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in accordance with Permit Section 3.7.1 of this Permit Part and the manufacturer's specifications.

#### 3.12.3.7 Dome 224

The Permittees shall not rely on the engineered high-density polyethylene (HDPE) liner in Dome 224 as a method of secondary containment and shall instead store all hazardous waste container holding free liquids on secondary containment pallets.

## 3.13 TA-55 CONTAINER STORAGE REQUIREMENTS

The Permittees (DOE and Triad) co-operate hazardous waste management units at TA-55 and have a duty to meet the additional permit requirements in this Section.

### 3.13.1 General Operating Conditions

The Permittees shall ensure that storage of hazardous or mixed waste in containers at TA-55 occurs only in the permitted units B13, B45, B40, B05, G12, K13, the vault located at TA-55-4, TA-55-0355 Pad and the outdoor container storage pad located northwest of TA-55-4, and as identified in Attachment A (*Technical Area Unit Descriptions*) and Attachment J (*Hazardous Waste Management Units*).

## 3.14 TA-63 CONTAINER STORAGE REQUIREMENTS

The Permittees (DOE and Triad) co-operate hazardous waste management units at TA-63 and have a duty to meet the additional permit requirements in this Section.

### 3.14.1 General Operating Conditions

The Permittees shall ensure that storage and characterization of hazardous waste in containers at the Transuranic Waste Facility (TWF) occurs only on the permitted unit pad at TA-63, and as identified in Attachment A (*Technical Area Unit Descriptions)* and Attachment J (*Hazardous Waste Management Units*). This includes five storage buildings, the storage and characterization building, the characterization trailers, and the outside areas of the concrete pad within the unit boundary subject to the provisions of Permit Section 3.5.1, *Storage Configuration and Minimum Aisle Space*.

(1) The Permittees shall store all hazardous waste containers known or suspected of holding free liquids on secondary containment pallets. If containers with free liquid are stored in the characterization trailer~~s~~ without secondary containment pallets for longer than 24 hours, the Permittees shall follow the reporting conditions of Permit Section 1.9.14, Other Noncompliance.

(2) The Permittees shall not store containers with ignitable or reactive waste (E.P.A. Hazardous Waste Numbers D001 or D003) within 15 meters of the permitted unit's security barrier system shown in Figure 55 (*see* 40 CFR §264.176 and

§270.32(b)(2)).

(3) The Permittees shall only accept TRU and mixed TRU waste containers at the TWF if they are closed and equipped with filter vents approved for containers destined for the Waste Isolation Pilot Plant. The Permittees shall not open waste containers during storage or characterization at the TWF, although the Permittees may replace filter vents on TRU and mixed TRU waste containers if necessary (*see* 40 CFR §270.32(b)(2)).

(4) The Permittees shall not accept the following waste for storage at the TWF:

a. Remote-handled TRU waste

b. Waste containers that are known or suspected to contain greater than 1% free liquid, as defined in 40 CFR § 260.10

c. Mixed waste generated prior to April 21, 2011 (*see* 40 CFR §270.32(b)(2))

### 3.14.2 Retention Basin

The Permittees shall inspect the retention basin as required by Permit Section 2.6, *General Inspection Requirements*, and in accordance with Permit Attachment E, *Inspection Plan*, for evidence of contamination and deterioration during each inspection. The Permittees shall record inspection results and any remediation in the Operating Record. Any decontamination of the retention basin will be subject to the provisions of Permit Attachment D, *Contingency Plan*.

(1) The Permittees shall control run-on and run-off as specified in Permit Attachment A, Section A.6.9., *Control of Run-on/Run-off*. Run-off collected in the retention basin shall be evaluated before discharge. If the run-off is known to be or potentially contaminated with hazardous waste constituents from a spill, leak, or other release, it shall be sampled.

If sampling and analysis are required due to known or suspected contamination, the Permittees shall collect a water sample within 24 hours of discovery of the known or suspected contamination. The analytical testing shall include all appropriate methods based on the composition of waste stored at the unit. If the run-off present in the retention basin is determined to be hazardous waste, the Permittees shall implement Attachment D, Contingency Plan, and manage the waste spill as required by Permit Section D.4. The Permittees shall use the analytical results, together with information from the Operating Record, to characterize the water in accordance with Permit Attachment C, *Waste Analysis Plan*. The Permittees shall record the type and quantity of waste water present in the retention basin, the date of the incident, and the date of removal of the waste water in the Operating Record.

If the Permittees determine that the storm water is not hazardous waste, but that it is contaminated with hazardous waste constituents, the Permittees shall ensure the storm water meets the applicable clean-up requirements in Permit Section 11.4.3, *Surface Water Clean-up Levels*, prior to discharge.

If the Permittees determine that the storm water is not contaminated with hazardous waste constituents, the Permittees shall manage the storm water in accordance with *The Multi-Sector General Permit For Stormwater Discharges Associated with Industrial Activity* (MSGP) for the facility.

(2) Within 24 hours of a fire event, the Permittees shall collect a sample of fire suppression water collected in the retention basin and analyze it for any hazardous waste constituents managed at the facility. If the fire suppression water present in the retention basin is determined to be hazardous waste, the Permittees shall manage the waste water as required by Attachment D, *Contingency Plan*. The Permittees shall use the analytical results, together with information from the Operating Record, to characterize the water in accordance with Permit

Attachment C, *Waste Analysis Plan*. The Permittees shall record the type and quantity of waste water present in the retention basin, the date of the incident, and the date of removal of the waste water in the Operating Record.

If the Permittees determine that the fire suppression water is not a hazardous waste, the Permittees shall ensure the water meets the applicable clean-up requirements in Permit Section 11.4.3, *Surface Water Clean-up Levels*, prior to discharge.

# ATTACHMENT A

# TECHNICAL AREA (TA) - UNIT DESCRIPTIONS

## A.6 TA-63

The following section describes the Transuranic Waste Facility (TWF). Detailed descriptions of the unit's structures are included in the subsections. The TWF is located at TA-63 on a mesa between Ten-Site Canyon, a tributary of Mortandad Canyon, on the north and Pajarito Canyon on the south in the central portion of the Facility (*see* Figure 54 in Attachment N (*Figures*)). The unit is built at the intersection of Pajarito Road and Puye Road, within the triangle formed by Building 63-111 to the east, Puye Road to the north, and Pajarito Road to the southwest.

The TWF consists of one hazardous waste management unit that is used to store containers of newly generated hazardous, mixed low-level, and mixed TRU waste. Waste containers may be characterized at the TWF, as described in Permit Sections A.6.4 and A.6.5, and in applicable sections of Permit Attachment C, *Waste Analysis Plan*. Characterization activities at the TWF include review of generator acceptable knowledge (AK) documentation, head-space and flammable gas sampling, non-destructive assay (NDA), and non-destructive examination (NDE). Waste containers will be accepted at the TWF only if they are closed and equipped with Waste Isolation Pilot Plant (WIPP) approved filter vents. Waste containers are not opened during storage or characterization at the TWF, although their filter vents may be replaced if necessary. Remote-handled TRU waste is not managed at the TWF.

The types of waste containers holding hazardous or mixed waste that are stored at the TWF include: 55- and 85-gallon drums; 55-gallon pipe overpack containers (POCs); Standard Waste Boxes (SWBs); Oversize Waste Boxes (OWBs); and Standard Large Box 2s (SLB2s).

Some TRU waste containers are determined through final waste characterization not to meet the WIPP requirements for TRU waste. Depending on the presence of hazardous constituents, these waste containers are reclassified as either low-level waste or mixed low-level waste and stored at the TWF until they are dispositioned appropriately.

Waste shipments are made from the LANL waste generating facilities to the TWF for storage and characterization. TRU waste is then shipped to the RCRA permitted Radioactive Assay and Nondestructive Testing (RANT) Facility at TA-54-38 West. The RANT Facility is used to load the TRU waste containers into TRUPACTs (steel shipment containers) required for off-site shipment to the WIPP. TRU waste may also be shipped from TWF to the RCRA permitted TA-50-0069 Waste Characterization, Reduction, and Repackaging Facility (WCRRF) for repackaging and/or remediation of prohibited items if necessary. Low-level waste may be shipped from TWF to other LANL facilities or to off-site treatment or disposal facilities.

The TWF permitted storage unit is constructed on 1.82 acres (79,239 square feet). The layout of the unit is depicted in Figure 55. The main structure for the unit is a concrete pad providing a physical base for six waste storage buildings, a~~three~~ waste characterization trailer~~s~~, and outside storage of waste containers that are too large for placement in the buildings. The pad is surrounded by a security barrier system fence. The boundary of the hazardous waste management unit is limited to the northern portion of the concrete pad defined by those areas that drain to a retention basin. Along the northern and western sides of the unit, this is the edge of the concrete pad along the bottom of the retaining walls. On the east side, the edge of the curbing for the concrete pad is the boundary. The southern side of the boundary is defined by a painted line

in compliance with Permit Section 3.5(2), *Management of Containers.* The line is situated approximately between the south east corner of the retention basin and the curb and gutter at the opposite corner of the fence line along the eastern side of the unit. This is defined by the limits of the catchment that drains to the retention basin.

The retention basin is designed to capture storm water run-off and fire suppression water released in the event of a fire at the TWF, as described in Permit Section A.6.5.

The unit also includes a small storage building for calibration sources used for waste characterization activities. Outside the boundary of the unit, other site structures include an operations support building, a fire water storage tank, an associated utility building, a covered forklift charging station, and an equipment storage shed.

### A.6.1 Concrete Pad

The TWF pad consists of 8-inch thick reinforced concrete to provide support for the site structures and vehicle movement. The pad rests on leveled gravel base course and is nominally 8 inches thick. The existing ground at the site slopes from the northwest to the southeast. There is a significant grade difference from the northwest corner to the southwest corner of the site. Portions are lower in elevation than Pajarito Road and Puye Road. Given the elevation difference on the site, retaining walls were constructed along the northwest portion of the site. The pad is sloped in a range from 1.1% to 2.5% to drain storm water and potential fire suppression water to the retention pond.

The perimeter of the pad has a 15” to 18” gutter and 6” high curb to provide run-off control. A valley gutter isolates the northern portion of the pad. Storm water and potentially contaminated fire suppression water flow from the northern portion of the pad flows to the valley gutter that drains to the retention basin. This feature substitutes for berms, dikes, or sumps specific to each storage building. The southern portion of the pad, which is outside the hazardous waste management unit where waste is not stored, slopes to the southeast and drains off the pad toward the parking lot. Figure 55 provides details regarding the pad configuration.

### A.6.2 Storage Buildings

The TWF includes six storage buildings, five of which are functionally identical and are described in this section. The remaining storage building is described in section A.6.3. The five buildings measure 33 x 64 ft or approximately 2112 square feet, and are 15 ft high. The storage buildings provide covered storage for hazardous, mixed low-level, and mixed TRU waste containers generated during current Facility operations. Multiple buildings are used to minimize the radioactive material content in individual storage buildings and to reduce the potential impact from accidents relative to a single larger building. These five storage buildings are designated 63-0149, 63-0150, 63-0151, 63-0152, and 63-0153.

