building and gate into Zone 4. The building is anticipated to be a HC-3 and PC-2 facility (per DOE Standards 1027 and 1021, respectively).

The proposed changes involving Zone 4 expansion and construction of LLW facilities will likely be addressed as part of LANL's unreviewed safety question (USQ) procedure (LANL, September 2004a) and annual updates to the Area G DSA (LANL, April 2003), as approved by the SER (USDOE NNSA LASO, November 2003).

4.3.4 MLLW Operations Needs/Requirements

A small volume of legacy MLLW is currently stored (most of it for radioactive decay purposes) at Area G. It is expected that this small volume of legacy MLLW will be shipped off-site for treatment and disposal prior to the beginning of integrated closure activities for the site. Once this legacy MLLW is shipped off-site, MLLW (storage) operations in Area G will cease. Therefore, there are no MLLW operations needs/requirements from Area G that will be impacted by closure of Area G/MDA G. All processing (sampling/re-packaging/consolidation) and storage needs/requirements for newly generated MLLW operations are addressed as part of Area L operations summarized in section 3.2 above.

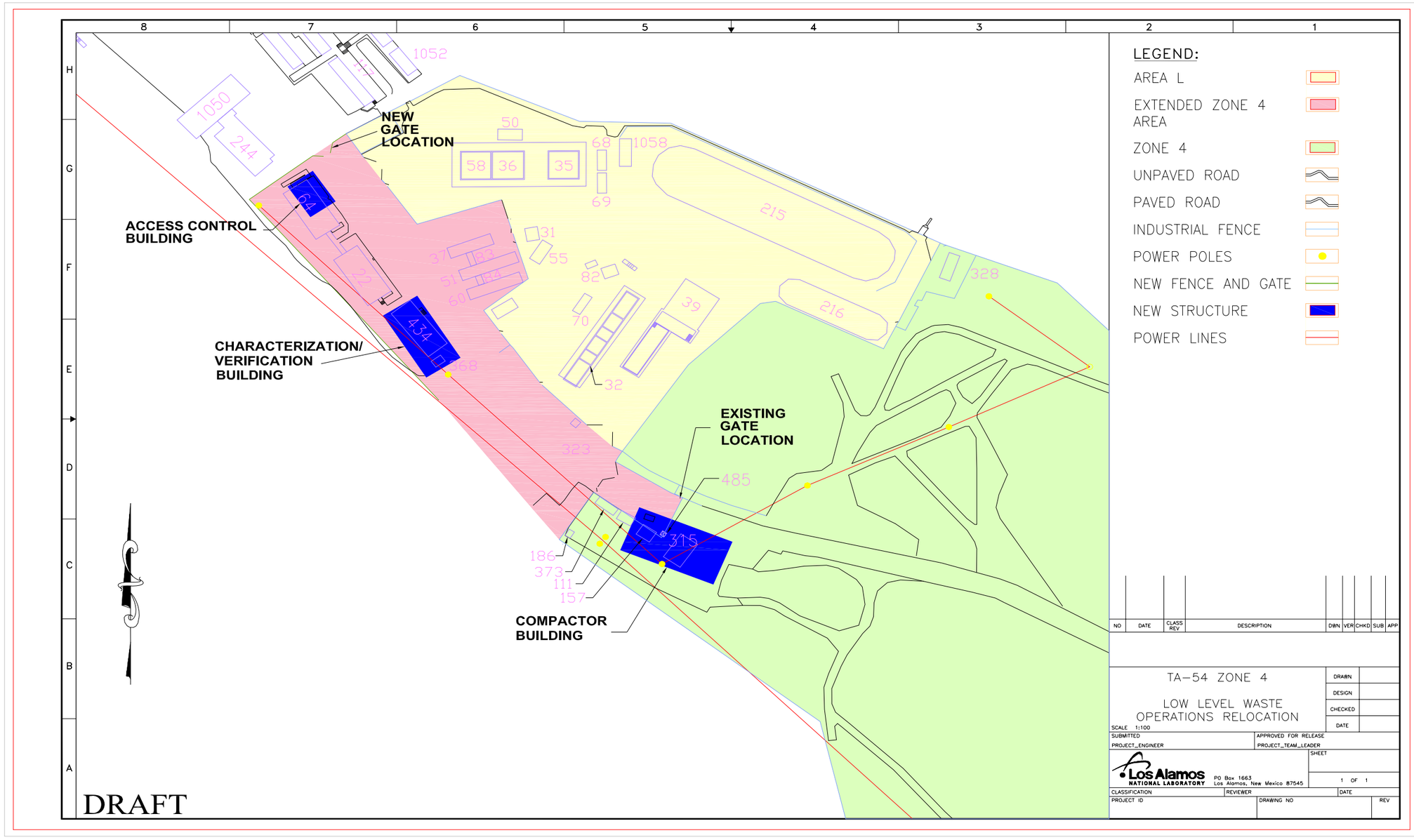


Figure 4.3.3-1. Preliminary siting/layout for proposed LLW operations (LANL, April 2005).

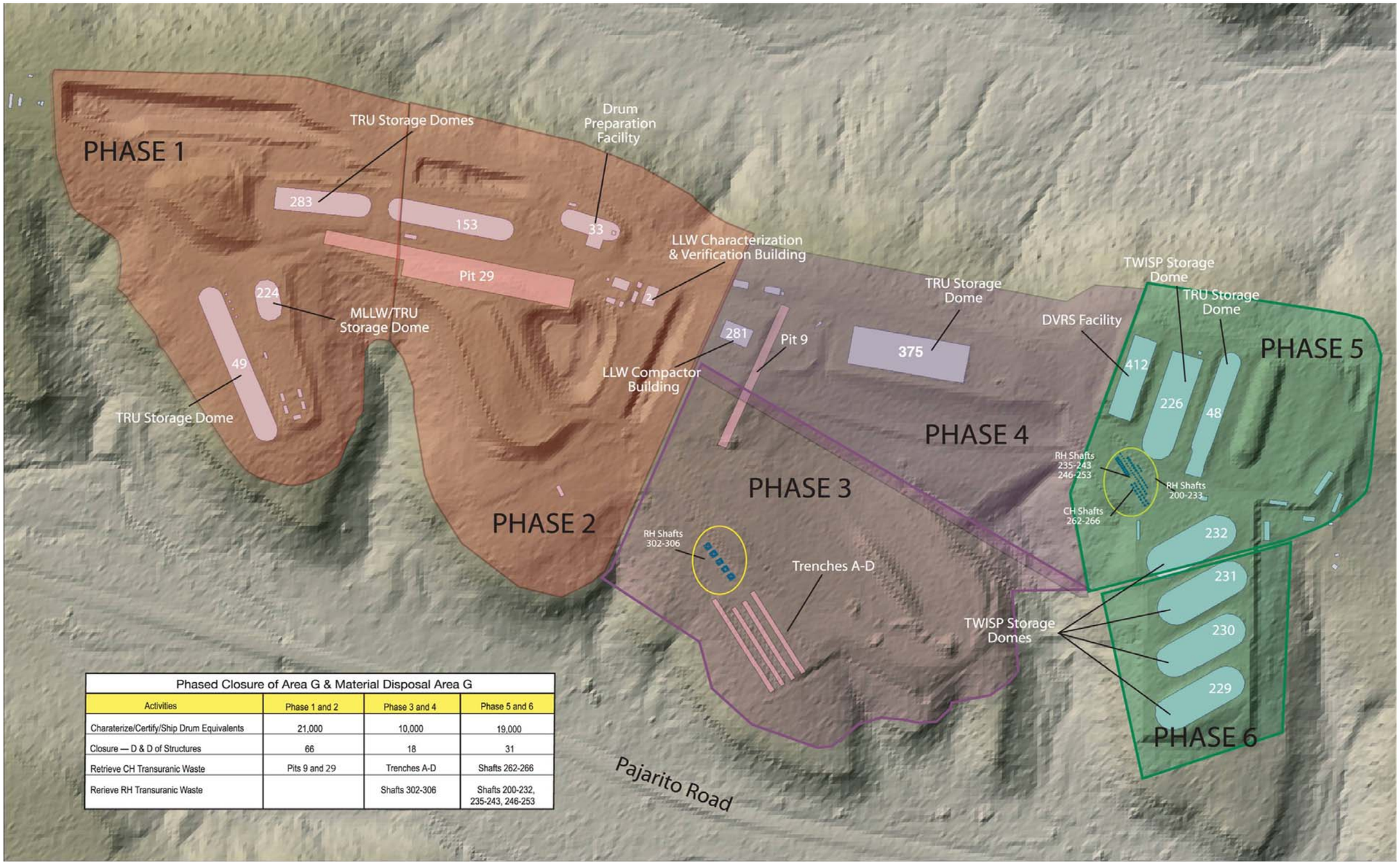
4.4 OPERATIONS APPROACH AND ASSUMPTIONS

In order to manage all of the activities across the 63-acre site, NWIS and ENV personnel developed a phased closure approach (for planning purposes). To allow for flexibility in planning, timing, implementation, and funding profiles, the conceptual cover design for the site is being developed so that construction can occur in phases. Each phase can be constructed independently or with another phase (or phases) so that final closure activities can proceed as waste operations gradually conclude (or re-locate) over time. Figure 4.4-1 shows six phases associated with the current conceptual cover design. For the purposes of this study, it is assumed that the cover will be constructed two phases at a time (resulting in three phases) from the west end to the east end of the site. This three-phase approach will also apply to vacating the site prior to implementation of cover construction activities. The high-level activities that have been identified as part of this study that are associated with vacating the site (in phases) include:

- Completion of existing TRU waste operations (characterization and retrieval)
- Re-location of TRU waste operations (for newly generated waste) near TA-55/50
- Re-location of LLW operations near Zone 4 to support disposal operations
- Closure/D&D of CSUs and structures
- Modification of infrastructure to maintain operations in active phases (as well as to accommodate final closure)

The activities (within each phase) will need to be completed prior to implementation of cover construction activities for the belowground units. This three-phase approach is the basis for the preliminary integrated planning associated with closure of Area G/MDA G that is presented in Section 4.5.

