

PERMIT ATTACHMENT C DESIGN AND OPERATION OF THE CONTAINER STORAGE UNIT

Detailed Design Description of the Container Storage Unit

The Container Storage Unit (CSU) operated by the Defense Re-utilization and Marketing Office (DRMO) is used for the management and storage of hazardous waste generated at HAFB (i.e., **on-site**) in containers. No tanks, waste piles, surface impoundments, incinerators, landfills, land treatment units, or miscellaneous units are managed by or used at this CSU; thus the Unit is exempt from Construction Quality Assurance Program requirements outlined in 20.4.1.500 NMAC, incorporating 40 CFR §264.19. However, this description is provided to demonstrate compliance with 20.4.1.500 NMAC, incorporating 40 CFR §264.175. The purpose of the CSU is to temporarily manage and store hazardous waste generated at Holloman AFB to allow enough time for DRMO personnel to arrange for approved contractors to accept, transport, treat, and dispose of the hazardous waste cost effectively.

Holloman AFB does not treat or dispose of hazardous waste at the CSU. No wastes are accepted from any entity not located at Holloman AFB (i.e., **off-site**). The majority of the on-site wastes accepted by DRMO are contained in 55-gallon containers. Occasionally, wastes are contained in larger containers such as 85-gallon salvage drums or self-contained packaging including lead-acid batteries or transformers.

Design of the CSU

The CSU comprises a staging area, a covered outdoor storage area, and a building that provides indoor storage capacity for wastes. The staging area, a concrete pad, is used for the initial receipt of waste from other locations at Holloman AFB. The building and covered outdoors storage area is used to temporarily store waste until an approved waste transportation contractor picks it up. The site plan layout and a floor plan are provided in Permit Attachment B, Figure B-6. Table C-1 of this Attachment provides the construction specifications for each part of the CSU.

Containment System

The containment system for each of the container storage areas (i.e., the staging area, outdoor storage area, and indoor storage building) was described in detail in Table C-1, *Container Storage Facility Construction Specifications*.

Protection from Precipitation and Run-on Controls.