The storage buildings are constructed as covered single-story structural steel frames. Each of the storage buildings and its structural members are designed to exceed the snow load for roof design, the design wind force for buildings, and the seismic loading for structural components, as described in American Society of Civil Engineers specification ASCE 7-05, *Minimum Design*

*Loads for Buildings and Other Structures.* The steel frame is an ordinary moment frame with joists to attach roof panels and girts to attach wall panels. The walls of the facility are rigid to provide protection from the elements and external forces. Gypsum board on light gauge metal studs with industrial coating finish the interior walls. The roof is a high quality metal standing seam. Batt insulation in the ceiling and on the inside of the walls reduces heat loss and gain inside the buildings. Electric heaters heat the interior to prevent fire suppression systems and eyewash stations from freezing. Cooling is provided by venting fans. In order to drain the building in the event of a fire, the floors are constructed to provide a shallow slope (1/8 inch to 1 foot) from the back end of the building towards the front, and then out the roll-up door opening and a loading ramp to the concrete pad outside the building.

The building floors (i.e., mat slabs) are six inches higher than the outside surface of the concrete pad to prevent run-on, and are sloped toward the roll-up door at the building entrances for drainage, in accordance with 40 CFR §264.175(b)(2) and (c).

The concrete floors are coated to provide a sealed surface and chemical resistance, although secondary containment pallets are used to meet the containment requirements of the Permit for potential liquid containing waste containers in the storage buildings and in compliance with 40 CFR §264.175(b)(1). The floor coating standards include:

- Minimum Class B per National Fire Protection Association (NFPA);
- Radiation resistant as determined by American Society for Testing and Materials, International specification ASTM D 4082; and
- Decontaminable to at least 95 percent of total activity removed and certified for Nuclear Coating Service level II.

### A.6.3 Storage and Characterization Building

The sixth storage building is divided into a storage area, a staging room used for the thermal equilibrium of containers to prepare for head space gas sampling, and additional support and analytical equipment rooms. The storage area in this building is used for a variety of containers including SWBs and SLB2s. In order to accurately analyze headspace gas, the container temperature must be allowed to equilibrate to a minimum of 64 degrees Fahrenheit for 72 hours. Sampling equipment is stored in the building for use in obtaining headspace gas samples and flammable gas samples from waste containers. Gas chromatography and mass spectrometry on the flammable gas sample occurs in an adjacent room.

The building dimensions are 80 x 33 ft (approximately 2640 square feet) and 15 feet high. The building is constructed to the same standards as the other storage buildings. The building is numbered 63-0154.

### A.6.4 Characterization Trailer~~s~~

The TWF facility includes pads with utility hook-ups for the characterization trailers used to certify containers as meeting DOE WIPP waste acceptance criteria (WAC). The NDE and NDA equipment, when installed is provided for the TWF in mobile modified commercial trailers

brought to the facility. The characterization trailers will house the following characterization equipment:

- Real Time Radiography (RTR) unit. The NDE equipment in the trailer is designed to provide X-ray examination of the contents of TRU waste drums.
- High-Efficiency Neutron Counter (HENC) unit. The NDA equipment in the trailer is designed to provide a passive neutron and gamma measurement of 55-gallon TRU waste drums.
- SuperHENC unit. The NDA equipment in the trailer is similar to the HENC but includes a high efficiency neutron counter and a gamma counter that are both designed to handle SWBs.

The RTR is a self-contained, non-intrusive X-ray unit, physically housed in a trailer 48 feet in length by 8 feet wide used to X-ray waste containers up to 85 gallons in volume. Radiography is a nondestructive qualitative and semi-quantitative technique that involves X-ray scanning of waste containers to identify and verify waste container contents. Radiography is used to examine the waste container to verify its physical form. This technique can detect prohibited items such as liquid wastes and gas cylinders, which are prohibited for WIPP disposal. Radiography examination must achieve the following to meet the WIPP WAC:

- Verify and document the physical form of each waste container.
- Identify any prohibited items in the waste container.
- Confirm that the physical form of the waste matches its waste stream description (i.e., homogeneous solids, soil/gravel, or debris waste [including uncategorized metals]).

The HENC is a self-contained, non-intrusive, passive assay unit, physically housed in a trailer 48 feet in length by 8 ½ feet wide by 12 ¾ feet high. The HENC is designed to assay 55-gallon (208 liter) drums containing fissionable radionuclides. The system simultaneously performs passive neutron counts and gamma spectrometry to detect gamma-emitting radionuclides for the purpose of determining quantitative concentrations of TRU constituents. The equipment and mobile container only require electrical power to operate. Approximately 10 to 13 drums a day can be processed through the HENC, with each drum taking approximately 45 minutes for examination. The HENC is a large rectangular-shaped neutron counter that is specifically designed to assay the container in a fixed geometry. The HENC system uses passive and add-a-source neutron analysis methods to assay the nuclide mass contained in 55-gal drums of TRU waste. Waste containers to be assayed are placed on a conveyor that feeds them into the system.

The SuperHENC operates on the same principle as the HENC, within a similar tractor trailer. The process however, is applicable to the assay of TRU radionuclides in waste packages such as SWBs. Data from this process is used to assay the radioactive content of SWBs containing TRU waste, sorting SWBs based on the 100 nanocurie per gram (nCi/g) TRU limit, and confirming radioisotopes identified using acceptable knowledge (AK).

The trailer~~s~~ is ~~are~~ numbered ~~63-0155, 63-0156, and~~ 63-0157 at TA-63, and is HENC. Additional trailers may be needed as characterization needs for the facility change. If additional trailers are

needed or existing trailers are proposed to be moved at the unit, a request for a Permit modification must be submitted in accordance with Permit Section 3.1(3).

### A.6.5 Retention Basin

The retention basin is located south of the storage buildings and characterization trailers in the south-western corner of the permitted unit. The retention basin is designed to collect surface storm water or melt water run-off from the concrete pavement via the slope (ranging from 1.1% to 2.5%) of the concrete pad, and in the event of a fire at the unit, fire suppression water that could flow out of the storage buildings or from other unit structures to the concrete pad.

The designed volume capacity for the retention basin includes the potential for a combination of both events. This includes run-off from a projected 25 year frequency and 2 hour duration precipitation event (1.94 inches of precipitation resulting in approximately 95,400 gallons (12,750 cubic ft.) from 1.82 acres). For a fire suppression event, an estimate of suppression water needed is calculated from NFPA 13 factors (380 gpm for 30 min. of sprinkler demand and 500 gpm for 30 min. fire hose stream allowance), for a total of approximately 26,400 gallons (3,530 cubic ft.). Volume from both events results in a total capacity of approximately 121,800 gallons (approximately 16,300 cubic ft.). The designed total retention basin volume also includes a minimum of 0.5 ft of freeboard, resulting in a total capacity of 137,450 gallons (18,375 cubic ft.). The dimensions of the basin are 125 ft by 42 ft by 5.5 ft deep. The retention basin is equipped with a manual release valve that may be used to discharge collected water that meets appropriate surface water discharge standards, as required by Permit Section 3.14.2. The concrete mixture used for construction of the retention basin is coated with a penetrating sealant to improve the concrete's water resistance.

Routine inspections of the retention basin pursuant to Permit Section 2.6, *General Inspection Requirements* and subsequent repairs as required by Permit Section 2.6.2, *Repair of Equipment and Structures* are conducted to ensure that the integrity of the retention basin is maintained.

### A.6.6 Other Project Structures

Other project structures are present at the TWF to provide support for the hazardous waste management activities at the unit. These structures are either located outside the boundary of the hazardous waste management unit or are not used to store or manage hazardous waste.

The Operations Support Building provides offices and services for operations personnel and management. Personnel are housed in the separate building to ensure that radiological exposures are as low as reasonably achievable (ALARA) by increasing distance from the waste management activities. The Operations Support Building is approximately 75 ft by 80 ft. Operations and characterization personnel are housed in this building, although it will not be occupied continuously. However, it provides storage of waste container data and monitoring of key operational parameters (e.g., fire alarm systems, safety equipment status indicators, and communication systems including the public address system) and specific safety structure, system, and component status. The building is located outside the security control fence; windows provide visual observation of the control area.

Vehicle access to the hazardous waste management unit is through a gated driveway located east of the concrete pad. Gates are kept closed and vehicle access to the controlled area within the unit fence line requires check-in at the Operations Support Building. Pedestrian access to the controlled area also requires check-in through the Operations Support Building.

A fire water supply tank and a utility building that houses two fire water pumps and instrumentation needed to ensure operation of the fire suppression system are located to the north of the Operations Support Building outside the controlled area fence. Two seismic power cutoff system enclosures are also present north of the building. A back-up power generator is located east of the Operations Support Building.

Regional aquifer monitoring well R-46 is located outside of the hazardous waste management unit north of the site.

An equipment storage shed used to store items such as metal pallets, containers used to over-pack waste containers, and snow removal equipment is located on the west side of the TWF. There is no fire protection in this building. A separate building designated the Characterization Source and Matrix Management (CSMM) Building will house radioactive sealed sources for calibration of RTR and HENC sensors sources.

### A.6.7 Security and Access Control

The DOE restricts access to the entire Facility through a variety of methods. Guard stations control public access to Pajarito Road east and west of TA-63. Therefore, only properly identified Triad National Security, LLC (Triad) and DOE employees authorized to enter the facility or individuals under their escort have access to the TWF. The TWF is enclosed by a security barrier system with controlled access gates. This includes a continuous section of prefabricated steel vehicle barriers and an eight foot high chain link fence. Two vehicle access gates are integrated into the fence line. Controlled entry to the unit is provided by a system of access controls (badge readers and administrative controls are required prior to entrance) to ensure that only authorized personnel are granted access. Three emergency personnel one-way exit gates are also present in the fence. These access controls also ensure that all facility personnel can be identified and located in an emergency.

The TWF is patrolled by facility security personnel to prevent unauthorized entry. Warning signs stating “Danger – Unauthorized Personnel Keep Out,” are posted on the perimeter fences and gates in accordance with Permit Section 2.5.2, *Warning Signs*. The text on the signs are bilingual (i.e., English and Spanish) and indicate “No Trespassing by Order of the United States Department of Energy.” The signs are legible from a distance of 25 feet.

### A.6.8 Required Equipment

In accordance with Permit Attachment D, *Contingency Plan*, emergency equipment is located throughout the TWF and includes fire alarms, fire response systems, alarm systems, internal communications, spill kits, and decontamination equipment.