The phased approach is highly dependent on the ability to complete TRU waste operations (as necessary) within each of the three phases. As outlined in previous sections, a significant number of equipment and facilities involving characterization, processing, RPK, and shipping are needed in order to address the various packaging and storage configurations of all above and belowground TRU waste. The capabilities needed for CH TRU waste operations are summarized in previous report sections (see Tables 4.3.1.1.1-1 and 4.3.1.1.2-1) while most of the capabilities needed for RH TRU waste operations are not known at this time. For the purposes of this study, it is assumed that the appropriate capabilities (or sufficient storage capacity outside of the closure area) will be developed and established to complete onsite TRU waste operations without impacting the timeline associated with closure activities.



Phased Closure of Area G & Material Disposal Area G			
Activities	Phase 1 and 2	Phase 3 and 4	Phase 5 and 6
Charaterize/Certify/Ship Drum Equivalents	21,000	10,000	19,000
Closure — D & D of Structures	66	18	31
Retrieve CH Transuranic Waste	Pits 9 and 29	Trenches A-D	Shafts 262-266
Rerieve RH Transuranic Waste		Shafts 302-306	Shafts 200-232, 235-243, 246-253

Figure 4.4-1. Phased Closure Approach for Area G/MDA G.

Retrieval of belowground TRU waste is assumed to follow the project sequence currently identified by NWIS personnel. In general, retrieval of CH TRU waste are planned to occur prior to retrieval of RH TRU waste. TRU waste retrieval activities are anticipated to follow the sequence shown below in the table:

Table 4.4-1. Retrieval Sequence for Belowground TRU Waste.

Sequence	Location	TRU waste type	Closure Phase	Volume (DEs)	MAR (PECi)
1	Pit 9	CH	3&4	7,500	6,018
2	CMPs (atop Pit 29)	CH	1&2	2,127	10,755
3	Trenches A-D	CH	3&4	1,611	93,871
	Shafts 302-306	RH	3&4	51	.51
4	Shafts 235-243 and 246-253	RH	5&6	81	146
	Shafts 262-266	CH	5&6	32	98
5	Shafts 200-232	RH	5&6	132	3

Other than beginning retrieval activities at Pit 9, the retrieval sequence follows the phased closure approach (from west to east). NWIS will likely retrieve TRU waste from Pit 9 first because:

- Pit 9 retrieval activities are similar those associated with LANL's (completed) Transuranic Waste Inspectable Storage Project (TWISP),
- the MAR associated with the waste is considered manageable aboveground,
- most of the processing and RPK capabilities already exist onsite, and
- some of the waste will likely be characterized as LLW and disposed onsite (since the TRU waste criteria was 10 nanocuries per gram (nCi/g) when the waste was originally placed in Pit 9).

The retrieval activities that follow Pit 9 gradually increase in complexity (over the sequence) and must address management of the aboveground MAR (limit of 150,000 PE Ci), developing and establishing necessary processing and RPK capabilities, and retrieval and processing of RH TRU waste. Since one DSA addendum or new DSA is expected to address all retrieval activities at the site, retrieval activities can proceed in virtually any sequence as long as storage capacity, MAR management, processing and/or RPK capabilities, and/or sufficient storage space (outside of the closure area) are appropriately addressed.

The approach and assumptions will need to be routinely reviewed and modified as part of continued planning activities for closure of Area G/MDA G. Modifications to this phased approach will need to be incorporated into the preliminary plan outlined in the following section.

4.5 INTEGRATED ACTIVITIES

Integrated closure planning is in early stages of development for Area G/MDA G. As a result, identification of integrated closure activities at Area G/MDA G is limited to high-level activities and basic relationships as they pertain to vacating and closing the site in three phases. As indicated previously, basic activities and requirements identified to date for vacating and closing the site include: completing TRU waste operations (characterization and retrieval); re-locating TRU and LLW operations near TA-55/50 and Zone 4, respectively; completing closure of CSUs and D&D of structures; modifying infrastructure to address phased and final closure needs and, implementing corrective action for MDA G (and other subsurface units) by constructing a cover and operating a SVE system. The rationale and relationships developed to vacate the site in phases (Phases 1&2, Phases 3&4, and Phases 5&6) include the following:

- TRU waste operations will need to characterize, process, and/or repackage and ship TRU waste volumes that equal or exceed the volumes stored within each phase. The stored TRU waste volumes are measured in DEs and include above and belowground waste (in order to accommodate the retrieval volumes). Notably, DEs used in this report are derived from the current storage configurations as queried in the TA-54 TRU Waste Database and estimated generation rates of newly generated waste requiring management at Area G. The DEs associated with each closure phase will need to be assessed (on a routine basis) to accurately reflect conditions in the future (i.e., DEs within each phase are affected by on-site waste movements and off-site shipments).
- TRU waste operations will also need to complete retrieval activities within each phase. Under current planning, the retrieval sequence follows the phased approach, except as noted for Pit 9.
- Retrieving, processing, packaging, and characterizing the RH TRU waste from Shafts 200-232 may require planning, design, and construction of an onsite facility. It is anticipated that this facility would be located at the shaft field containing Shafts 200-232 (within Phases 5&6). Retrieval, processing, packaging, and characterizing the RH TRU wastes from Shafts 200-232 would occur once this facility is operational. The facility would be removed as part of D&D activities within Phases 5&6.
- In order to support ongoing LANL missions, planning, design, and construction of a new TRU waste management facility (for newly generated waste) is proposed for the TA-55/50 area. The facility is estimated to require 10,000 to 30,000 sf^2 of operating space and needs be operational in FY 2012 to accommodate newly generated TRU waste (rather than management at Area G).
- Verification/characterization and compactor operations are necessary to support LLW disposal operations in Zone 4. Currently, verification/characterization operations are located in 54-2 (within Phases 1&2) and compactor activities are located in 54-281 (within Phases 3&4). The new facilities/buildings are proposed to be located in an expanded Zone 4 area, which involves re-locating the access

control gate and adding a new access control structure. These new structures account for an estimated 6,700 to 9,700 sf^2 of new space at TA-54. The access control and verification/characterization buildings need to be complete and operational prior to the closure/D&D of structures in Phases 1&2. The compactor building needs to be operational prior to closure/D&D of structures in Phases 3&4.

- All structures at Area G (and several at the administrative area) consisting of 265,795 ft^2 will undergo closure or D&D (depending on their regulatory status). Current information regarding the existing structures at Area G (and the administration area) was compiled to assist with integrated closure activities, and includes: structure number, structure description/use, regulatory status, square footage, construction type, and structure status (RCRA closure or D&D). The closure phase and anticipated closure/D&D timeframe (based on the approach and assumptions) are also included for each structure. Structure information for Area G (and part of the administration area) is found in Appendix A2. The structure information should be maintained and routinely updated to reflect conditions in the future.
- Modifications to infrastructure (power, water (potable/fire suppression), communications (phones/data/emergency notification), roads, etc.) will be necessary as closure activities proceed through the site. Infrastructure will need to be maintained in Phases that support operations work during phased closure. Currently, it is anticipated that these modifications (although unknown at this time) will mirror the phased closure approach at the site. While these modifications are conceptual in nature, they are currently anticipated to follow closure/D&D of structures and precede construction of the cover (within each phase). Other options for resolving infrastructure modifications during closure may become apparent during future planning.