**TABLE C-1.
Container Storage Facility Construction Specifications**

	Staging Area	Covered Outdoor Storage Area	Indoor Container Storage Area
Description	Upon receipt, waste temporarily retained for inspection of condition of containers and to verify accuracy of corresponding turn-in documents. The staging area is also used to load waste on vehicles that will haul it off site for treatment and disposal.	Temporarily stores waste until picked up by certified waste transportation contractor. Typically, over 80% of wastes are Class 9 solids. Reactive wastes not stored here.	Located on northwest side of staging area. Consists of primary structure and small forklift storage annex. Used for primary storage of liquid wastes.
Dimensions	30 ft by 40 ft concrete pad.	100 ft by 50 ft covered concrete pad. Roof has an outside height of 12 ft with a one to four slope leading to a center height of 18 ft 3 inches.	Metal structure is 40 ft by 50 ft with height of 14.5 ft at roof apex. Forklift annex is 12 ft by 12 ft.
Subsurface Data	95% compacted sub-base topped by six inches of granular fill.	Constructed on 95% compacted soil.	Developed on 95% compacted sub-base topped by well-graded sand and gravel fill.
Structural Description and Materials of Construction	The pad and surrounding two-inch curb were developed from a continuous pour of cement reinforced with rebar. As cracks and gaps appear, they are filled with non-shrink grout and sealed with a lacquer sealant to ensure that the pad remains sufficiently impervious to contain leaks, spills, and accumulated precipitation.	Floor consists of a 6-inch thick concrete slab with welded wire mesh reinforcement. Monolithically poured slab cut with contraction joints. Joints filled with a cold-poured joint compound. Covering is a pre-engineered metal cover. Consists of steel roof panels and a ridge cap along the roof's center. No walls allowing for ventilation and a reduction of wind load.	Divided into cells designed for storage of separate waste types (e.g., ignitable and reactive). Each cell consists of concrete floor, masonry walls, and floor sump to contain liquid spills. Exterior walls and roof constructed from steel-sheet siding. Monolithic slab, perimeter curb, and cell dividing wall curbs. Six-inch slab constructed from Type II (sulfate resistant) Portland cement. Six-ft high masonry block walls used to segregate cells. Floor and curb sealed with standard vinyl-acrylic lacquer-type sealant.
Settlement Potential/ Load-bearing Capacity	28-day compressive strength of the concrete exceeded 4,000 pounds per square inch (psi).	28-day compressive strength of 4,000 psi. Metal building consists of an 80 miles per hour (mph) wind load and a 20 pounds per square foot (psf) live load.	28-day compressive strength of 4,000 psi. Design loads for metal building consist of 80 mph wind load and 20 psf live load.
Drainage, Run-on, and Run-off Controls	Sloped from side to center and north to south to promote drainage of leaks, spills, or precipitation to a pre-cast impervious sump. The sump is located inside the southeast curb. Containers placed on pallets to prevent contact with precipitation, spills, or leaks. Pad surrounded by 2-inch curb to prevent run-on.	Gutters run length of the building on both sides of the roof with down spouts located at each of the 10 columns. Accumulated precipitation or spills removed with wet vacuum or pump. Any spilled material pumped out is containerized for proper disposal.	No drainage lines exit building. Six-inch curb and building structure prevent run-on and run-off. Each cell equipped with container storage rack that elevates containers from floor preventing containers from contacting spilled or leaking material.
Containment System Capacity	Sump dimensions equal 2 ft by 8 ft by 4 ft; capacity equals approximately 420 gallons. Total capacity of sump and staging area exceeds 2,500 gallons. ¹ Maximum of 5,500 gallons (approximately 100 55-gallon drums) held at any one time. This is well within maximum allowed capacity in 40 CFR 264.175.	Curbing along outside perimeter provides containment capacity up to 17,600 gallons (2,500 ft ³ ; 100 ft by 50 ft by 6 inches). ² No more than maximum of 27,500 gallons including solids and liquids (approximately 500 55-gallon drums) held at one time.	Containment sumps for storage cells provide containment capacity of approximately 430 gallons. Containment system for each cell designed to hold at least 10% of wastes that can be accommodated in the unit. ³ No more than 880 gallons (approximately 16 55-gallon drums) held in each cell at any one time. Typically, no more than eight 55-gallon containers placed in metal racks located in each cell. Two sumps located at forklift entrances each have containment capacity of approximately 480 gallons.
Segregation of Incompatibles	Secondary containment, such as containment pads, used to contain all liquid wastes.	Reactive wastes not stored here. Liquid wastes typically stored indoors.	Segregation of incompatible wastes provided by facility layout. Each cell designated for management of specific waste type, and posted signs indicate waste to be stored in that location. ⁴ Secondary containment sump designated to each cell prevents incompatible wastes from mixing in case of leak or spill.

Notes:

- ¹ 40 CFR 264.175 requires that the containment system be designed to contain 10% of the volume of containers holding free liquids or the volume of the largest container holding free liquids. Typically, the largest containers holding liquids that are placed in this area are 55-gallon drums. However, other container sizes may be present, including 85-gallon salvage drums. The containment system for the staging area is designed to hold at least 10% of the wastes that can be accommodated in the unit.
- ² 40 CFR 264.175 requires that the containment system be designed to contain 10% of the volume of containers holding free liquids or the volume of the largest container holding free liquids. Typically, the largest containers to be placed in this area are 55-gallon drums.
- ³ 40 CFR 264.175 requires that the containment system be designed to contain 10% of the volume of containers holding free liquids or the volume of the largest container holding free liquids. Typically, the largest containers to be placed in the storage cells are 55-gallon drums. However, larger containers are occasionally placed in these cells such as 85-gallon salvage drums.
- ⁴ Figure D-1 provides example layout for segregation of wastes. Figure D-1 indicates certain cells may be used to store several waste types, but only one of designated wastes may occupy cell at any given time. This storage procedure allowed because wastes designated for such a cell are compatible with each other and wastes stored in adjacent cells. Organization of containers varies depending on wastes type and volume.