The TWF is equipped with safety-alarm systems to alert personnel in the event of an emergency and to evacuate the area. These alarm systems are located both inside and outside the unit and are

continuously monitored. The facility monitor/control system is located in the access control station at the TWF; the system is also connected to the Los Alamos County Consolidated Dispatch Center. Specific facility monitor/control system equipment located at the TWF is discussed below. Emergency equipment is located throughout the TWF and includes fire alarms, fire response systems, alarm systems, internal communications, spill kits, and decontamination equipment.

Fire-alarm pull boxes and/or drop box push-button alarms are located pursuant to NFPA standards in the TWF where waste management activities are conducted. Fire-alarm pull boxes can be used by personnel to activate a local fire alarm when a fire or other emergency is discovered. Once manually activated, an alarm will sound in the TWF access control station and at the LAFD through Los Alamos County Consolidated Dispatch Center. The TWF is also equipped with automatic fire suppression alarm systems. The fire-suppression alarms will be activated when water flow is detected in the sprinkler pipes of the fire-suppression system. Upon activation of the fire-alarm system, an alarm will sound and lights will flash to alert personnel of emergency conditions. All fire-alarm pull boxes and automatic fire-suppression systems located at the TWF are connected to the LAFD through Los Alamos County Consolidated Dispatch Center.

In addition to the alarms described above, a public address (PA) system is available to announce emergency conditions or to initiate an evacuation at the TWF. The PA system is audible throughout the TWF and is activated from the access control station in the Operations Support Building.

Personnel working at the TWF have the ability to communicate the location and nature of hazardous conditions using 2-way radios, conventional telephones, or cellular telephones to call the access control station. This type of call will summon assistance from the EO-EM, local police and fire departments, and state emergency response teams, as necessary.

Fire control equipment is readily available in the hazardous waste management unit. Portable fire extinguishers are available and may be used by trained on-site personnel depending on the size of the fire and the fuel source. However, LANL policy encourages immediate evacuation of the area and notification of appropriate emergency personnel. Fire hydrants are located in accordance with NFPA standards on the west and east sides of the TWF pad and near the Operations Building. Water is supplied to the fire hydrants by a municipal water system which can provide adequate volume and pressure (i.e., greater than 1,000 gal per minute and 90 pounds per square inch static pressure) to multiple water hoses in the event of a fire. The LAFD will supply all water hoses needed in the event of a fire at the TWF. Fire protection systems for the TWF storage buildings, including the Storage and Characterization Building 63-0154, include a dry-pipe sprinkler system for fire suppression. Water will be supplied via the 196,000 gallon tank north of the Operations Support Building with electric powered fire-water pumps, backed-up with a diesel generator to distribute water to automatic sprinkler systems in the buildings.

Spill response kits are available at the TWF in the storage areas to mitigate containable spills. These kits typically contain sorbents, neutralizers, personal protective equipment (PPE), and other equipment essential for containment of spills. Trained personnel will use the spill kits only

if the composition of the release is known and they are sure their actions will not put themselves or others at risk. In addition to the spill kits, cleanup equipment such as shovels, bags and drums are available at the TWF. Overpack drums and sorbents are also stored in an equipment storage shed on the west side of the TWF. Emergency personnel can also provide additional spill control equipment and assistance upon request depending on the size and severity of the spill. Personnel decontamination equipment at the TWF includes safety showers and eye wash stations located inside each of the storage buildings. These are situated in all waste storage buildings in accordance with OSHA requirements. Additional decontamination equipment may be provided by emergency personnel. SDS (e.g., for cleaners, solvents, used on site) are available at the Operations Support Building to provide exposure information in accordance with OSHA requirements.

### A.6.9 Control of Run-on/Run-off

Controlling run-on and run-off at the TWF locations where waste management operations occur is accomplished by the design of the buildings and the use of control structures with appropriate contouring of surface areas. Run-on of storm water into the storage buildings is prevented by walls that enclose raised floors and surface contouring that slopes away from the building to prevent storm water from pooling against the foundations, doors, and loading areas. The internal floors of the buildings are sloped toward the front doors to prevent flooding by precipitation or storm water in addition to providing internal drainage to the outside.

The concrete pad within the permitted unit at the TWF site is sloped in a range from 1.1% to 2.5% to drain storm water to the retention pond. A retention wall prevents slope failure between the surrounding roads and the site. The site is surfaced in concrete and includes a retention basin for collection and management of storm water and fire suppression water as described in Section A.6.5 above.

The secondary containment provided by secondary containment pallets has sufficient capacity to contain at least 10 % of the volume of containers or the volume of the largest container stored in the system, whichever is greater, pursuant to the requirements of 40 CFR §264.175(b)(3) and Permit Section 3.7, *Containment Systems*.

### A.6.10 Subsurface Vapor Monitoring

The Permittees shall install a subsurface vapor monitoring network consisting of a minimum of five vapor monitoring wells in the vicinity of the buildings located within the TWF facility to evaluate for vapor-phase contaminants that may migrate from MDA C. Two of the monitoring wells must be located as close as possible to the building foundations that are adjacent to the unit boundary facing MDA C and the utility corridor on Puye Road as depicted by locations VMW-1 and VMW-2 on Figure 56 in Attachment N (Figures). A third monitoring well must be located at a point on the western edge of the permitted unit as close as possible to the utility corridor on Pajarito Road as depicted by location VMW-3 on Figure 56. Two monitoring wells must be located between MDA C and Puye Rd as depicted by locations VMW-4 and VMW-5 on Figure 56. These five wells must be installed and operational within 90 days of completion of construction of the TWF buildings.

Vapor monitoring wells VMW-1, VMW-2, and VMW-3 shall be constructed with a single vapor monitoring port located in the center of a sampling interval between 5 ft and 10 ft below ground surface (bgs). Vapor monitoring wells VMW-4 and VMW-5 shall be constructed with two vapor monitoring ports located at 25 ft and 60 ft below ground surface (bgs). Boreholes will be advanced using hollow stem auger drilling methods. The vapor monitoring wells shall be constructed utilizing the same type of stainless steel (SS) tubing sampling system used at Vapor Monitoring Well 50-613183 at MDA C.

Well boreholes for VMW-1, VMW-2, and VMW-3 must be advanced to the design depth of 10 ft bgs. A continuous 0.25 inch stainless steel sampling tube with a screened end opening must then be placed in the borehole centered in the sampling interval (5 ft to 10 ft bgs) depth and clean sand filter pack added as the auger(s) are withdrawn to create a vapor permeable medium in the interval 5 ft to 10 ft bgs. The vapor monitoring wells must then be sealed with 2.5 ft of hydrated bentonite clay overlain by 2 ft of bentonite-cement grout.

Well boreholes for VMW-4 and VMW-5 must be advanced to the design depth of 67.5 ft bgs. A minimum 5 ft hydrated bentonite clay plug must be placed above and below each sampling interval. A continuous 0.25 inch stainless steel sampling tube with a screened end opening must be placed in the borehole centered in the 5-foot sampling intervals and clean sand filter pack added as the auger(s) are withdrawn to create a vapor permeable medium in the intervals from 62.5 ft to 57.5 ft bgs and 22.5 ft to 27.5 ft bgs. Bentonite chips shall fill the borehole between sampling interval hydrated bentonite plugs and from the top of the 25 ft sampling interval to 5.5 ft bgs and overlain by a 5 ft bentonite cement grout surface seal.

Final construction of the vapor monitoring wells requires the installation of above ground steel protective casings to protect the wells. The Permittees shall take measures to ensure that the surface monuments will not be damaged by snow removal or other maintenance equipment. The well surface seals must be allowed to cure for at least 24 hr before collecting vapor samples. Sampling will be performed by extracting formation air through the sand layer and into the SS tubing.

## A.7 TA-60

TA-60 sits atop Sigma Mesa between Sandia and Mortandad Canyons in the north-central part of LANL. Sandia and Mortandad Canyons head on the west margin of TA-60 forming steep cliffs at the top of the canyon walls. TA-60-0017 is located approximately 0.8 miles east of the intersection of Diamond and Enewetok Drives and adjacent to the *Roads and Grounds* area.

### A.7.1 TA-60 Building 0017

The TA-60-0017 facility was constructed in 1986 to support atomic tests conducted at the Nevada Test Site. It is a unique pre-engineered steel-frame structure consisting of two wings connected by a small control room and stairwell enclosure. The building has concrete footings, slabs, and stem walls with the south portion (permitted storage and treatment area_ being 120 ft. long b 29 ft wide and 23 ft. high. The permitted unit store containers of hazardous and mixed low-level waste in solid and liquid form. Secondary containment is used for storage of liquid wastes. Raised

# ATTACHMENT G.27
# TECHNICAL AREA 63
# TRANSURANIC WASTE FACILITY
# CLOSURE PLAN

## 1.0 INTRODUCTION

This closure plan describes the activities necessary to close the permitted mixed waste Transuranic Waste Facility (TWF) at Technical Area (TA)-63 at the Los Alamos National Laboratory (Facility) hereinafter referred to as the "Unit To Be Closed," or the "Permitted Unit." The information provided in this closure plan addresses the closure requirements specified in Permit Part 9 and the Code of Federal Regulations (CFR), Title 40, Part 264, Subparts G and I for waste management units operated at the Facility under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act.

The TWF unit will be closed by removal of all structures and equipment. Until closure is complete and has been certified in accordance with Permit Part 9.5 and 40 CFR §264.115, a copy of the approved closure plan or the hazardous waste facility permit containing the plan, any approved revisions to the plan, and closure activity documentation associated with the closure will be on file with hazardous waste compliance personnel at the Facility and at the U.S. Department of Energy (DOE) Los Alamos Site Office. Prior to closure of the unit, this closure plan may be amended in accordance with Permit Section 9.4.8 to provide updated sampling and analysis plans and to incorporate updated decontamination technologies. Amended closure plans shall be submitted to the New Mexico Environment Department (the Department) for approval prior to implementing closure activities.

## 2.0 DESCRIPTION OF UNIT TO BE CLOSED

The TWF is located at TA-63 at the junction of Pajarito Road and Puye Road, within the triangle formed by Building 63-111 to the east, Puye Road to the north, and Pajarito Road to the southwest. It was designed, constructed, and commissioned as a Hazard Category (HC)-2 nuclear facility and permitted as Resource Conservation and Recovery Act (RCRA) Storage Facility for TRU, mixed TRU and hazardous wastes. This site is shown on Permit Figure 55. Permit Attachment A.6, Technical Area (TA), Unit Descriptions contains additional site information and building numbers.

STRUCTURES THAT HAVE MANAGED HAZARDOUS WASTE TO BE REMOVED AT CLOSURE:

- Storage Buildings: 63-0149, 63-0150, 63-0151, 63-0152, and 63-0153
- Storage and Characterization Building: 63-0154
- Characterization Trailer~~s~~: ~~63-0155, 63-0156, and~~ 63-0157~~6~~
- Concrete Storage Pad

Six buildings are designated for storage of TRU and Mixed TRU wastes in support of LANL programs and missions. One of the storage structures is used for both storage of larger-sized waste containers and for head space gas sampling and analysis. Certification of containers in accordance with Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC) occurs at one~~three~~ characterization and testing trailer~~s~~. A concrete pad underlies the storage and characterization buildings and the trailer~~s~~. The boundaries of the pad will be used to designate the RCRA-permitted portion of the TWF.