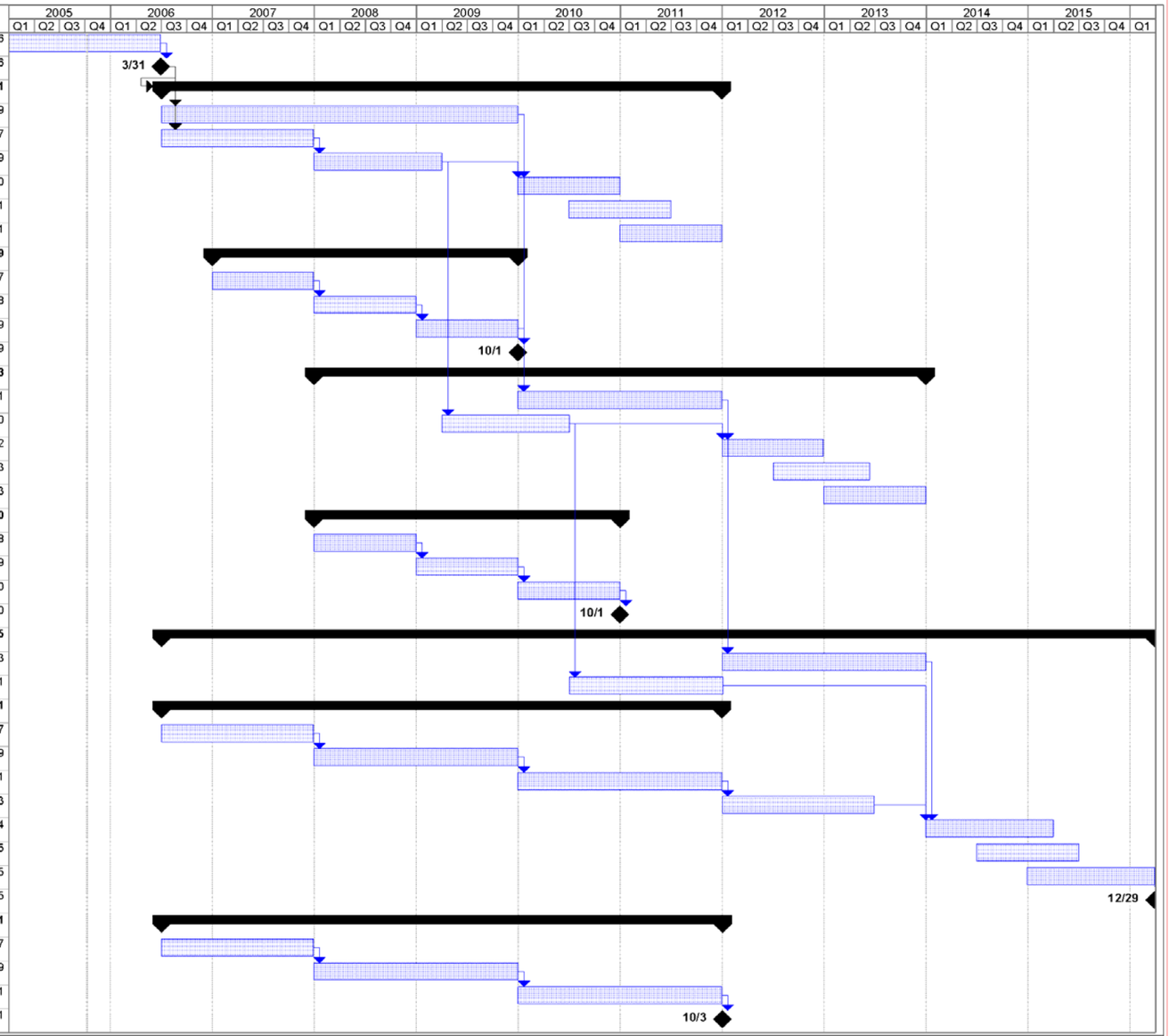
Integration of the high-level activities associated with vacating and closing Area G/MDA G is summarized in the following outline:

Activities Associated with Phases 1&2
➢ Characterize & ship 21,000 DEs (comprising the storage space associated with 54-49, -283, -153 as well as Pit 9 and Pit 29)
➢ Retrieve TRU waste from Pit 9 and the TRU waste CMPs (from Pit 29)
➢ Re-locate LLW characterization/verification operations
➢ Close/D&D 66 structures
➢ Modify infrastructure
➢ Construct cover

Activities Associated with Phases 3&4
➢ Characterize & ship 10,000 DEs (comprising the storage space associated with 54-375 and Trenches A-D) ➢ Retrieve Trenches A-D ➢ Retrieve Shafts 302-306 ➢ Re-locate LLW compactor operations ➢ Close/D&D 18 structures ➢ Modify infrastructure ➢ Construct cover
Activities Associated with Phases 5&6
➢ Characterize & ship 19,000 DEs (comprising the storage space associated with 54-229, -230, -231, -232, -226, and -48) ➢ Retrieve RH TRU waste shafts 235-243 and 246-253 ➢ Retrieve CH TRU waste shafts 262-266 ➢ If necessary, design/build/operate RH TRU Facility (at Area G) to retrieve waste from shafts 200-232 ➢ Design/build/operate TRU Facility (at TA-55/50) for newly generated TRU waste ➢ Close/D&D 31 structures ➢ Modify infrastructure ➢ Construct cover

These activities, along with the rationale and basic relationships previously outlined, have been incorporated into a conceptual timeline that is presented as Figure 4.5-1. The timeline presents the high-level activities (by phase) that are necessary to complete integrated closure activities at Area G/MDA G. Notably, since the timeline is composed of high-level activities, it is constrained only by required final completion date of December 29, 2015 identified in the Consent Order (NMED, March 2005).

ID	Task Name	Duration	Start	Finish
1	QTW activities	19.5 mons?	Fri 10/1/04	Thu 3/30/06
2	QTW complete	0.05 mons?	Fri 3/31/06	Fri 3/31/06
3	**Phases 1 & 2 Activities and Impacts**	**71.75 mons?**	**Mon 4/3/06**	**Fri 9/30/11**
4	Characterize/process/RPK/ship 21,000 DEs	45.65 mons?	Mon 4/3/06	Wed 9/30/09
5	Retrieve Pit 9	19.5 mons?	Mon 4/3/06	Fri 9/28/07
6	Retrieve CMPs (Pit 29)	16.45 mons?	Mon 10/1/07	Thu 1/1/09
7	Close/D&D 66 CSUs and structures	13.05 mons?	Thu 10/1/09	Thu 9/30/10
8	Modify infrastructure	13.05 mons?	Thu 4/1/10	Thu 3/31/11
9	Cover construction	13.05 mons?	Fri 10/1/10	Fri 9/30/11
10	**Access building & LLW Verification Facility**	**39.2 mons?**	**Mon 10/2/06**	**Thu 10/1/09**
11	Plan expansion and structures	13 mons?	Mon 10/2/06	Fri 9/28/07
12	Design expansion and structures	13.1 mons?	Mon 10/1/07	Tue 9/30/08
13	Build structures (D&D 3 structures)	13.05 mons?	Wed 10/1/08	Wed 9/30/09
14	Access control and Verification Facility complete	0.05 mons?	Thu 10/1/09	Thu 10/1/09
15	**Phases 3 & 4 Activities and Impacts**	**78.3 mons?**	**Mon 10/1/07**	**Mon 9/30/13**
16	Characterize/process/RPK/ship 10,000 DEs	26.1 mons?	Thu 10/1/09	Fri 9/30/11
17	Retrieve Trenches A-D and Shafts 302-306	16.25 mons?	Fri 1/2/09	Thu 4/1/10
18	Close/D&D 18 CSUs and structures	13 mons?	Mon 10/3/11	Fri 9/28/12
19	Modify infrastructure	12.4 mons?	Mon 4/2/12	Wed 3/13/13
20	Cover construction	13.05 mons?	Mon 10/1/12	Mon 9/30/13
21	**LLW Compaction Facility**	**39.25 mons?**	**Mon 10/1/07**	**Fri 10/1/10**
22	Plan structure	13.1 mons?	Mon 10/1/07	Tue 9/30/08
23	Design structure	13.05 mons?	Wed 10/1/08	Wed 9/30/09
24	Build structure (D&D 3 structures)	13.05 mons?	Thu 10/1/09	Thu 9/30/10
25	Compaction Facility complete	0.05 mons?	Fri 10/1/10	Fri 10/1/10
26	**Phases 5 & 6 Activities and Impacts**	**127.1 mons?**	**Mon 4/3/06**	**Tue 12/29/15**
27	Characterize/process/RPK/ship 19,000 DEs	26.05 mons?	Mon 10/3/11	Mon 9/30/13
28	Retrieve Shafts 235-243 & 246-253 and Shafts 262-266	19.6 mons?	Fri 4/2/10	Mon 10/3/11
29	**RH TRU Facility (at TA-54)**	**71.75 mons?**	**Mon 4/3/06**	**Fri 9/30/11**
30	Plan facility	19.5 mons?	Mon 4/3/06	Fri 9/28/07
31	Design facility	26.15 mons?	Mon 10/1/07	Wed 9/30/09
32	Build facility	26.1 mons?	Thu 10/1/09	Fri 9/30/11
33	Retrieve Shafts 200-232	19.5 mons?	Mon 10/3/11	Fri 3/29/13
34	Close/D&D 31 structures	16.35 mons?	Tue 10/1/13	Wed 12/31/14
35	Modify infrastructure	13.1 mons?	Mon 3/31/14	Tue 3/31/15
36	Cover construction	16.3 mons?	Mon 9/29/14	Mon 12/28/15
37	Corrective Action complete	0.05 mons?	Tue 12/29/15	Tue 12/29/15
38	**TRU Facility (at TA-55/50)**	**71.8 mons?**	**Mon 4/3/06**	**Mon 10/3/11**
39	Plan facity	19.5 mons?	Mon 4/3/06	Fri 9/28/07
40	Design facility	26.15 mons?	Mon 10/1/07	Wed 9/30/09
41	Build facility	26.1 mons?	Thu 10/1/09	Fri 9/30/11
42	TRU Facility complete	0.05 mons?	Mon 10/3/11	Mon 10/3/11



Project: Project1
Date: Fri 7/8/05

Task Progress Summary External Tasks Deadline
Split Milestone Project Summary External Milestone

Page 1

Figure 4.5-1. Conceptual Timeline for MDA G/Area G Closure Activities.