The maximum precipitation received at HAFB, including the CSU area during a 24-hour, 44-year storm event equals 2.1 inches. Since the average annual evaporation rate in the area is approximately 70 inches and the average annual rainfall is approximately 11 inches, generally there is no problem with accumulation of precipitation in any part of the CSU.

Much of the hazardous waste shall be stored in the indoor container storage building. The enclosed nature of this building prevents entry of precipitation or run-on. Additionally, precipitation and run-on are prevented from entering the structure by the curb on which the building rests. A 2 ft to 3 ft wide clear zone that slopes away from the building provides additional protection from run-on.

The sloped clear zone that surrounds the indoor container storage building extends to surround the staging area and directs run-off away from the staging area. Precipitation in the staging area collects in the sump and can be vacuumed or pumped out. It is highly unlikely that an accumulation of precipitation combined with a spillage of waste would occur simultaneously. Also, based on precipitation data, it is highly improbable that the containment capacity in the staging area would ever be inundated to the point that precipitation would run off to the surrounding area. The primary provisions for exclusion of precipitation or run-on from the current outdoor storage area are the 6-inch high curbs that encircle it and the sloped 2 ft to 3 ft clear zone that surrounds the area to direct run-off away from the pad.

Management of Accumulated Liquids.

Accumulated liquids other than precipitation in the containment area in the outdoor covered storage building or the sump in the staging area shall be managed in a manner that is protective of human health and the environment. Accumulated liquids are considered to result from spillage until proven otherwise. Thus, upon discovery, DRMO personnel will notify the Holloman AFB Fire Department. The Fire Department then has the primary responsibility to remove, clean up, and/or manage any liquid spills that are toxic or assumed to be toxic. The Fire Department will work with the Spill Response Team if necessary.

Operating Hours

The DRMO maintains regular operating hours. During operating hours DRMO personnel are available to receive hazardous waste from less than 90-day accumulation sites and initial/satellite accumulation points located on Holloman AFB.

OPERATING PROCEDURES

Initial Waste Receipt and Confirmation

When containerized hazardous and nonhazardous waste is received from Base accumulation areas, including less than 90-day accumulation sites and initial/satellite accumulation points, the containers shall be placed in the staging area to facilitate inspection of the containers. DRMO personnel shall verify that the turn-in documentation and labeling information (e.g., proper shipping name, warning labels) is accurate. If the information on the container label does not match the information on the turn-in documents or if the container is not in good condition (e.g., rusted, dented), DRMO personnel shall refuse to accept the waste until the problem is corrected by Holloman AFB CEV and/or the generating activity.

Waste Staging

All wastes shall be placed on pallets in the staging area. Incompatible wastes shall be kept segregated to ensure that they cannot mix in the event of a leak or accidental spill.

Loading and Unloading

Vehicles do not enter the staging area beyond the ramp. Forklifts shall be used to transfer waste from the vehicles to the staging area.

Only Department of Transportation (DOT) approved containers in good condition shall be used for waste management and storage. This operating practice coupled with pre-storage inspections ensures that the waste is held in the appropriate DOT container and that the container is free of dents, creases, bulges, evidence of spillage, or corrosion. These practices reduce the possibility of handling spillage caused by a weakened container.

During staging operations, storage containers shall be kept free of standing liquids. This requirement shall be met by the use of pallets and drum racks. For some containers stored in the outdoor storage area, drumhead covers shall be used to prevent accumulation of moisture on the drum. Staging operations shall not be conducted if precipitation is occurring. If containers are stacked during transfer or storage, they shall be tied down to prevent spills and leaks.

Transfer operations (loading and unloading) are typically permitted only during posted operating hours. Pre-handling inspections shall be conducted to ensure the absence of standing liquids and unauthorized personnel or equipment.