OTHER TWF STRUCTURES TO BE REMOVED AT CLOSURE:

- Retention Basin
- Calibration Source and Matrix Module (CSMM) Building: 63-0158

The CSMM Building and the Retention Basin are the only structures that will be closed within the boundary of the TWF permitted hazardous waste management unit that are not used to manage hazardous waste.

## 3.0 ESTIMATE OF MAXIMUM WASTE STORED

The TWF shall not store a volume greater than 105,875 gallons of waste at any time for the lifetime of the permitted facility.

## 4.0 GENERAL CLOSURE REQUIREMENTS

### 4.1 Closure Performance Standards

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

a. remove all hazardous waste residues and hazardous constituents; and

b. ensure contaminated media do not contain concentrations of hazardous constituents greater than the clean-up levels established in accordance with Permit Sections 11.4 and 11.5. The cleanup levels for soil shall be established based on residential land use. The Permittees must also demonstrate that there is no potential to for contaminants to affect surface water or groundwater.

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

### 4.2 Closure Schedule

This closure plan is intended to address closure requirements for the permitted unit within the authorized timeframe of this Permit (see Permit Section 9.4.1). However, pursuant to 40 CFR §264.112(e), removing hazardous wastes and decontaminating or dismantling equipment in accordance with an approved closure plan may be conducted at any time before or after notification of closure. Subject to the provisions of 40 CFR §264.113(a), such removal may only occur before the end of the allowed 90 day period to remove, treat or dispose of all hazardous waste after receipt of the final volume of waste. For the purposes of this closure plan, portable and temporary structures in this permitted unit such as the characterization trailer~~s~~ is ~~are~~ considered to be equipment by their design rather than structures.

Closure activities will proceed according to the schedule discussed below and Table 1 of this closure plan. Notification of closure will occur at least 45 days prior to the start of closure activities (see 40 CFR § 264.112(d)(1)). Closure activities will begin according to the requirements of 40 CFR § 264.112(d)(2) no later than 30 days after the date on which the unit receives the known final volume of waste. All hazardous wastes will be removed from the TWF within 90 days of the receipt of the known final volume of waste pursuant to Permit Section 9.4.1, Closure Schedule, Permit Section 9.4.2, Removal of Hazardous Waste, and 40 CFR §264.113(a). A records review of the operating history of the unit shall be completed within ten days of the removal or treatment of all waste from the permitted unit as required by Permit Section 9.4.6.1, Records Review. A structural assessment of the unit will occur within ten days of the completed removal or treatment of all waste from the permitted unit as required by Permit Section 9.4.6.2,

Structural Assessment. Notification of the structural assessment (assessment), as described in Section 5.2 of this closure plan, will occur in accordance with Permit Section 9.4.6.2.

After completion of the records review and structural assessment, the Permittees shall submit an amended closure plan, if necessary, to the NMED for review and approval as a permit modification request to incorporate changes to the sampling and analysis plan. Decontamination verification sampling activities, and soil sampling, shall be conducted in accordance with this closure plan to demonstrate the closure performance standards included in Permit Section 9.2.1 have been met.

All closure activities shall be completed within 150 days of the beginning of closure activities or 180 days after the receipt of the known final volume of waste in compliance with Permit Section 9.4.1.1. The final closure report and certification will be submitted to NMED for review and approval within 60 days of completion of closure in accordance with Permit Section 9.5. In the event that the activities required under the closure plan cannot be completed within the allotted timeframe, the Permittees may request a permit modification to modify the schedule pursuant to the requirements of Permit Section 9.4.8, Amendment of the Closure Plan. In the event that closure of the TWF cannot proceed according to schedule, the Permittees shall request a time extension to complete the closure in accordance with Permit Section 9.4.1.1.

## 5.0 CLOSURE PROCEDURES

The following sections describe the procedures to be used for closure of the permitted unit. The procedures shall occur in the sequence described in this section (5), although the operating record review described in Section 5.2.1 may be started earlier.

### 5.1 Removal of Waste

In accordance with Permit Part 9.4.2, all stored hazardous waste shall be removed from the TWF for transport to WIPP in accordance with all DOE, US DOT, and WIPP shipping and transporting requirements. All hazardous-only or MLLW waste containers will be moved to a permitted on-site storage unit or a permitted off-site treatment, storage, or disposal facility.

### 5.2 Records Review and Structural Assessment

Before starting decontamination and sampling activities, the operating and inspection records for the TWF shall be reviewed and a structural assessment of the entire TWF shall be conducted to identify additional sampling locations.

#### 5.2.1 Records Review

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

a. ascertain the specific hazardous waste constituents of concern; and
b. determine additional sampling locations (e.g., locations of any spills or chronic conditions identified in the Operating Record).

#### 5.2.2 Structural Assessment

A structural assessment (assessment) of the unit's physical condition shall be conducted in accordance with Permit Section 9.4.6.2 and all observations shall be documented including any necessary

photographs and drawings. The TWF structural assessment shall include the concrete pad (as an outdoor pad defined in Section 9.1.3(1) of the Permit) and the retention basin. If the assessment reveals any evidence of a release (e.g., stains) or damage (e.g., cracks, gaps, chips) to the flooring or building materials, the Permittees must incorporate these locations as additional sampling points in the updated sampling and analysis plan (see Section 7.0) and describe the applicable sampling methods and procedures in the plan. If evidence of a release or damage is present, a wipe sample or a representative sample of the media (e.g., concrete chip) will be collected according to the procedures in Section 7.2. If additional sampling locations are necessary, the Permittees shall request a permit modification to modify the sampling and analysis plan in accordance with Permit Section 9.4.6. The locations of any additional sampling locations shall be determined in accordance with Permit Section 11.10.2.5.

## 5.3 Decontamination and Removal of Structures and Related Equipment

In accordance with the procedures in Permit Section 9.4.3, all remaining hazardous waste residues and hazardous constituents shall be removed from the TWF. The unit's structures and related equipment shall be decontaminated and removed. All waste shall be managed and characterized as necessary for disposal as required by Permit Attachment C, Waste Analysis Plan, Permit Section 9.4.5, and the LANL waste management procedures.

### 5.3.1 Removal of Structures and Related Equipment

All structures and related equipment that are removed from the unit will require no further decontamination but shall be considered solid waste and potentially, hazardous waste, as defined by this Permit, at removal. The materials shall be disposed in accordance with Permit Section 9.4.5 and Section 5.3 of this closure plan. The concrete pad, the materials associated with the pad (curbing and ramps), and a minimum of six inches of the base course and soil underlying the concrete pad shall be removed. If the remaining soil surface shows evidence that the removal to this point has not included all contaminated soils and construction materials associated with the pad, additional soil shall be removed until the conditions of Permit Section 9.2 are met. The option of removing small areas of concrete at sampling locations where contamination is suspected (i.e., spill or staining sites) to allow sampling without disturbing the surrounding area prior to the general removal of the pad may be evaluated at the time of the structural assessment. If this option is used, the concrete removed at the sampling location and any concrete subsequently removed from the location during the general removal of the concrete pad to a radius to be determined during the structural assessment shall be segregated to prevent potential cross contamination during the closure process.

### 5.3.2 Decontamination of Structures and Related Equipment

All structures and related equipment that will be re-used by the Facility will be decontaminated in accordance with Permit Section 9.4.3.1. This may include the characterization trailer~~s~~ and any associated equipment removed at closure. The lists of equipment needing decontamination shall be reviewed during the pre-closure and structural assessment described in Part 9 of the Permit.

Water resistant equipment at the permitted unit will be decontaminated by steam cleaning using water or pressure washing with a solution consisting of a surfactant detergent (e.g., Alconox®) and water. Wipe-down washing with a solution consisting of a surfactant detergent (e.g., Alconox®) and water may be conducted on equipment within the unit if containment cannot be established for collection of the steam cleaning water or pressure wash solution or these methods will damage the equipment preventing further use or recycling. The quantity of the wash solution shall be minimized by dispensing from buckets, spray bottles, or other types of containers. Cheesecloth, rags, or other absorbent materials shall be used to wipe

down the equipment after being wetted in the wash solution or after spraying solution onto the equipment. If necessary, portable berms or other devices (e.g., absorbent socks, plastic sheeting, wading pools, or existing secondary containment) designed to collect and provide containment shall collect excess wash water and provide containment during the decontamination process. Wash solutions shall not be allowed to enter the fire suppression water drains.

### 5.4 Equipment Used During Decontamination Activities

Reusable protective clothing, tools, and equipment used during closure activities shall be cleaned with an Alconox® or other NMED approved wash water solution. The solution shall be characterized and managed as a hazardous waste unless characterization demonstrates that the solution is nonhazardous. Residue, disposable equipment, and equipment that cannot be decontaminated shall be containerized and managed as waste.

## 6.0 SAMPLING AND ANALYSIS PLAN

This sampling and analysis plan (SAP) describes the sampling and analytical methods as well as the quality assurance and quality control (QA/QC) procedures that shall be used to demonstrate that the permitted unit is closed in accordance with Permit Part 9 and all applicable closure requirements.

### 6.1 Soil Sampling Locations

Soils sampling shall be conducted at the permitted unit in order to verify that the removal of structures and soils, with other closure related activities meet the closure performance standards in Permit Section 9.2, Closure Performance Standards. All samples shall be collected and analyzed in accordance with the procedures in Sections 6.2, 6.3, and 6.4 of this closure plan. Soil samples shall be collected from beneath the concrete pad of the unit and in additional sampling locations specified to meet the conditions of Permit Section 9.4.7.1.ii.

In compliance with Permit Section 9.4.7.ii, this closure plan will ensure the collection of surface soil samples in the following locations:

a. a minimum of one sample at each loading/unloading point for a total of six samples (see Permit Section 9.4.7.1.ii(1));
b. a minimum of one sample every 900 square feet of the permitted unit for a total of 88 samples (see Permit Section 9.4.7.1.ii(2));
c. a minimum of one sample at the stormwater discharge drainage location (see Permit Section 9.4.7.1.ii(3));
d. a minimum of one sample, at 30 foot intervals, along the valley gutter for a total of 4 samples (see Permit Section 9.4.7.1.ii(8)); and
e. a minimum of three additional samples along the long axis of the retention basin (see Permit Section 9.4.7.ii(5).

The above referenced soil sample locations are illustrated in Figure F-1 of this closure plan.

### 6.2 Sample Collection Procedures

Samples shall be collected in accordance with Permit Sections 9.4.7.1 and 11.10 and the procedures described in this SAP. Additional surface and subsurface samples shall be collected if contamination is

detected or if the records review or structural assessment identify the need for additional sample collection.