Collaborative planning efforts need to continue to define and refine these high-level activities into identifiable work scope, plans and schedules. As planning progresses, the funding responsibilities (DOE DP or EM program resources) will need to be identified (and agreed upon) in order to implement the identified work activities.

5.0 SUMMARY AND RECOMMENDATIONS

5.1 SUMMARY

This report describes the status of integrated planning activities associated with closure of Areas L and G at TA-54 at LANL, which were initiated as part of Task 2 of the TA-54 Engineering Study (LANL, April 2004). Personnel from NWIS and ENV worked together on this effort as the responsibilities for requirements and activities associated with the closure approaches developed for the study reside within both divisions. The conceptual closure activities developed and proposed as part of the TA-54 Engineering Study (LANL, April 2004) are described in "Development of Zone 4, Area G, Technical Area 54" (LANL, April 2005) and within this status report. A general overview of these activities with respect to time and location is displayed in Figure 5.1-1. Additionally, the main activities for TA-54 are shown on the foldout entitled "Conceptual Closure Activities at TA-54," which is Attachment 2.

The proposed closure approach for Area L/MDA L involves closing several aboveground CSUs, consolidating aboveground MLLW and Chem/Haz waste operations into the area unaffected by the cover, and completing corrective action for MDA L (and other subsurface units) by capping and operating a SVE system. While some of the activities and requirements associated with this approach need to be further evaluated and refined, they have been sufficiently defined for development of the relational workflow diagram and associated timeline.

Although the specific activities and requirements associated with closure at Area G/MDA G are in early stages of planning and development, the general approach involves closing the site in three phases (from west to east). Basic activities and requirements have been identified and include: completing TRU waste operations within each phase; closure of CSUs and D&D of structures by phase; re-locating LLW operations near Zone 4; establishing TRU operations near TA-55/50; modifications to infrastructure; and, completing corrective action for MDA G (and other subsurface units) by capping and operating a SVE system. Importantly, planning efforts need to continue to further develop the high-level activities into detailed plans and associated schedules.

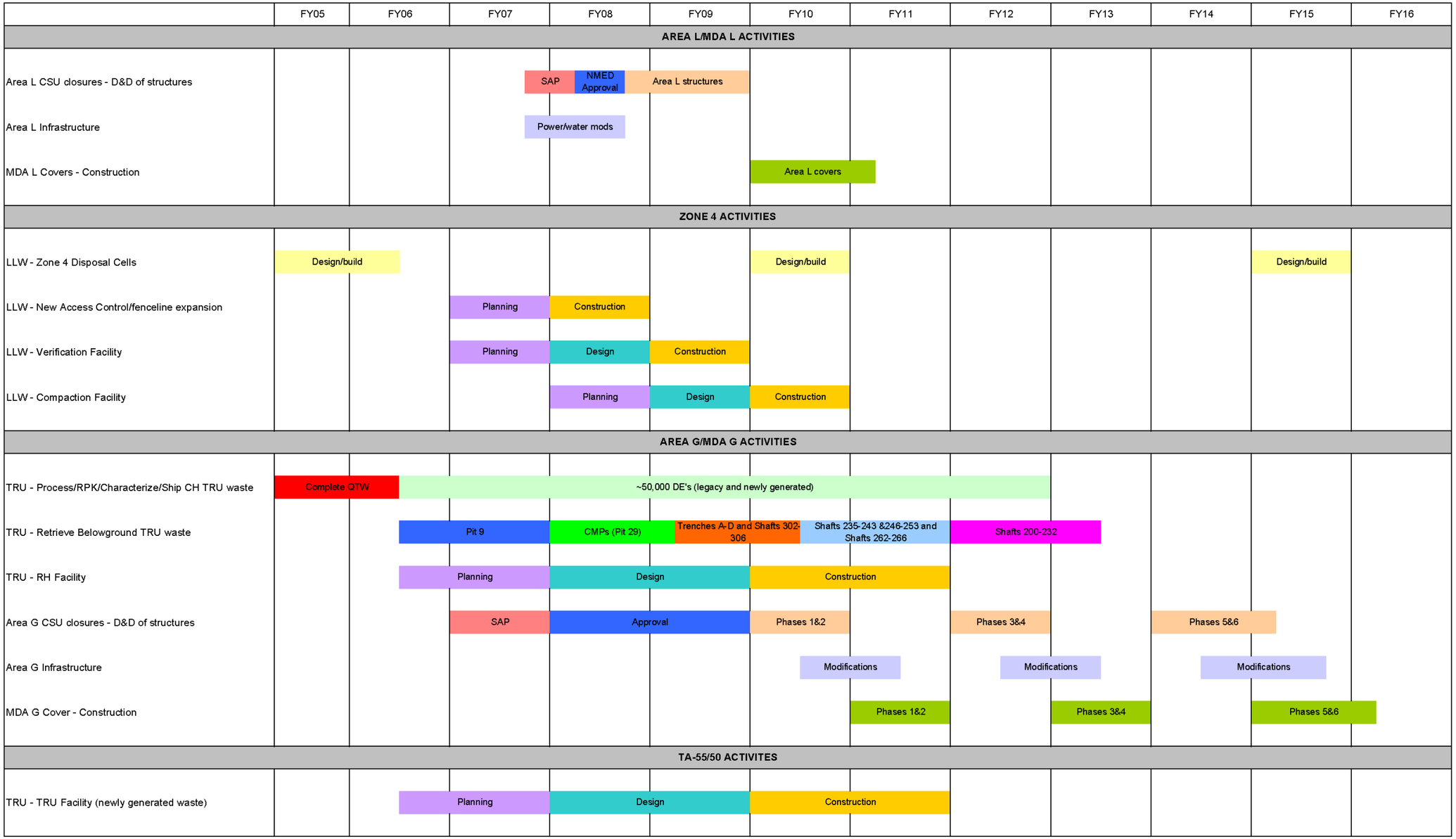


Figure 5.1-1. Overview of High-level Activities (with respect to time and location).

5.2 RECOMMENDATIONS

Recommendations to be considered as part of further planning efforts associated with closure activities at TA-54 are summarized below:

- Planning activities for Area L/MDA and Area G/MDA G need to continue and remain a collaborative effort between NWIS and ENV
- Identified activities and requirements need to be maintained and updated (as new information becomes available or as conditions change)
- Area L/MDA L activities need to be further defined, developed, and refined to improve details and overall integration
- A turn-key closure project should be considered to address all activities supporting the closure approach at Area L/MDA L; these include CSU closure, structure D&D, and cover design and construction
- A single design and construction project should be considered to address all activities associated with re-locating LLW operations from Area G; these include the fenceline and infrastructure modifications for expanding the Zone 4 area, D&D and/or re-location of several office structures, and design and construction of the LLW verification/characterization building and the compactor building
- Detailed plans for completing TRU waste operations at Area G need to developed so they can be coordinated and integrated with closure activities associated with infrastructure modifications, closure of RCRA CSUs, D&D of structures, and cover construction
- Infrastructure modifications at Area G/MDA G need to be evaluated and designed for the phased closure (as part of an engineering study)
- Traffic patterns and road improvements need to be evaluated and designed for Area G/MDA G to address traffic volumes, site access, closure and D&D activities, building construction activities, and cover construction (as part of an engineering study or traffic plan)
- A consistent cost estimating methodology for all activities needs to be established to provide reliable information for planning purposes

6.0 ACRONYMS

AB	authorization basis
AK	acceptable knowledge
AOC	area of concern
CH	contact-handled
CMP	corrugated metal pipe
CRWSS	Consolidated Remote Waste Storage Site
CSU	container storage unit