Prevention of Ignition

Prevention of ignition is accomplished during storage by exclusion of open flames, smoking, or maintenance activities during handling of waste. Forklifts shall be the only mobile equipment that operate during handling. Transport vehicles shall be turned off prior to any container entering the staging area and shall remain off until all containers are transferred into the storage building or are loaded on the off-site transport vehicle. Utilities are limited to the fire alarm and explosion-proof lighting system.

Placement of Wastes in Storage

After DRMO staff have confirmed that wastes are compatible with their containers, containers are properly labeled and in good condition, and that the turn-in documentation matches the container(s) of waste, the wastes shall be placed in either an appropriate indoor storage cell that contains other compatible wastes or in the outdoor storage area in an appropriate container rack.

Container Compatibility

To ensure that all containers are compatible with the contained waste, all wastes shall be placed in containers that meet performance-oriented packaging standards as specified by the DOT Hazardous Materials Table (HMT) in 49 CFR §172.101. If the CSU receives waste that is contained in its original packaging and that packaging is in good condition, the waste does not require repackaging. The HMT provides container labeling requirements, shipping requirements, and container specifications for all types of waste. By following the DOT requirements for container selection, personnel can ensure that all containers are compatible with the waste they contain. The wastes shall be packaged in DOT-approved containers before they arrive at the CSU. Incompatible wastes shall never be placed in the same container.

If a container leaks and must be over-packed or transferred to a new container, the salvage drums and containers into which the waste will be placed must not have previously held any waste. DRMO personnel will ensure that these containers and salvage drums are compatible with the leaking or spill wastes and any absorbent material.

MANAGEMENT OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE

Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste

Both design standards and operating practices are relied upon to prevent accidental ignition of wastes. As previously indicated, the utilities of the CSU are restricted to interior lighting and fire alarms. These items are designed and installed to be of non-sparking nature. Forklifts that operate at the CSU are designed to operate in potential fire hazard situations. During loading and unloading operations, transport vehicles shall remain off until all containers are loaded onto the vehicle or offloaded into their appropriate cell.

Protection of hazardous waste from other ignition sources, such as an open flame or smoking, shall be achieved by exclusion of unauthorized personnel and posting of non-smoking signs at the CSU boundary, its exterior walls, and along the DRMO peripheral fence. Cutting, welding, soldering, sanding, etc., of containers shall be expressly forbidden. Any maintenance activity that may require these types of operations cannot be conducted in any portion of the facility until the ignitable wastes have been moved to the outdoor storage area. If such activities are required in the outdoor storage area, the waste must be relocated into the building or staging area for the duration of the activity. Protection from radiant heat is provided by the ventilated design of the building.

All containers used to store wastes must be in good condition and meet applicable DOT specifications. Containers that hold ignitable wastes usually have a minimum of 3 inches of outage to allow for pressurization due to vaporization of contents. Containers shall be inspected upon receipt, weekly thereafter, and prior to loading for off-site transportation.

Reactive wastes stored in the CSU include lithium batteries, pesticides, and spent plating wastes. These wastes are generated infrequently. During storage, these wastes shall be separated from acidic wastes by cell dividing walls in the indoor storage area. If placed in the outdoor storage area or the staging area, reactive waste shall be segregated from other waste and placed in a designated secondary containment pan. This procedure is designed to prevent accidental mixing with other waste, in the event of a spill.

During storage, hazardous waste containers shall remain closed unless it is necessary to transfer the waste due to container leakage. If emergency transfers are necessary, proper specification containers shall be used for repackaging the waste. Occasionally, it will be necessary for contractors who are taking the waste to an off-site treatment, storage, and disposal facility (TSDF) to open containers to confirm contents by visual inspection.

General Precautions for Handling Ignitable or Reactive Wastes and Mixing of Incompatible Wastes

Wastes are never deliberately mixed at the CSU. Accidental mixing of incompatible wastes is prevented by segregation plans based on the use of cell walls, separation distances, and secondary containment systems. Furthermore, incompatible wastes with the same hazardous waste characteristic (i.e., corrosives) shall not be stored in the same storage area. Personnel are cautioned in their formal training program (see Permit Attachment J) not to mix, open, or repackage hazardous waste before or after it is accepted for storage unless a container is found to be leaking; then attempts are made at overpacking or transfer. Salvage drums or containers used for such transfers are of proper DOT specification.