### 6.2.1 Liquid Sampling

Grab samples of any liquids present in the retention basin shall be collected to demonstrate that the drain system has not been contaminated. Liquid sampling shall be conducted using glass or plastic tubes, a composite liquid waste sampler, a bacon bomb sampler, or bailer. The samples shall be transferred directly from the sampler to the pre-cleaned laboratory prepared sample containers appropriate for each analytical method.

### 6.2.2 Wipe Sampling

If surface wipe samples are collected from structures or surfaces, the samples shall be collected in accordance with the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Method 9100 (NIOSH, 1994), or other approved methodology. Wipe sample methods shall be appropriate for the type of surface being sampled, the type of contaminant, and the desired method detection limits, wiping a 100 square centimeter area at each discrete location in accordance with guidance and the requirements of the analytical laboratory.

### 6.2.3 Soil Sampling

Soil shall be sampled using a spade, trowel, or other equipment as specified in approved methods for the type of analyte (i.e., EPA 1996 or 2002). At minimum soil samples shall be collected at the frequency specified in the Permit, Section 9.4.7.1.ii. The soil samples shall be collected in accordance with Permit section 11.10.2.9.

### 6.2.4 Cleaning of Sampling Equipment

Reusable sampling equipment shall be decontaminated and rinsed prior to use. Sampling equipment rinsate blanks shall be collected and analyzed if reusable sampling equipment is used. Reusable equipment, tools and, sampling equipment shall be cleaned prior to each use in accordance with Permit Section 11.10.2.11. A disposable sampler is considered clean if still in a factory-sealed wrapper. Residue and decontamination equipment that cannot be decontaminated will be containerized as solid or hazardous waste as appropriate.

## 6.3 Sample Management Procedures

Samples shall be collected and transported using documented chain-of-custody and sample management procedures to ensure the integrity of the sample and provide an accurate and defensible written record of the possession and handling of a sample from the time of collection through laboratory analysis in accordance with Permit Section 11.10.2.9.

### 6.3.1 Sample Documentation

Sampling personnel shall document all sampling, logging and field screening activities. Sample documentation will include sample identification numbers, chain-of-custody forms, analysis requested, sample descriptions (e.g., soil classification) sample logbooks detailing sample collection activities, and shipping forms (if necessary).

#### 6.3.1.1 Chain-of-Custody

Chain-of-custody procedures shall be followed until the samples are relinquished to the analytical laboratory in accordance with Permit Section 11.10.2.14.ii. The sample collector is responsible for the integrity of the samples collected until transferred. The EPA considers a sample to be in a person's custody if it is:

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

The sample collector shall document all sample collection data. Individuals relinquishing or receiving custody of the samples shall sign, date, and note the time on the analysis request/chain-of-custody form. A chain-of-custody form must accompany all samples from collection through laboratory analysis. Copies of completed original chain-of-custody form shall be returned to the Permittees by the analytical laboratory and included with the associated laboratory report attached to the Closure Report.

#### 6.3.1.2 Sample Labels and Custody Seals

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

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

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

#### 6.3.1.3 Sample Logbook

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

a. the sample location by GPS, or other NMED approved coordinates;
b. composition;
c. sample identification number;
d. volume/mass of sample taken;
e. purpose of sampling;
f. description of sample point and sampling methodology;
g. date and time of collection;
h. name of the sample collector;
i. sample destination and how it will be transported;
j. observations; and
k. names of personnel responsible for the observations.

### 6.3.2 Sample Handling, Preservation, and Storage

Samples shall be collected and containerized in appropriate pre-cleaned sample containers in accordance with the requirements specified in SW-846 (EPA, 1986 as updated) and Permit Section 11.10.2.9 for sample containers, preservation techniques, and holding times. Samples that require cooling to 4 degrees Celsius shall be placed in a cooler with ice or ice gel or in a refrigerator immediately upon collection.

### 6.3.3 Packaging and Transportation of Samples

All packaging and transportation activities shall meet U.S. DOT requirements for transport of solid, hazardous, and radioactive waste, as applicable, DOE Orders, and all other relevant local, state, and federal laws (including 10 CFR and 49 CFR).

Off-site transportation of samples shall occur via private, contract, or common motor carrier; air carrier; or freight.

## 6.4 Sample Analysis Requirements

Samples shall be analyzed for all hazardous constituents listed in Appendix VIII 40 CFR 261 and in Appendix IX of 40 CFR 264 that have been stored at the permitted unit during its operational history. Samples shall be analyzed by an independent laboratory using the analytical methods appropriate for the constituents identified in the operating record.

### 6.4.1 Analytical Laboratory Requirements

The analytical laboratory shall perform the detailed qualitative and quantitative chemical analyses in accordance with Section 6.4.2 and Permit Section 11.10.3. The analytical methods and quality control procedures shall be conducted in accordance with Permit Section 11.10.3 and specifically Section 11.10.3.1. This Closure Plan shall be updated to list the specific analytical methods used for sample analysis no less than 10 days prior to closure of the hazardous waste management unit.

### 6.4.2 Quality Assurance/Quality Control

Field sampling procedures and laboratory analyses shall be evaluated through the use of QA/QC samples to assess the overall quality of the data produced in accordance with Permit Sections 11.10.2.4.vii, 11.10.2.8.iv, and 11.10.3.1. QC samples evaluate precision, accuracy, and potential sample contaminations associated with the sampling/analysis process and are described in the following sections, along with information on calculations necessary to evaluate the QC results. Analysis will be conducted in accordance with the procedures described in SW-846 (EPA, 1986 as updated) and Permit Section 11.10.3.

#### 6.4.2.1 Field Quality Control

The field QC samples that will be collected include trip blanks, field blanks, field duplicates, and equipment rinsate blanks as required by Permit Sections 9.4.7.1(8), 11.10.2.4.vii, and 11.10.2.9(4). QC samples will be labeled with a unique sample identification number and submitted to the analytical laboratory as blind samples. QC samples will be identified on the applicable forms so that the results can be compared to the associated sample.

#### 6.4.2.2 Analytical Laboratory QC Samples

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

### 6.4.3 Data Reduction, Verification, Validation, and Reporting

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

### 6.4.4 Data Reporting Requirements

Analytical results will include all pertinent information about the condition and appearance of the sample-as-received. Analytical reports shall include the data specified in Permit Section 11.10.3.1.iv. The level II laboratory analytical data package shall be included with the closure report for the HWMU.

The laboratory shall in include a case narrative in each laboratory report for the hazardous waste management unit that identifies data quality exception corrective action taken and the effect of the data quality exceptions on the acceptability of the data.

## 7.0 WASTE MANAGEMENT

All waste generated during closure shall be controlled, handled, characterized, and disposed of in accordance with Permit Section 9.4.5, Permit Attachment C (Waste Analysis Plan), and Facility waste management procedures. Closure activities may generate different types of waste materials, which are listed with potential disposal options in Table G.27-2 of this closure plan. Subsequent disposition options for the decontaminated structures and equipment include reuse, recycling, or disposal.

Portable berms or other devices, if necessary, shall be used to collect excess wash water and provide containment during the decontamination activities to prevent releases. All wash water shall be collected, transferred to containers, sampled, and analyzed for the hazardous constituents as referenced in section 6.4 of this plan. Based on the results of the analysis, the wash water shall be managed as hazardous or non-hazardous wastewater. Reusable protective clothing, tools, and equipment used during decontamination shall be cleaned in accordance with section 6.2.4 of this plan. Disposable equipment and other small equipment that cannot be decontaminated shall be containerized and managed as waste.

## 8.0 CLOSURE CERTIFICATION REPORT

Upon completion of the closure activities at the TWF, a closure report shall be prepared and submitted to the Department. The report shall document that the unit has been closed in compliance with the specifications in this closure plan and will contain the following information in accordance with Section 9.5 of the Permit:

The closure report shall summarize all activities conducted during closure including, but not limited to, the following:

1) a summary of the site history including the waste managed at the unit and any records of spill or other incidents;

2) the results of all investigations conducted during closure following the report format set forth in Permit Section 11.12.3;
3) remediation waste management;
4) decontamination;
5) decontamination verification and soil sampling activities; and
6) results of all chemical analyses and other characterization activities;
7) a summary of all cleanup actions, including volumes of contaminated media removed and confirmation sampling results; and
8) a demonstration that the cleanup levels specified in Permit Section 11.4 and 11.5 have been achieved.

The closure report shall be submitted to the Department no later than 60 days after completion of closure of the TWF Permitted Unit. The certification must be signed by the Permittees and by an independent professional engineer registered in the State of New Mexico.

The report will document the permitted unit's closure and contain, at a minimum, the following information:

9) a copy of the certification pursuant to 40 CFR § 264.115;
10) any variance, and the reason for the variance, from the activities approved in this closure plan;
11) documentation of the structural assessment and records review conducted under this Permit Part 9;
12) a summary of all sampling results related to equipment decontamination, demolition and disposal that includes:
    a. sample identification;
    b. sampling location;
    c. data reported;
    d. detection limit for each analyte;
    e. a measure of analytical precision (e.g., uncertainty, range, variance);
    f. identification of analytical procedure; and
    g. identification of analytical laboratory;
13) a QA/QC statement on analytical data validation and decontamination verification;
14) storage or disposal locations for hazardous waste resulting from closure activities; and
15) a certification statement of the accuracy of the Closure Report.

## 9.0 DEPARTMENT CLOSURE ASSESSMENT

Upon submittal of the closure certification report described in Section 8.0 of this closure plan, the Facility shall arrange an on-site closure review with representatives of the Department to assess the completion of the closure activities of the permitted unit's closure activities.

## 10.0 REFERENCES

DOE, 1995. "DOE Methods for Evaluating Environmental and Waste Management Samples," DOE/EM-0089T, Rev. 2. Prepared for the U.S. Department of Energy by Pacific Northwest Laboratory, Richland, Washington.

EPA, 1986 and all approved updates. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA-*SW-846*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

EPA, 2002. "RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment," EPA530-D-02-002, August 2002, Office of Solid Waste, U.S. Environmental Protection Agency, Washington, DC.

NIOSH, 1994. The National Institute for Occupational Health and Safety (NIOSH) *Manual of Analytical Methods*, 4th ed. Issue 1. 1994.