DE	drum equivalent
DOE	Department of Energy
DP	Defense Programs
DSA	documented safety analysis
DVRS	Decontamination and Volume Reduction System
DVS	Drum Venting System
EM	Environmental Management program
ENV	Environmental Stewardship Division
FRAM	Fixed-energy Response function Analysis with Multiple efficiency
FRP	fiberglass-reinforced plywood
HENC	High Efficiency Neutron Counter
HC	hazard category
HSWA	Hazardous and Solid Waste Amendments
LANL	Los Alamos National Laboratory
LLW	low-level waste
MAR	material at risk
MLLW	mixed low-level waste
MOADS	Mother Of All Database Systems
MORK	Modular Repackaging unit
MOVER	Mobile Visual Examination and Repackaging unit
MPCC	multiple purpose crate counter
NDA	nondestructive assay
NDE	nondestructive examination
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NWIS	Nuclear Waste and Infrastructure Service Division
PA/CA	performance assessment/composite analysis
PADNWP	Principal Associate Director for Nuclear Weapons Programs
PC	performance category
PCB	polychlorinated biphenyl
PID	prohibited item disposition
PMP	Project Management Plan

QTW	Quick-to-WIPP
RANT	Radioassay and Nondestructive Testing facility
RCRA	Resource Conservation and Recovery Act
RH	remote-handled
RTR	Real-time Radiography unit
SAP	sampling and analysis plan
SER	safety evaluation report
SOB	Statement of Basis
SVE	soil vapor extraction
SWB	standard waste box
SWMU	solid waste management unit
TGS	Tomographic Gamma Scanner unit
TRU	transuranic
TSDF	treatment, storage, and disposal facility
TSR	technical safety requirement
TWISP	Transuranic Waste Inspectable Storage Project
UC	University of California
USQ	unreviewed safety question
VE	visual examination
VOC	volatile organic compound
WAP	Waste Analysis Plan
WCRR	Waste Characterization, Reduction, and Repackaging facility
WIPP	Waste Isolation Pilot Plant

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8.0 APPENDICES AND ATTACHMENTS

Appendix A1. Area L Structure Information

Appendix A2. Area G Structure Information

Attachment 1: METIS® Model for Conceptual Area L/MDA L Closure

Attachment 2: Conceptual Closure Activities at TA-54

APPENDIX A1: AREA L STRUCTURE INFORMATION

Structure Number	Area	Name/Function	Sq. Footage	Construction	Regulatory Status	Closure/D&D FY	Comments/Notes
35	L	CEMENT PAD AREA L	858	Cement pad under canopy. Pad has curbs for spill control and separation.	Permitted CSU	FY08-FY09	RCRA closure
36	L	CEMENT PAD W/PERMACON EXPOSURE AREA	904	Cement pad as 35 only with a metal containment shed with negative pressure.	Permitted CSU	FY08-FY09	Relocate PermaCon to "consolidated" operations area within Area L (permit modication)
58	L	CEMENT PAD AREA L	854	Cement pad under canopy. Pad has curbs for spill control and separation.	Permitted CSU	FY08-FY09	RCRA closure
62	L	CANOPY COVERS BLDG.35,36,58 AREA	3852	Canopy similar to structure 32 covering concrete pads 35, 36, 58.		FY08-FY09	D&D
328	L/G	FIRE SUPPRESSION HOLDING TANK FOR 54-215	331	Although physically located in Area G, this fire suppression holding tank is connected to 54-215 (in Area L). Therefore, it is being associated with Area L activities.		FY08-FY09	D&D
215	L	TENSION SUPPORT STORAGE DOME	15181	Dome with concrete foundation. Tension support dome type structure. The 150-ft x 40-ft bermed storage area is situated on the paved surface of Area L directly over the location of pit A, and currently is covered by a storage dome (structure 54-215).	Interim status CSU	FY08-FY09	RCRA closure
216	L	GAS CYLINDER STORAGE CANOPY - TENSION SUPPORT DOME	3306	Canopy similar to structure 32. The storage area (structure 54-216) is situated on the paved surface of Area L and has a capacity of 1950 gal. Cylinders are stored beneath a canopy in racks or baskets along the southern and eastern fence lines in the eastern fence lines in the eastern part of Area L. The cylinders are staged here before they are transported to an off-site location for final disposition.	Permitted and interim status CSU	FY08-FY09	RCRA closure

Structure Number	Area	Name/Function	Sq. Footage	Construction	Regulatory Status	Closure/D&D FY	Comments/Notes
68	L	HAZARDOUS WASTE STORAGE SHED	181	Steel shed with containment cells for waste separation. No pad.	Permitted CSU	FY07	Relocate unit to "consolidated" operations area within Area L (permit modication)
69	L	HAZARDOUS WASTE STORAGE SHED	176	Steel shed with containment cells for waste separation. No pad.	Permitted CSU	FY08-FY09	Relocate unit to "consolidated" operations area within Area L (permit modication)
1058	L	RCT OFFICE BLDG	360	Metal trailer, temporary building.		FY08-FY09	D&D/relocate
50	L	MORGAN SHED	285	Morgan shed construction, no pad/foundation.		FY08-FY09	D&D/relocate
31	L	WASTE STORAGE SHED	178	Metal shed on concrete pad. The structure is 13.5 ft x 14.5 ft; the floor is paved, sealed, and bermed. The structure's storage capacity is 440 gal.	Permitted CSU		Remains at current location at Area L as not impacted by cover activities; possible relocation within "consolidated" operations area within Area L (permit modification)
32	L	HAZARDOUS WASTE STORAGE "Canopy Top Ops". Note that this structure includes both the canopy and the pads it covers.	2998	Canopy with iron beams set in concrete foundation. Pro-panel roof. Concrete floor. The storage area consists of a bermed and sealed concrete pad that is divided into six cells, each equipped with a secondary containment collection sump. Containers are elevated several inches above the floor by fiberglass or metal grating.	Permitted CSU		Remains at current location at Area L as not impacted by cover activities; possible relocation within "consolidated" operations area within Area L (permit modification)

Structure Number	Area	Name/Function	Sq. Footage	Construction	Regulatory Status	Closure/D&D FY	Comments/Notes
39	L	PCB WASTE STORAGE FACILITY	2173	Metal building on concrete pad with spill protection. The building is equipped with a bermed concrete floor that forms a sump with ramps at all entrances and a foam fire-suppression system with temperature sensors. The storage pad consists of bermed and sealed concrete measuring 59 ft x 17 ft; it has a roof, sheet-metal back wall, and secondary containment system.	TSCA unit; included in RCRA Permit Renewal Application		Assumed to be permitted CSU. Remains at current location at Area L as not impacted by cover activities; possible relocation within "consolidated" operations area within Area L (permit modification)
46	L	MORGAN SHED	285	Morgan shed construction, no pad/foundation.			Remains at current location at Area L as not impacted by cover activities; possible relocation within "consolidated" operations area withinArea L
55	L	OFFICE MORGAN SHED	288	Metal trailer, temporary building.			Remains at current location at Area L as not impacted by cover activities; possible relocation within "consolidated" operations area within Area L
70	L	HAZARDOUS WASTE STORAGE SHED	176	Steel shed with containment cells for waste separation. No pad.	Permitted CSU		Remains at current location at Area L as not impacted by cover activities; possible relocation within "consolidated" operations area within Area L (permit modification)

Structure Number	Area	Name/Function	Sq. Footage	Construction	Regulatory Status	Closure/D&D FY	Comments/Notes
82	L	DRUM CRUSHER BLDG/SHED	68	Morgan shed on concrete pad. The compactor is used to crush empty, discarded 30- and 55-gal. drums. The compactor uses hydraulic pressure to move, ram and crush the drums.			Remains at current location at Area L as not impacted by cover activities; possible relocation within "consolidated" operations area within Area L
37	ADMIN	ADMIN MAIN OFFICE TRAILER	547	Metal trailer, temporary building. Connected via hallway (structure 82) to structure 51.		FY08-FY09	D&D as part of fenceline modification for Area L (permit modification)
51	ADMIN	ADMIN OFFICE TRAILER	722	Metal trailer, temporary building. Connected via hallway (structure 84) to structure 60.		FY08-FY09	D&D as part of fenceline modification for Area L (permit modification)
60	ADMIN	ADMIN OFFICE TRAILER	672	Metal trailer, temporary building. Connected via hallway (structure 84) to structure 51.		FY08-FY09	D&D as part of fenceline modification for Area L (permit modification)
83	ADMIN	ADMIN PASSAGEWAY	90	Metal walled passage way connecting structures 37 and 51.		FY08-FY09	D&D as part of fenceline modification for Area L (permit modification)
84	ADMIN	ADMIN PASSAGEWAY	62	Metal walled passage way connecting structures 51 and 60.		FY08-FY09	D&D as part of fenceline modification for Area L (permit modification)