Copies of 20.4.1.500 NMAC, incorporating 40 CFR Part 264, Appendix V, and 49 CFR §177.848 are available to assist personnel in determining the compatibility of wastes. In addition, Table C-2 shall be used in making compatibility decisions.

MANAGEMENT OF IGNITABLE OR REACTIVE WASTES IN CONTAINERS

Container Use and Management

Marking and Labeling

While in storage at the CSU, containers shall be properly marked and labeled with appropriately completed RCRA hazardous waste labels. Before waste is shipped off-site, appropriate DOT markings and labels must be applied to the containers. Each container shall be clearly marked with the name of its contents.

Container Condition

All hazardous waste containers must be in good condition (e.g., no rust, dents, visual structural damage, etc.). Containers shall be inspected weekly as described in Permit Attachment F, *Inspection Schedule*. The inspection provides criteria to ensure that all containers are in good condition.

Releases From Containers

TABLE C-2.

**Hazardous Materials Guide [modified from 49 CFR 176.83(b)]
Segregation Table for Hazardous Materials**

Class or Division	Notes	1.1 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 Gas Zone A	2.3 Gas other than Zone A	3	4.1	4.2	4.3	5.1	5.2	6.1 Liquids PG 1 Zone A	7	8 Liquids Only
Explosives 1.1 and 1.2	▲	✓	✓	✓	✓	✓	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Explosives 1.3		✓	✓	✓	✓	✓	⊗		⊗	⊗	⊗		⊗	⊗	⊗	⊗	⊗		⊗
Explosives 1.4		✓	✓	✓	✓	✓	□		□	□	□		□				□		□
Very insensitive explosives 1.5	▲	✓	✓	✓	✓	✓	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Extremely insensitive explosives 1.6		✓	✓	✓	✓	✓													
Flammable gases 2.1		⊗	⊗	□	⊗				⊗	□							□	□	□
Nontoxic, nonflammable gases 2.2		⊗			⊗														
Poison gas, Zone A 2.3		⊗	⊗	□	⊗		⊗				⊗	⊗	⊗	⊗	⊗	⊗			⊗
Poison gas other than Zone A 2.3		⊗	⊗	□	⊗		□				□	□	□	□	□	□			□
Flammable liquids 3		⊗	⊗	□	⊗				⊗	□					□		⊗		
Flammable solids 4.1		⊗			⊗				⊗	□							⊗		□
Spontaneously combustible materials 4.2		⊗	⊗	□	⊗				⊗	□							⊗		⊗
Dangerous when wet materials 4.3		⊗	⊗		⊗				⊗	□							⊗		□
Oxidizers 5.1	▲	⊗	⊗		⊗				⊗	□	□						⊗		□
Organic peroxides 5.2		⊗	⊗		⊗				⊗	□							⊗		□
Poisonous liquids PG 1 Zone A 6.1		⊗	⊗	□	⊗		□				⊗	⊗	⊗	⊗	⊗	⊗			⊗
Radioactive materials 7		⊗			⊗		□												
Corrosive liquids 8		⊗	⊗	□	⊗		□		⊗	□		□	⊗	□	□	□	⊗		

Notes:

- In the table the absence of a hazard class or division or a blank space indicates that no restrictions apply.
- A "⊗" indicates the materials may not be loaded, transported, or stored together.
- A "□" indicates the materials may not be loaded, transported, or stored together unless separated by a distance of 1.2 meters (4 ft) in all directions.
- The "✓" indicates the segregation of Class 1 (explosive) materials is governed by the Compatibility Table for Class 1 (explosive) Materials in Sec. 177.848(f).
- The "▲" means that notwithstanding the "⊗," ammonium nitrate fertilizer may be loaded or stored with Division 1.1 materials.