**Table G.27-1**

**Closure Schedule for the TA-63 TWF**

| Closure Activity | Schedule | Basis |
|---|---|---|
| Provide closure notification to NMED | -45 | 40 CFR §264.112(d)(1) |
| Receive known final volume of waste | -30 | Permit Section 9.4.1, 40 CFR §264.112(d)(2)(i) |
| Begin closure activity – requirement to begin removal of hazardous waste from the permitted unit | 0 | Permit Section 9.4.1, 40 CFR §264.112(d)(2)(i) |
| Notification of structural assessment to NMED | 40 | Permit Section 9.4.6.2: notification to occur at least 30 days prior to the structural assessment. |
| Hazardous waste removed | 60 | Permit Section 9.4.1 and 9.4.2, 40 CFR §264.113(a): removal must be completed within 90 days of the receipt of known final volume of hazardous waste. |
| Completion of record review | 70 | Permit Section 9.4.6.1: record review will occur within 10 days of completed waste removal or treatment. |
| Completion of structural assessment | 70 | Permit Section 9.4.6.2: structural assessment will occur within 10 days of completed waste removal or treatment. |
| Completion of closure activities | 150 | Permit Section 9.4.1.1, 40 CFR §264.113(b): closure activities must be completed within 180 days of the receipt of known final volume of hazardous waste. |
| Submittal of closure report to NMED | 210 | Permit Section 9.5, 40 CFR §264.115: report submitted within 60 days of closure completion |

Note: The schedule shown represents the maximum allowable time to complete the activity.

**Table G.27-2**

**Potential Waste Materials, Waste Types, and Disposal Options**

| Potential Waste Materials | Waste Types | Disposal Options |
|---|---|---|
| Personal protective equipment (PPE) | Non-regulated solid waste | Subtitle D landfill |
| | Hazardous waste | The PPE will be treated to meet Land Disposal Restriction (LDR) treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate. |
| | Low-level radioactive solid waste | Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility. [a] |
| | Mixed waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or the WIPP, as appropriate. |
| Decontamination wash water | Non-regulated liquid waste | Sanitary sewer |
| | Hazardous waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate. |
| | Radioactive liquid waste | Radioactive Liquid Waste Treatment Facility (RLWTF) |
| | Mixed waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate. |
| Verification water | Non-regulated liquid waste | Sanitary sewer |
| | Hazardous waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate. |
| | Radioactive liquid waste | RLWTF |
| | Mixed waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate. |
| Metal | Non-regulated solid waste | Subtitle D landfill or recycled |

| Potential Waste Materials | Waste Types | Disposal Options |
|---|---|---|
| | Hazardous waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate. |
| | Low-level radioactive solid waste | Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility. [a] |
| | Mixed waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill, or WIPP, as appropriate. |
| Discarded waste management equipment | Non-regulated solid waste | Subtitle D landfill |
| | Hazardous waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate. |
| | Low-level radioactive solid waste | Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility. [a] |
| | Mixed waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate. |
| Sampling equipment | Non-regulated solid waste | Subtitle D landfill |
| | Hazardous waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate. |
| | Low-level radioactive solid waste | Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA , or an authorized off-site radioactive waste disposal facility. [a] |
| | Mixed waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate. |
| Storage Structures | Non-regulated solid waste | Subtitle D landfill |
| | Hazardous waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate. |

| Potential Waste Materials | Waste Types | Disposal Options |
|---|---|---|
| | Low-level radioactive solid waste | Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility. [a] |
| | Mixed waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate. |
| Concrete Pad | Non-regulated solid waste | Subtitle D landfill or potentially, re-use/recycle |
| | Hazardous waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate. |
| | Low-level radioactive solid waste | Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility.[a] |
| | Mixed waste | Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate. |

[a] This description of the disposal option for low level waste may be subject to revision pending the resolution of the LANL Appeal of the November 2010 LANL Hazardous Waste Facility Permit.

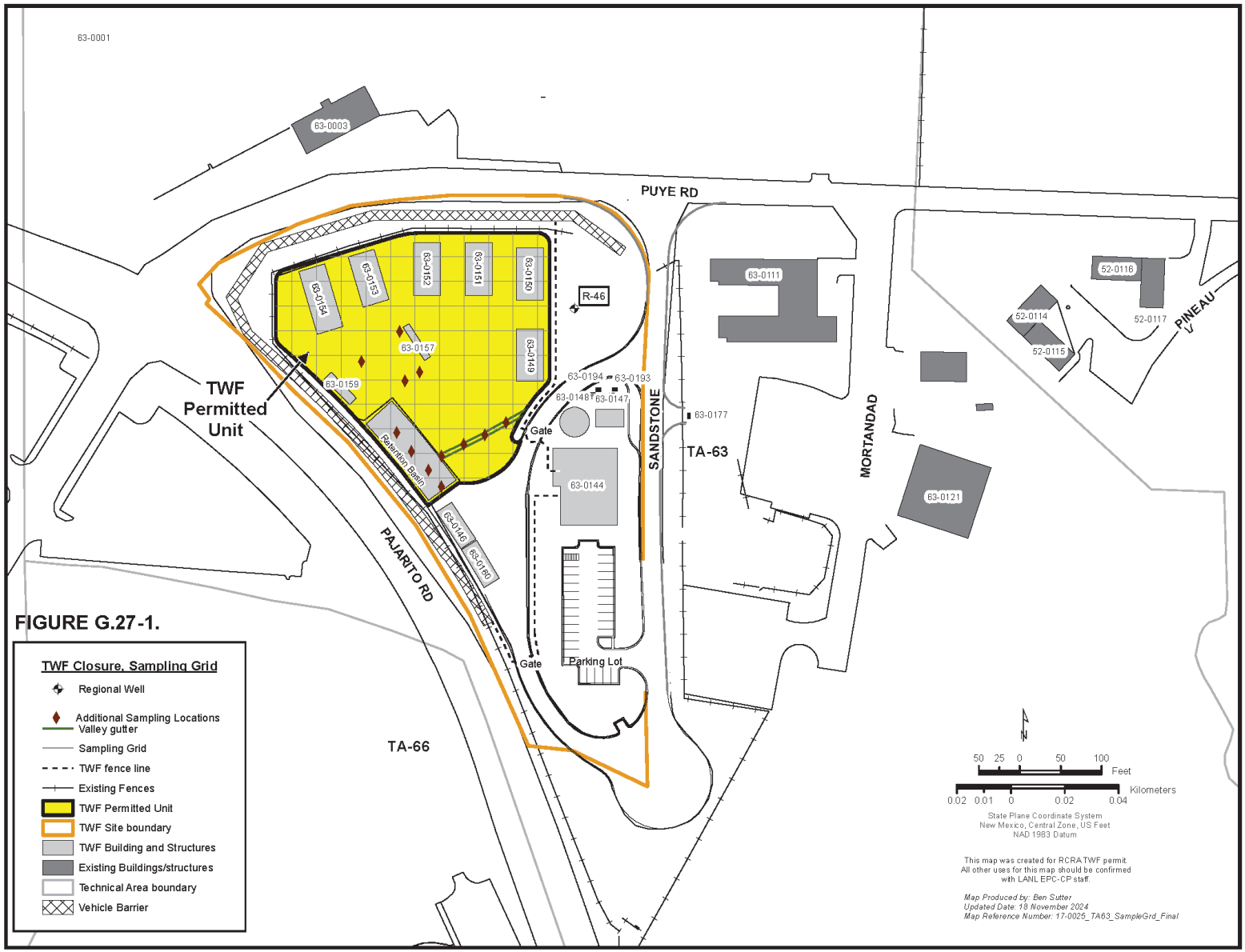
**Table G.27-3**

**Hazardous Waste Constituents of Concern at the TWF[a]**

| Category | EPA Hazardous Waste Numbers | Specific Constituents |
|---|---|---|
| Toxic Contaminants | D004 | Arsenic |
| | D005 | Barium hydroxide |
| | D006 | Cadmium |
| | D007 | Chromium |
| | D008 | Lead |
| | D009 | Mercury |
| | D010 | Selenium |
| | D011 | Silver |
| | D018 | Benzene |
| | D019 | Carbon tetrachloride |
| | D021 | Chlorobenzene |
| | D022 | Chloroform |
| | D026 | Cresol |
| | D027 | 1,4-Dichlorobenzene |
| | D028 | 1,2-Dichloroethane |
| | D029 | 1,1-Dichloroethylene |
| | D030 | 2,4-Dinitrotoluene |
| | D032 | Hexachlorobenzene |
| | D033 | Hexachlorobutadiene |
| | D034 | Hexachloroethane |
| | D035 | Methyl ethyl ketone |
| | D036 | Nitrobenzene |
| | D037 | Pentachlorophenol |
| | D038 | Pyridine |
| | D039 | Tetrachloroethylene |
| | D040 | Trichloroethylene |
| | D041 | 2,4,5-Trichlorophenol |
| | D042 | 2,4,6-Trichlorophenol |
| | D043 | Vinyl chloride |
| Volatile Organic Compounds | F001 | Spent halogenated solvents, trichloroethylene |
| | F002 | Spent halogenated solvents |
| | F003 | Spent non-halogenated solvents, xylene, acetone |
| | F004 | Spent non-halogenated solvents |
| | F005 | Spent non-halogenated solvents |
| Toxic listed waste | U080 | Methylene chloride |

[a] This will be modified as needed, based on the unit operating record.

EPA = U.S. Environmental Protection Agency


63-0001
63-0003
PUYE RD
63-0154
63-0153
63-0152
63-0151
63-0150
R-46
63-0157
63-0149
63-0159
TWF
Permitted
Unit
Retention Basin
63-0194
63-0193
63-0148
63-0147
Gate
63-0144
SANDSTONE
63-0177
TA-63
MORTANDAD
63-0111
52-0116
52-0114
52-0117
52-0115
PINEAU
63-0121
63-0145
63-0160
PAJARITO RD
Gate
Parking Lot
TA-66
FIGURE G.27-1.
TWF Closure, Sampling Grid
Regional Well
Additional Sampling Locations
Valley gutter
Sampling Grid
TWF fence line
Existing Fences
TWF Permitted Unit
TWF Site boundary
TWF Building and Structures
Existing Buildings/structures
Technical Area boundary
Vehicle Barrier
N
50 25 0 50 100
Feet
0.02 0.01 0 0.02 0.04
Kilometers
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
This map was created for RCRA TWF permit.
All other uses for this map should be confirmed
with LANL EPC-CP staff.
Map Produced by: Ben Sutter
Updated Date: 18 November 2024
Map Reference Number: 17-0025_TA63_SampleGrd_Final