APPENDIX A2: AREA G STRUCTURE INFORMATION

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
485	G/ADMIN		DROP ARM GATE - ADMIN AND AREA G WEST ENTRANCE		Access control gate between administration area and Area G		Zone 4 (pre-Phase 1)	FY08	D&D as part of Zone 4 expansion
22	ADMIN		OFFICE TRAILER	1680	Metal office trailer on asphalt		Zone 4 (pre-Phase 1)	FY08	D&D prior to construction of new verification building; associate with Zone 4 expansion; can possibly stay in place depending on siting of new structure
64	ADMIN		OFFICE TRAILER	1680	Metal office trailer on asphalt		Zone 4 (pre-Phase 1)	FY08	D&D as part of Zone 4 expansion (new fenceline and access gate) and prior to construction of new access control building
323	ADMIN		MORGAN STORAGE (WATER) SHED	66	Morgan shed construction, no pad/foundation		Zone 4 (pre-Phase 1)	FY08	D&D as part of Zone 4 expansion (new fenceline and access gate)
368	ADMIN		STORAGE TRANSPORTAIN ER	96	Transportainer		Zone 4 (pre-Phase 1)	FY08	D&D as part of Zone 4 expansion (new fenceline and access gate)
434	ADMIN		OFFICE TRAILER	1436	Metal office trailer on asphalt		Zone 4 (pre-Phase 1)	FY08	D&D prior to construction of new verification building; assoicate with Zone 4 expansion
49	G	Pad 5, 7, 8	TENSION SUPPORT STORAGE DOME	25587	Aluminum frame, fabric construction, asphalt floor and foundation. Has power, pull station, but no phone.	Interim status CSU	1	FY09	RCRA closure

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
94	G		SURVEY SHED PEDESTAL	15	Aluminum construction, aluminum floor and foundation. No power, phone, or fire system.		1	FY09	D&D
144	G	Pad 5, 7, 8	TRITIUM STORAGE SHED	29	Steel construction, steel floor and foundation, Need to check on power. No fire system or phone.	Interim status CSU	1	FY09	RCRA closure
145	G	Pad 5, 7, 8	TRITIUM STORAGE SHED	29	Steel construction, steel floor and foundation, Need to check on power. No fire system or phone.	Interim status CSU	1	FY09	RCRA closure
146	G	Pad 5, 7, 8	TRITIUM STORAGE SHED	29	Steel construction, steel floor and foundation, Need to check on power. No fire system or phone.	Interim status CSU	1	FY09	RCRA closure
177	G	Pad 5, 7, 8	TRITIUM STORAGE SHED	29	Steel construction, steel floor and foundation, Need to check on power. No fire system or phone.	Interim status CSU	1	FY09	RCRA closure
224	G	Pad 5, 7, 8	TENSION SUPPORT STORAGE DOME	5829	Aluminum frame, fabric structure, asphalt floor, concrete foundation. Has power and fire system (pull station), but no phone.	Interim status CSU	1	FY09	RCRA closure
273	G		TRITIUM MONITORING BLDG	243	Steel construction, wood floor, steel foundation on blocks on asphalt. Has power and phone. No fire system.		1	FY09	D&D

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
283	G	Pad 6	TENSION SUPPORT STORAGE DOME	14262	Aluminum frame/fabric construction. Asphalt floor and foundation. Has power and fire system (pull station). No phone.	Interim status CSU	1	FY09	RCRA closure
302	G		FIRE PROTECTION PEDESTAL CONTROL		Steel construction, steel floor, skid on concrete pad. Has power, fire system (alarm panel), and phone.		1	FY09	
356	G		STORAGE TRANSPORTAIN ER	160	Steel construction, steel floor, on skids on asphalt. No power, fire system, or phone.		1	FY09	D&D
440	G		Transportainer	80	Transportainer		1	FY09	D&D
441	G		Tranportainer	80	Transportainer		1	FY09	D&D
444	G		Transportainer	80	Transportainer		1	FY09	D&D
445	G		Transportainer	80	Transportainer		1	FY09	D&D
465	G		FORKLIFT STORAGE TRANSPORTAIN ER	160	Transportainer		1	FY09	D&D
1027	G	Pad 5, 7, 8	MIXED WASTE STORAGE SHED -TRITIUM	199	Steel construction, steel floor, on skids. No power or phone. Has fire suppression bottle.	Interim status CSU	1	FY09	RCRA closure
1028	G	Pad 5, 7, 8	MIXED WASTE STORAGE SHED -TRITIUM	199	Steel construction, steel floor, on skids. No power or phone. Has fire suppression bottle.	Interim status CSU	1	FY09	RCRA closure
1030	G	Pad 5, 7, 8	MIXED WASTE STORAGE SHED -TRITIUM	199	Steel construction, steel floor, on skids. No power or phone. Has fire suppression bottle.	Interim status CSU	1	FY09	RCRA closure

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
1041	G	Pad 5, 7, 8	MIXED WASTE STORAGE SHED -TRITIUM	199	Steel construction, steel floor, on skids. No power or phone. Has fire suppression bottle.	Interim status CSU	1	FY09	RCRA closure
249	G		STORAGE TRANSPORTAIN ER	48	Transportainer		1	FY09	D&D as part of Phase 1 activities.
419	G		DECON TRAILER	360	Metal trailer		1	FY09	D&D as part of Phase 1 closure activities.
218	G		SEMI-TRAILER STORAGE	312	Transportainer		1	FY09	D&D as part of Phase 1 closure activities.
402	G		STORAGE TRANSPORTAIN ER	160	Transportainer		1	FY09	D&D as part of Phase 1 closure activities.
155	G		MORGAN STORAGE SHED	229	Morgan shed construction, no pad/foundation		1	FY09	D&D as part of Phase 1 closure activities.
326	G		SEMI-TRAILER STORAGE	160	Metal semi-trailer		1	FY09	D&D as part of Phase 1 closure activities.
315	G		ACCESS CONTROL/RCT SUPPORT OFFICE (AREA G)	734	Modular unit on permanent foundation; phones, computer lines, electric; fire detection system.		1	FY09	D&D prior to construction of new compactor building; assoicate with Phase 1 as same timeframe
157	G		RCT/ESH OFFICE&SUPPO RT BLDG	169	Morgan shed construction, no pad/foundation		1	FY09	D&D prior to construction of new compactor building; assoicate with Phase 1 as same timeframe
373	G		RCT SUPPLIES TRANSPORTAIN ER	189	Transportainer		1	FY09	D&D prior to construction of new compactor building; assoicate with Phase 1 as same timeframe
186	G		RCT/PPE STORAGE TRANSPORTAIN ER	22	Transportainer		1	FY09	D&D prior to construction of new compactor building; assoicate with Phase 1 as same timeframe

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
384	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
2	G		WASTE CHARACTERIZATION & OPERATIONS BLDG	1617	Steel construction, concrete floor, concrete foundation. Has phone. Need to check on power and fire system		2	FY09	D&D
11	G		WASTE OPS OFFICE CONTROL AREA of G	1136	Wood frame stucco, concrete floor and foundation. Has power. Need to check on fire system and phone. Has sewer and water hookup.		2	FY09	D&D
33	G	Pad 3	TENSION SUPPORT DOME - DRUM VENTING SYSTEM FACILITY	7854	Combination building, tension support dome (aluminum frame, fabric) with room on South side. CMU room. Concrete flooring throughout structure. Foundation is concrete. Has power, fire system (pull station, water, dry pipe), and phone.	Interim status CSU	2	FY09	RCRA closure
153	G	Pad 6	TENSION SUPPORT STORAGE DOME - FRP BOXES	18610	"Sprung" dome, tension support, asphalt pad	Interim status CSU	2	FY09	RCRA closure
156	G		RCT OFFICE MORGAN SHED	192	Steel construction, wood floor, on skids on concrete. Has power and phone. Need to check on fire system.		2	FY09	D&D
276	G		STORAGE MODULAR SHED	64	Steel construction, wood floor, skids on concrete. No power, fire system, or phone.		2	FY09	D&D

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
295	G		LLW ADMIN OFFICE-CONTROL AREA OF G	360	Trailer/modular unit		2	FY09	D&D
366	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
371	G		Morgan Shed (Break Room) Area G Control Area	160	Steel construction, wood floor, skid on concrete. Has phone. Need to check on power and fire system.		2	FY09	D&D
372	G		TRU WASTE OPS OFFICE AREA G Control Area	336	Trailer/modular unit		2	FY09	D&D
377	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
381	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
382	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
383	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
385	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
386	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
387	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
388	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
389	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
390	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
391	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
393	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
394	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
395	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
396	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
397	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
398	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
399	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
459	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
466	G		STORAGE TRANSPORTAINER	158	Transportainer		2	FY09	D&D
467	G		STORAGE TRANSPORTAINER	160	Transportainer		2	FY09	D&D
481	G		STORAGE TRANSPORTAINER-MART WASHERS	160	Transportainer		2	FY09	D&D