If a waste container is leaking, the contents will immediately be transferred to another DOT-approved container or overpacked in an appropriate DOT-approved container. If the waste is placed in a salvage drum, the space between the salvage drum and the leaking container will be filled with a compatible absorbent material to prevent the salvage drum contents from shifting. Any spilled waste will be cleaned up using the appropriate materials from the spill kit. The waste generated from the spill cleanup [e.g., contaminated absorbent material, personal protective equipment, etc.] will be placed in an appropriate DOT-approved container and equipped with appropriate DOT and RCRA labels and markings. Mixtures of absorbent and released waste shall be removed by water/soap rinses, and the rinsate shall be drummed for proper hazardous waste management, storage and disposal.

MANAGEMENT OF AIR EMISSIONS

Subpart AA (Process Vents)

These regulations do not apply to this Facility because the CSU does not operate distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes.

Subpart BB (Equipment Leaks)

These regulations do not apply to this facility because the CSU does not contain any of the equipment regulated under Subpart BB.

Subpart CC (Containers)

Subpart CC establishes air emission controls for containers. Holloman AFB shall demonstrate compliance with Container Level 1 standards (i.e., less than or equal to 0.46 m³/122 gallons) by ensuring that only DOT-approved containers are used to store wastes. Any wastes that meet the definition of A_{in} light liquid service@ [i.e., vapor pressure of one or more organic constituents is greater than 0.3 kilopascal at 20 °C, and the total concentration of pure organic constituents having a vapor pressure greater than 0.3 kilopascal at 20 °C is equal to or greater than 20% by weight (e.g., methyl ethyl ketone, toluene)] shall meet Container Level 2 standards, which include use of DOT containers and an initial visual, and subsequent weekly inspection of container condition, as specified in Permit Attachment F, *Inspection Schedule*.

Protection of Groundwater

Because the CSU does not contain a regulated unit (e.g., surface impoundment, waste pile, land treatment unit, or landfill), groundwater-monitoring requirements are not applicable. However, ground water shall be monitored if Holloman Air Force Base fails to achieve clean closure at the time the facility decides to close the CSU.

Groundwater is located approximately 6 ft to 7 ft below the surface in the vicinity of the CSU. Groundwater is currently protected with all hazardous wastes having secondary containment in the storage building as well as in the covered Outdoor Storage Building. Additionally, spill containment procedures shall eliminate runoff as a pathway by which groundwater contamination might occur.

MANAGEMENT OF SPECIFIC WASTES

Expired Shelf Life Products/Chemicals

When materials can no longer be used for their intended purpose because the shelf life of the material has expired or the material has been deemed off-specification, such materials, now waste, will be accepted by the CSU if they are in their original container and the label is legible, or if they have been overpacked or transferred to a DOT-approved container for the waste/expired material.

Precious Metal Recovery

The CSU accepts wastes containing precious metals and sends them off-site for reclamation.

Reclaimed Lead-Acid Batteries

Reclaimed lead-acid batteries must comply with Land Disposal Restriction certification requirements as discussed in Permit Attachment I, *Manifesting, Recordkeeping and Reporting*.

Management of Universal Waste

All batteries, including nickel-cadmium, lithium, silver oxide, and chlorine, shall be managed as hazardous waste if no recycling market is identified and shall be managed as universal waste if a recyclable market is available.

Wastes Containing Polychlorinated Biphenyls (PCBs)

The CSU is authorized under the Toxic Substances Control Act (TSCA) to accept PCB waste. Equipment containing PCBs in concentrations greater than 50 parts per million is regulated by TSCA. If the equipment containing the PCBs is not leaking and is in good condition, the equipment (e.g., transformer) can be stored on a pallet without overpacking the item. However, if the equipment is leaking, it shall be overpacked in a compatible container as required by 40 CFR §761-§765(c)(5) and (6) and applicable DOT requirements.

Final Disposition of Wastes

All contractors that transport, store, treat, or dispose of hazardous wastes from the CSU have been assessed and deemed acceptable by DRMO. No transporter or treatment, storage, and disposal facility shall pick up or manage hazardous waste without a U.S. Environmental Protection Agency identification number.