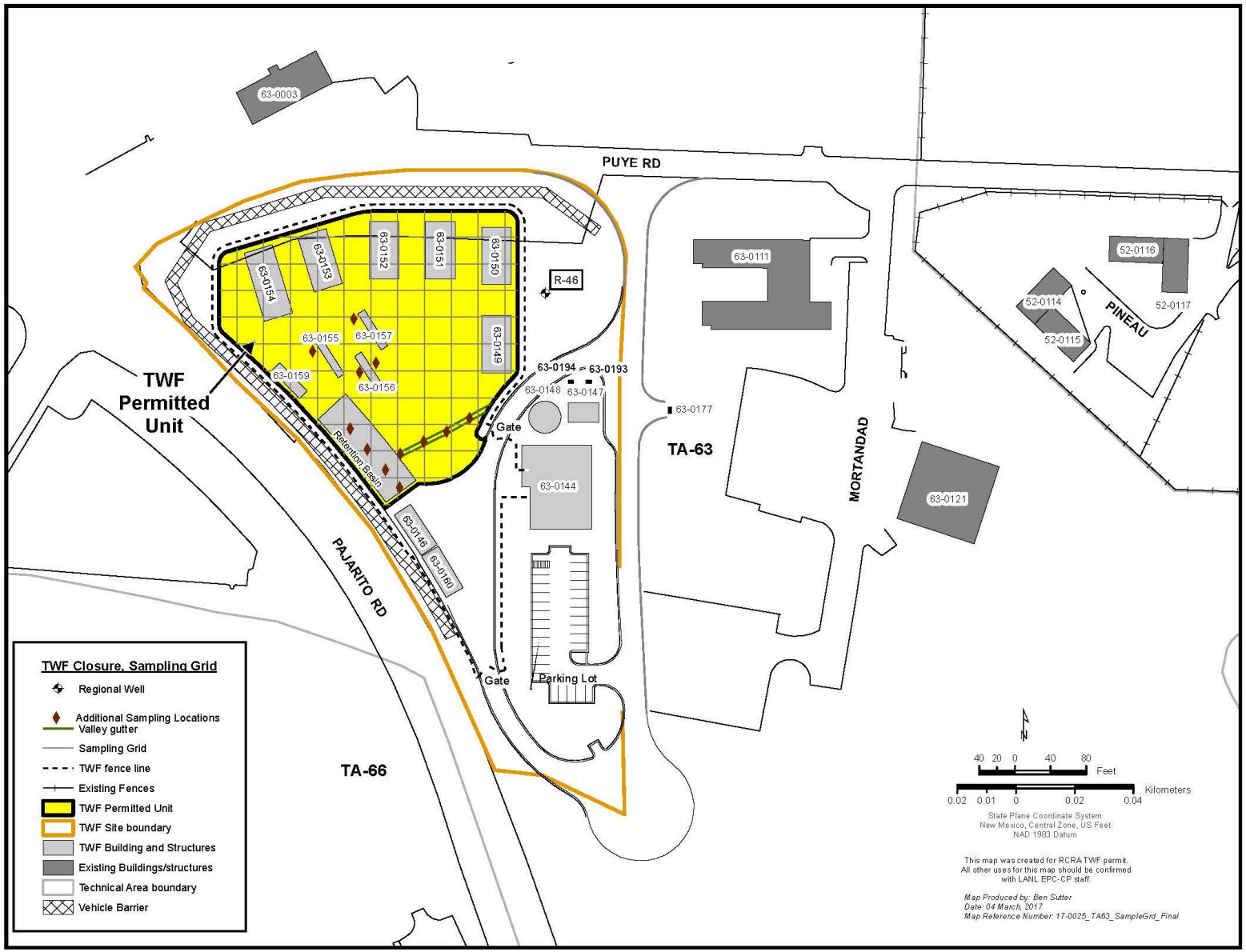



**Figure G.27-1. Transuranic Waste Facility Soil Sampling Grid**

# ATTACHMENT J

# HAZARDOUS WASTE MANAGEMENT UNITS

| Unit Identifier | Process Codes | Operating Capacity | General Information | Type of Unit |
|---|---|---|---|---|
| | T04 | 3,441 gal/day | Includes treatment process for macroencapsulation<br>Total square footage -3,480 | |
| TA-63 Transuranic Waste Facility | S01<br>T04 | 105,875 gal<br>23, 160 gal/day | Includes TA-63-0149 through 0153 Storage Buildings, TA-63-0154 Storage and Characterization Building, TA-63-~~0155 through~~ 0157 Characterization Trailer~~s~~, and Outside Storage Pad<br>Includes treatment process for macroencapsulation<br>Total square footage—79,239 | Outdoor (not associated with a regulated unit) |

## TABLE J-2

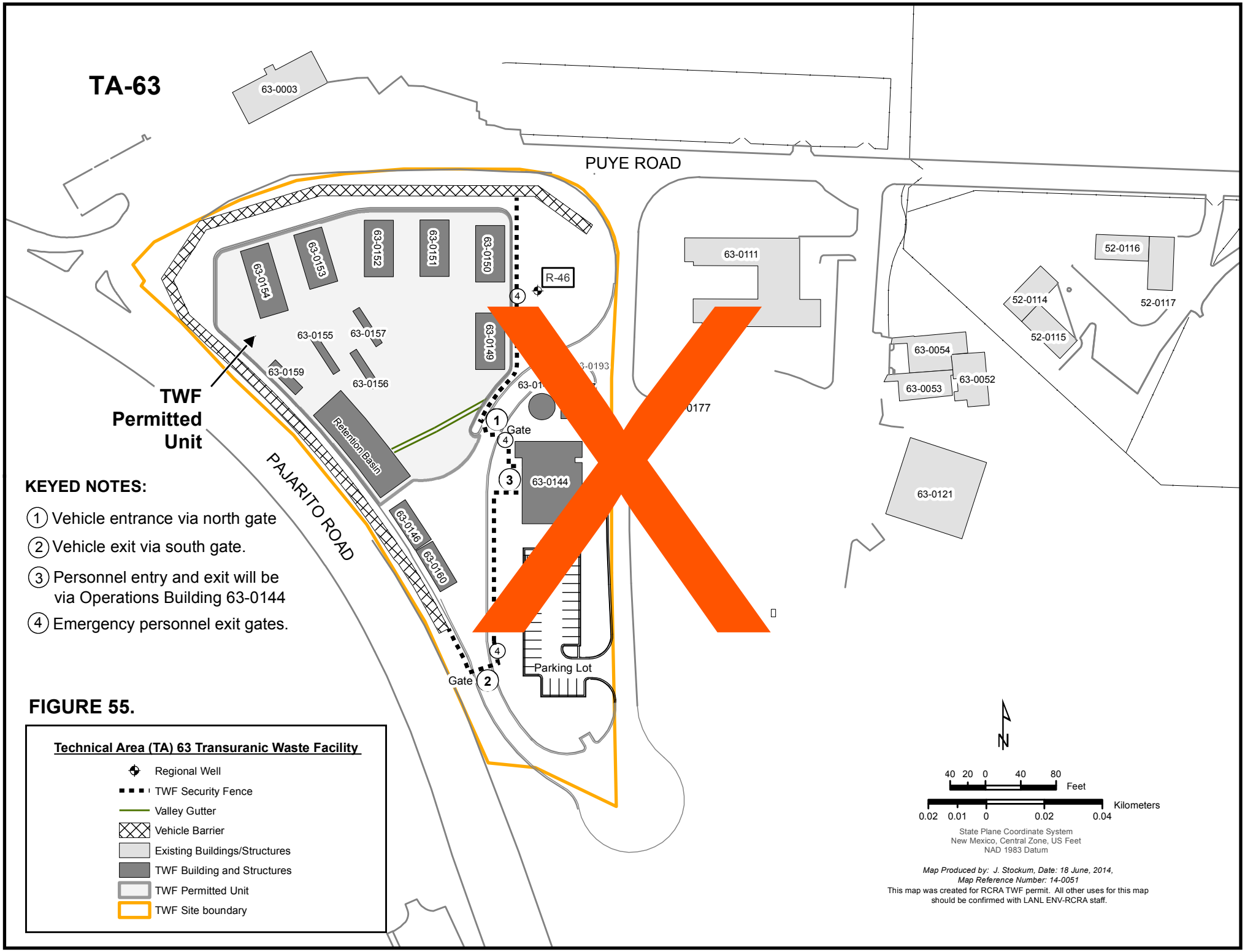
### Permitted Units Undergoing Post-Closure Care

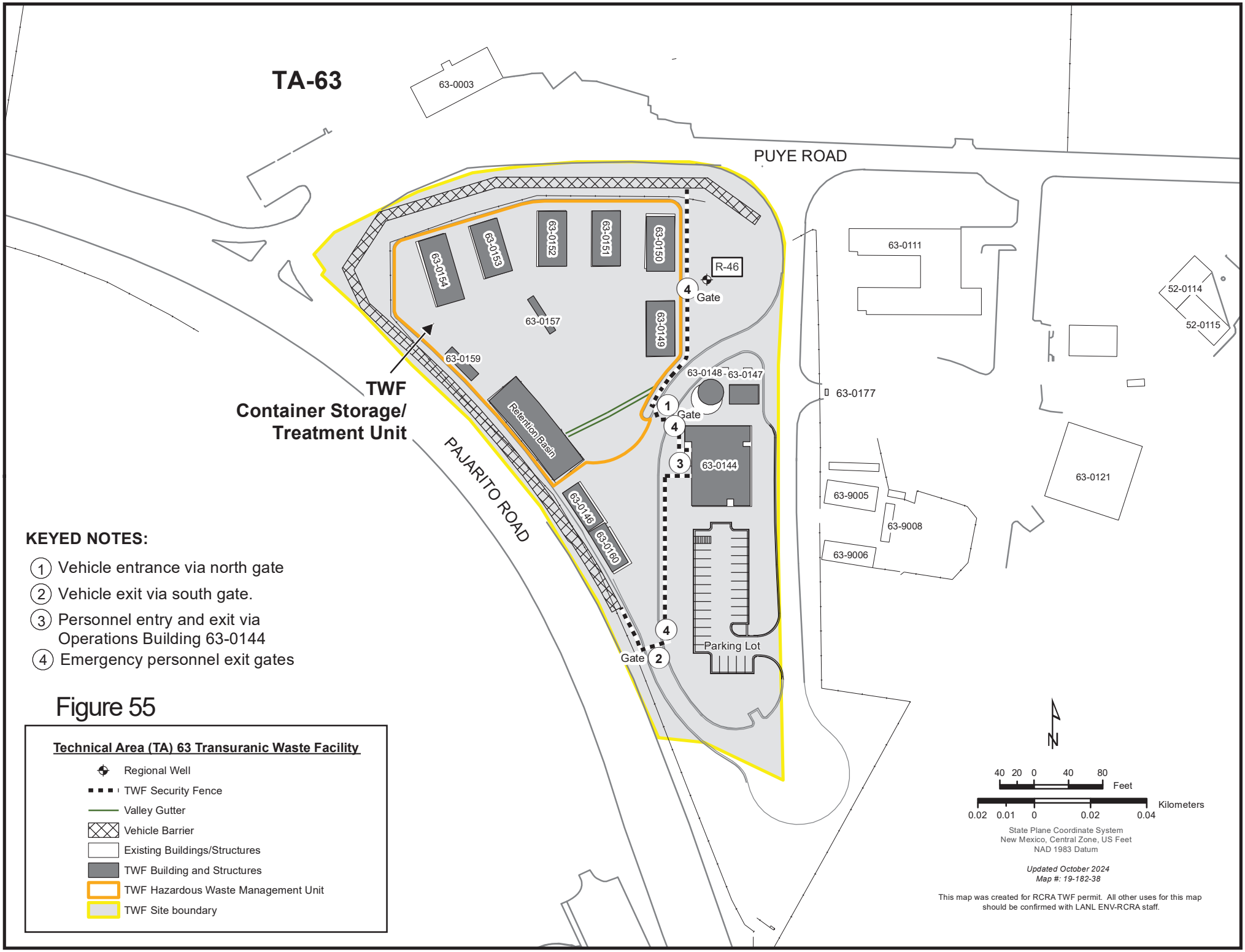
There are no units in post-closure care.