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
486	G		HGAS LAB - DOUBLE WIDE TRANSPORTAIN ER ENTECH AREA G	384	Steel construction, steel floor, skids. Has power, phone. No fire system.		2	FY09	D&D
491	G		HGAS EQUILIBRATION TRANSPORTAIN ERS (4)	765	Steel construction, steel floor, skids. Has power and phone. No fire system.		2	FY09	D&D
492	G		Storage Transportainer for Drum Coring Glovebox	159	Transportainer		2	FY09	D&D
8	G		DRUM HOLDING SHED	651	Steel construction, concrete floor, concrete foundation. No phone. Need to check on power, fire system.	Interim status CSU	4	FY12	RCRA closure
20	G		MECHANIC SHOP-EQUIPMENT SHELTER	680	Steel construction, concrete floor and foundation. No phone. Need to check on power, fire system.		4	FY12	D&D
92	G		Hazardous Material Storage Shed	75	Steel construction, steel floor, on skids on asphalt. No power, fire system, or phone.		4	FY12	D&D
281	G		TENSION SUPPORT DOME - LLW COMPACTER	4160	Aluminum frame/fabric construction. Need to check floor and foundation. Need to check power. Has fire system (pull station). No phone.		4	FY12	D&D
304	G		DVRS HVAC /UPS EQUIPMENT BLDG	120	Steel construction, steel floor, skid on concrete pad. Has power, but no fire system or phone.		4	FY12	D&D

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
362	G		RTR TRAILER	400	Steel construction, steel floor, trailer on wheels. Has power. Need to check fire system and phone.		4	FY12	D&D
375	G		TENSION SUPPORT STORAGE DOME	30221	Galvanized steel frame, concrete ring wall, asphalt floor	Included in RCRA Permit Renewal Application	4	FY12	Assumed to be permitted CSU; therefore RCRA closure
380	G		STORAGE TRANSPORTAINER	160	Steel construction, steel floor, on skids. No power, fire system, or phone.		4	FY12	D&D
392	G		STORAGE TRANSPORTAINER	160	Steel construction, steel floor, on skids. No power, fire system, or phone.		4	FY12	D&D
400	G		STORAGE TRANSPORTAINER	160	Transportainer		4	FY12	D&D
401	G		STORAGE TRANSPORTAINER	160	Steel construction, steel floor, on skids. No power, fire system, or phone.		4	FY12	D&D
457	G		FORKLIFT STORAGE TRANSPORTAINER	160	Transportainer		4	FY12	D&D
458	G		FORKLIFT STORAGE TRANSPORTAINER	160	Transportainer		4	FY12	D&D
475	G		Transportainer				4	FY12	D&D
476	G		DVRS STORAGE TRANSPORTAINER	160	Transportainer		4	FY12	D&D
477	G		DVRS STORAGE TRANSPORTAINER AREA G	160	Transportainer		4	FY12	D&D
572	G		STORAGE TRANSPORTAINER	160	Transportainer		4	FY12	D&D

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
573	G		STORAGE TRANSPORTAIN ER	160	Transportainer		4	FY12	D&D
229	G	Pad 9	TENSION SUPPORT STORAGE DOME	20498	Aluminum frame, fabric structure, asphalt floor, concrete foundation. Has power and fire system (pull station, dry pipe system), but no phone.	Permitted CSU	6	FY13	RCRA closure
230	G	Pad 9	TENSION SUPPORT STORAGE DOME	19695	Aluminum frame, fabric structure, asphalt floor, concrete foundation. Has power and fire system (pull station, dry pipe system), but no phone.	Permitted CSU	6	FY13	RCRA closure
231	G	Pad 9	TENSION SUPPORT STORAGE DOME	21363	Aluminum frame, fabric structure, asphalt floor, concrete foundation. Has power and fire system (pull station), but no phone.	Permitted CSU	6	FY13	RCRA closure
321	G		METAL SHED-O/S EAST END-AREA G	140	Metal shed, no pad		6	FY13	D&D as part of Phase 5/6 activities
358	G		STORAGE TRANSPORTAIN ER (INSIDE DOME 231)	160	Transportainer		6	FY13	D&D
449	G		Transportainer	160	Transportainer		6	FY13	D&D
450	G		Tranportainer	160	Transportainer		6	FY13	D&D
574	G		STORAGE TRANSPORTAIN ER	155	Transportainer		6	FY13	D&D
498	G	Pad 10	HENC TRAILER	422	Steel construction, steel floor, trailer on wheels. Has power. Need to check on fire system and phone.		5	FY13	D&D

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
48	G	Pad 3	TENSION SUPPORT STORAGE DOME	13951	Aluminum frame/fabric construction, asphalt floor and foundation. Has power, fire system (pull station), but no phone.	Interim status CSU	5	FY13	RCRA closure
226	G	Pad 1	TENSION SUPPORT STORAGE DOME	21718	Aluminum frame, fabric structure, asphalt floor, concrete foundation. Has power and fire system (pull station), but no phone. Note that there is a transformer on the east side of the structure.	Permitted CSU	5	FY13	RCRA closure
232	G	Pad 9	TENSION SUPPORT STORAGE DOME	19679	Aluminum frame, fabric structure, asphalt floor, concrete foundation. Has power and fire system (pull station), but no phone.	Permitted CSU	5	FY13	RCRA closure
242	G		OFFICE TRAILER	510	Aluminum/wood construction, wood floor, on blocks. Has power and phone, but no fire system or phone.		5	FY13	D&D
289	G		SPRINKLER RISER BLDG	240	Steel construction, concrete floor and foundation. Has power and fire system (pull station, fire water main risers). No phone. Note transformer on side of building.		5	FY13	D&D
296	G		BREAK ROOM - O/S EAST END OF G	360	Modular unit on concrete piers.		5	FY13	D&D as part of Phase 5/6 activities

Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
306	G		INDUSTRIAL HYGIENIST OFFICE BLDG	355	Wood construction, wood floors on blocks on concrete pad. Has power. No fire system or phone.		5	FY13	D&D
324	G		RCT COUNT LAB/CHANGE ROOM TRAILER-AREA G	458	Aluminum construction, wood floor, on blocks on asphalt pad. Has power and phone, but no fire system.		5	FY13	D&D
325	G		DVRS OFFICE TRAILER	996	Trailer		5	FY13	D&D
365	G	Pad 10	MOBILE TGS TRAILER	192	Steel construction, steel floor, trailer on wheels. Has power. Need to check on fire system and phone.		5	FY13	D&D
367	G		SHOWER TRAILER-O/S EAST END-AREA G	702	Steel and wood construction, wood floor, on blocks. Has power, sewer (septic)/water, and phone. Need to check on fire system.		5	FY13	D&D as part of Phase 5/6 activities
412	G	Pad 1	DVRS BLDG	13284	Aluminum frame/fabric construction, concrete floor and foundation. Has power. Has fire system (pull station, water, and dry pipe system). Has phone.	Permitted/interim status CSU	5	FY13	RCRA closure
433	G		STORAGE TRANSPORTAINER INSIDE 54-226	160	Transportainer		5	FY13	D&D
438	G	Pad 10	PORTABLE TGS TRANSPORTAINER	320	Steel construction, steel floor, on skid. Has power. Need to check on fire system and phone.		5	FY13	D&D