| Unit Identifier | Process Codes | Regulatory Status | Operating Capacity | General Information |
|---|---|---|---|---|
| (none) | | | | |

# ATTACHMENT N

# FIGURES


TA-63
63-0003
PUYE ROAD
63-0154
63-0153
63-0152
63-0151
63-0150
R-46
63-0155
63-0157
63-0149
63-0159
63-0156
TWF Permitted Unit
Retention Basin
PAJARITO ROAD
Gate 1
Gate 2
63-0144
63-0146
63-0160
Parking Lot
63-0111
63-0177
63-0121
63-0054
63-0053
63-0052
52-0116
52-0114
52-0117
52-0115
KEYED NOTES:
1 Vehicle entrance via north gate
2 Vehicle exit via south gate.
3 Personnel entry and exit will be via Operations Building 63-0144
4 Emergency personnel exit gates.
FIGURE 55.
Technical Area (TA) 63 Transuranic Waste Facility
Regional Well
TWF Security Fence
Valley Gutter
Vehicle Barrier
Existing Buildings/Structures
TWF Building and Structures
TWF Permitted Unit
TWF Site boundary
N
40 20 0 40 80
Feet
0.02 0.01 0 0.02 0.04
Kilometers
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Map Produced by: J. Stockum, Date: 18 June, 2014,
Map Reference Number: 14-0051
This map was created for RCRA TWF permit. All other uses for this map should be confirmed with LANL ENV-RCRA staff.


TA-63
63-0003
PUYE ROAD
63-0111
52-0114
52-0115
63-0177
63-0121
63-9005
63-9008
63-9006
63-0154
63-0153
63-0152
63-0151
63-0150
63-0157
63-0149
63-0159
63-0148
63-0147
63-0144
63-0146
63-0160
R-46
4 Gate
1 Gate
4
3
4
Gate 2
Parking Lot
Retention Basin
PAJARITO ROAD
TWF
Container Storage/
Treatment Unit
KEYED NOTES:
1 Vehicle entrance via north gate
2 Vehicle exit via south gate.
3 Personnel entry and exit via Operations Building 63-0144
4 Emergency personnel exit gates
Figure 55
Technical Area (TA) 63 Transuranic Waste Facility
Regional Well
TWF Security Fence
Valley Gutter
Vehicle Barrier
Existing Buildings/Structures
TWF Building and Structures
TWF Hazardous Waste Management Unit
TWF Site boundary
N
40 20 0 40 80
Feet
0.02 0.01 0 0.02 0.04
Kilometers
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Updated October 2024
Map #: 19-182-38
This map was created for RCRA TWF permit. All other uses for this map should be confirmed with LANL ENV-RCRA staff.

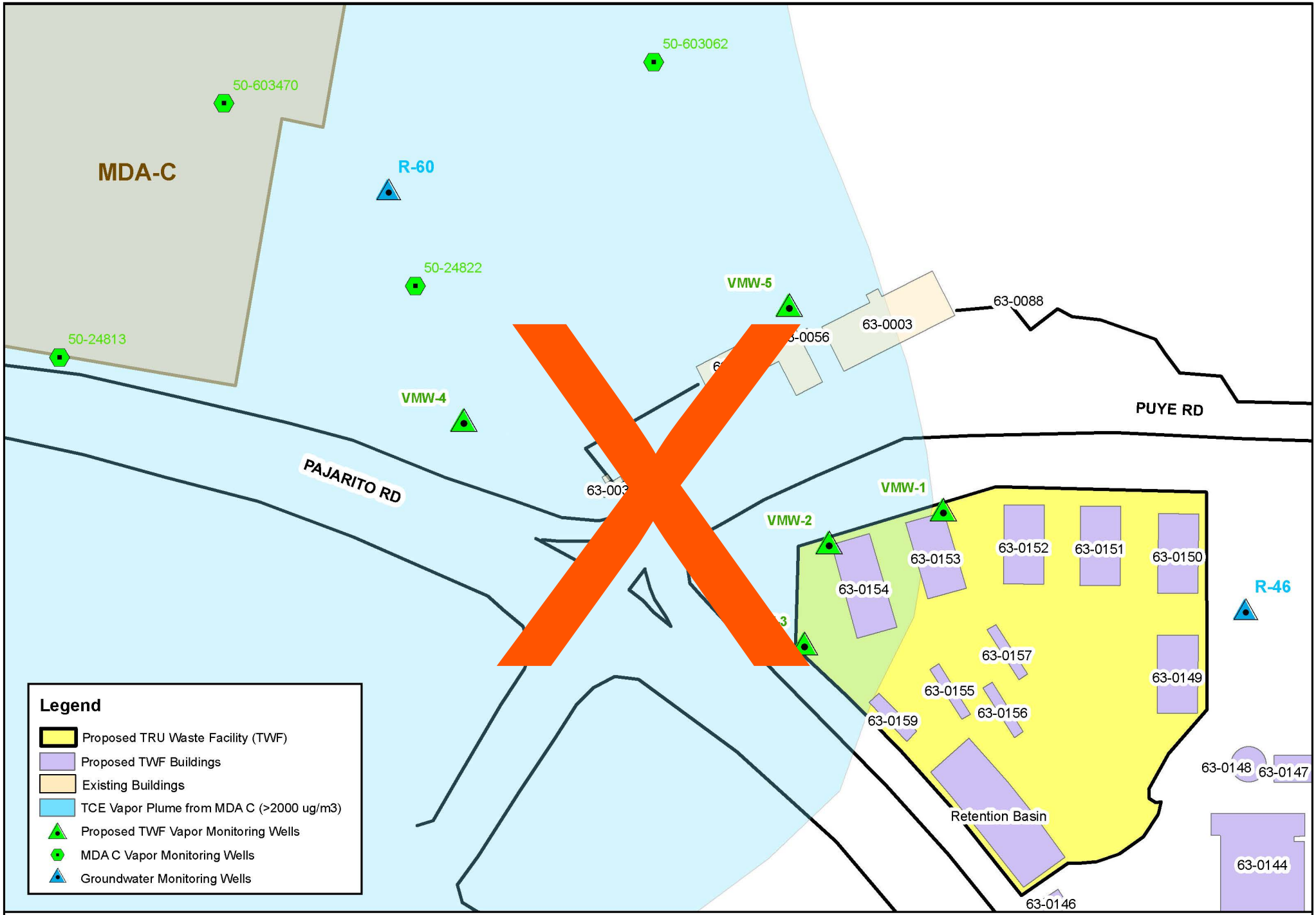



Figure 56

# Transuranic Waste Facility Subsurface Vapor Monitoring Network

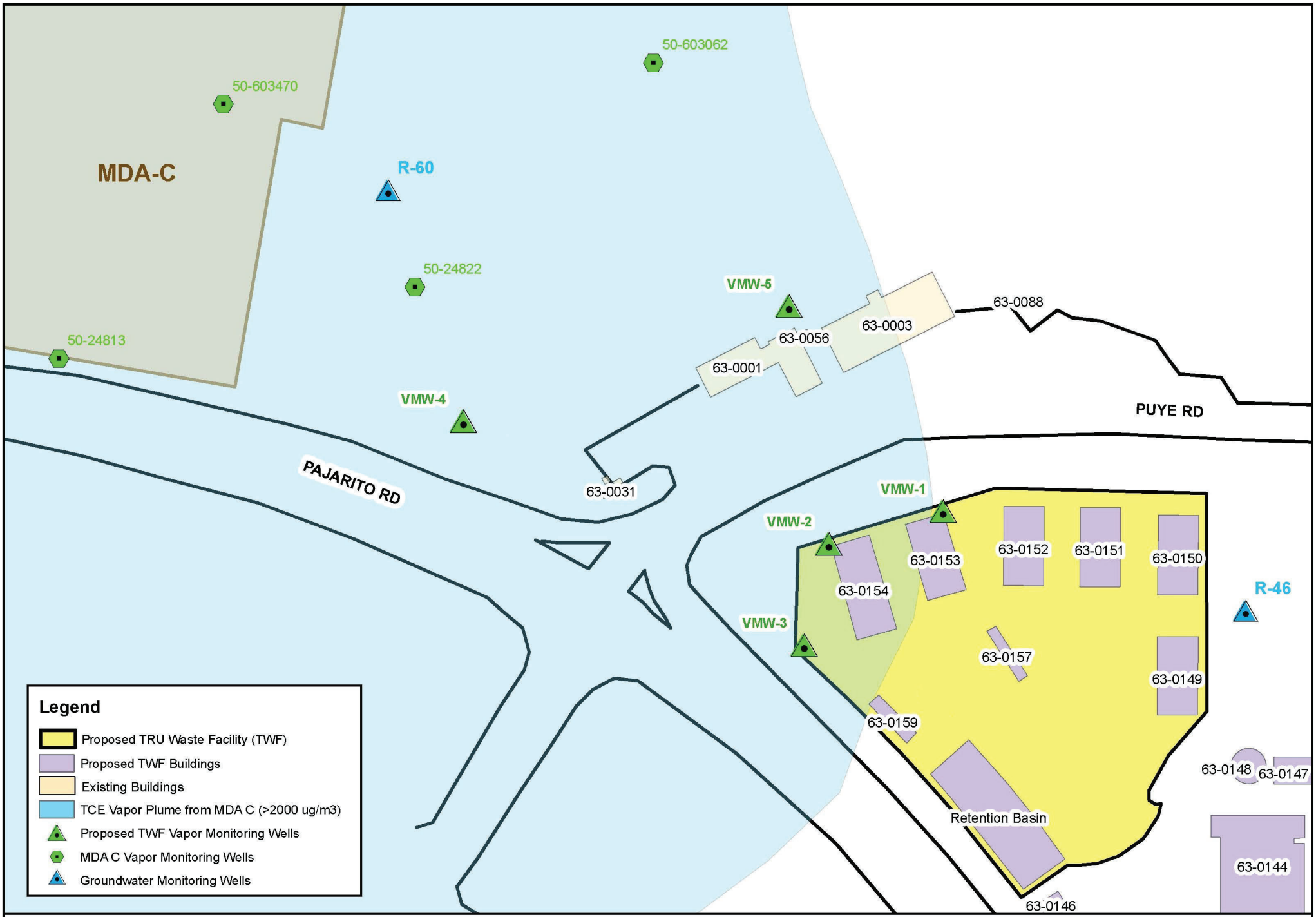



Figure 56

# Transuranic Waste Facility Subsurface Vapor Monitoring Network