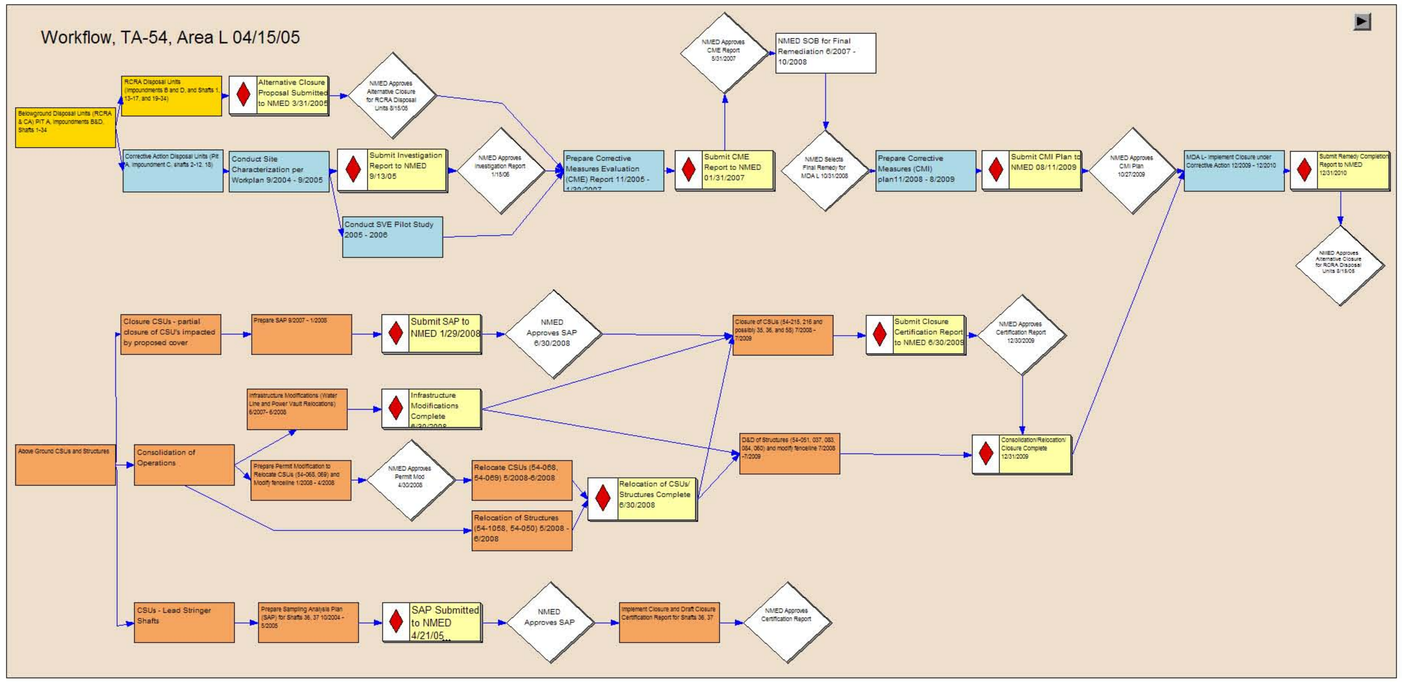
Structure Number	Area	Pad Number	Name/Function	Sq. Footage	Construction	Regulatory Status	Phase	Closure/ D&D FY	Comments/Notes
439	G	Pad 10	FRAM DRUM ASSY. TRANSPORTAINER	240	Steel construction, steel floor, on skids. Has power. Need to check on fire system and phone.		5	FY13	D&D
478	G		STORAGE TRANSPORTAINER	160	Transportainer		5	FY13	D&D
483	G	Pad 10	SOURCE STORAGE	160	Steel construction, steel floor, on skids. Has power. Need to check on fire system and phone.		5	FY13	D&D
484	G		STORAGE TRANSPORTAINER	160	Transportainer		5	FY13	D&D
487	G		STORAGE TRANSPORTAINER	210	Transportainer		5	FY13	D&D
497	G	Pad 10	RTR-2 TRAILER	408	Steel construction, steel floor, trailer on wheels. Has power. Need to check on fire system and phones.		5	FY13	D&D
506	G	Pad 10	HENC TRAILER	408	Steel construction, steel floor, trailer on wheels.. Has power. Need to check on fire system and phone		5	FY13	D&D
571	G		STORAGE TRANSPORTAINER	160	Transportainer		5	FY13	D&D

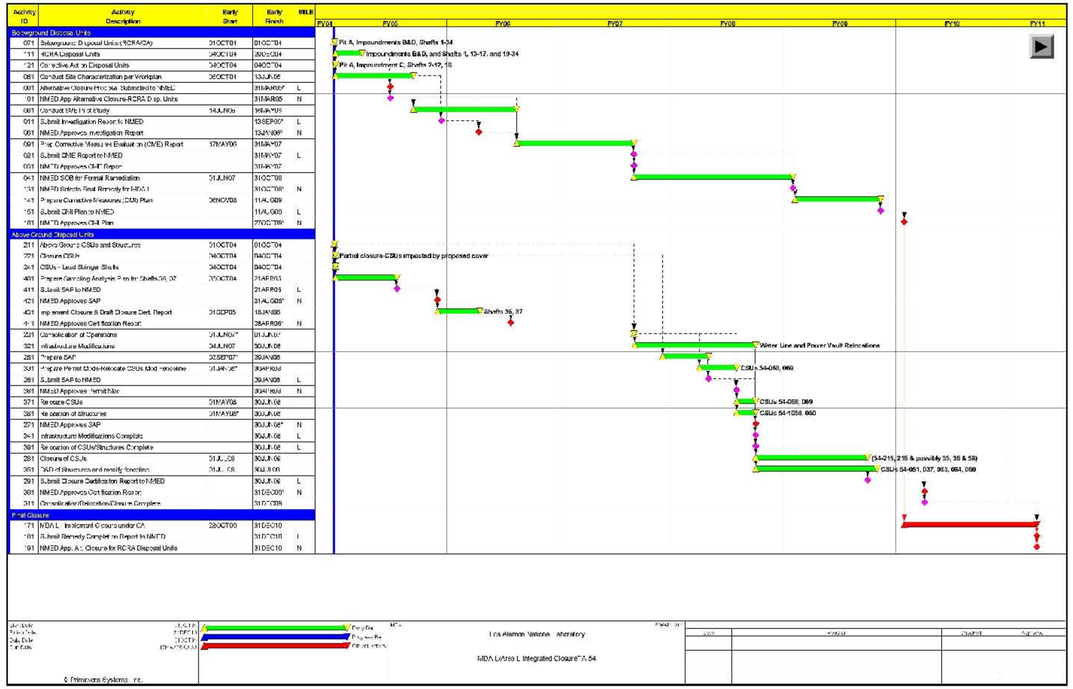
ATTACHMENT 1: METIS® MODEL FOR CONCEPTUAL AREA L/MDA L CLOSURE

ATTACHMENT 2: CONCEPTUAL CLOSURE ACTIVITIES AT TA-54

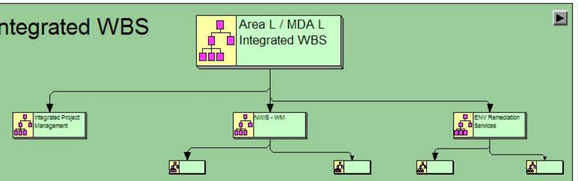
MDA L/Area L Integrated Closure Activities - Rev 2.0, 5/15/05

MDA L/Area L Closure at TA-54

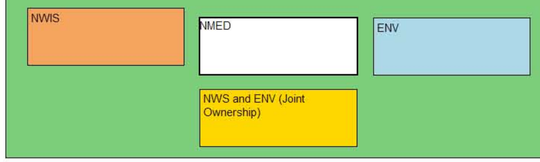




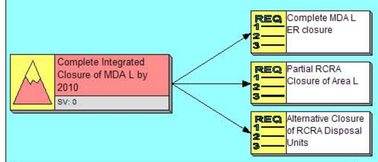
Integrated WBS



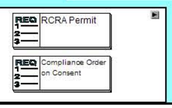
Organizations/Owners



Strategy/ Requirements



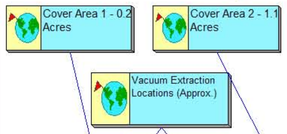
Regulations



Area L Main Menu

Physical Layout

ENV Planned Response

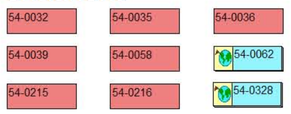


Structures

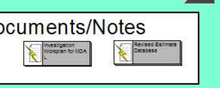
Structure Key: RCRA CSUs; Non-Regulated

Temporary

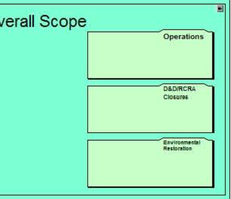
Permanent



Documents/Notes



Overall Scope



Structure Data

CONCEPTUAL CLOSURE ACTIVITIES AT TA-54

DIV-REPORT-0202, R.0, JUNE 2005

Phased Closure of Area G and Material Disposal Area G

Phases / Activity	Zone 4 Expansion	1 and 2	3 and 4	5 and 6
Characterize/Certify/Ship DEs		21,000	10,000	19,000
Closure/D&D of Structures	6	66	18	31
New Structures/Facilities	3			
Retrieve CH TRU waste		Pits 9 and 29	Trenches A -D	Shafts 262-266
Retrieve RH TRU waste			Shafts 302-306	Shafts 235-243, 246-253 Shafts 200-232

Closure of Area L (partial) and MDA L

Consolidation of Waste Operations
Closure/D&D of 8 Structures (215, 216, 328, 37, 51, 83, & 84)
Possible Closure/D&D of 4 more Structures (35, 36, 58, & 62)
Construction of MDA L Covers

New Area G gate location
Fence line Modification for Area L
MDA L Covers
Access control building
Characterization/ Verification building
New Fence line for Zone 4 expansion
Compactor building
Zone 4 LLW Disposal Area
Phase 1
TRU Storage Domes
Drum Prep Facility
LLW Characterization/Verification Building
LLW Compactor Building
TRU Storage Dome
TWISP Storage Dome
DVRS Facility
TRU Storage Dome
MLLW /TRU Storage Dome
TRU Storage Dome
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
RH Shafts 235-243 246-253
RH Shafts 200-232
CH Shafts 262-266
RH Shafts 302-306
Trenches A-D
Pit 9
Pit 29
TWISP Storage Domes
N

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Created by Adelina Martinez ENV-ECR