

**ATTACHMENT 9**  
**CONTAINER MANAGEMENT PLAN**



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## **1.0 Introduction**

**1.0.1** The information provided in this document is submitted in accordance with the requirements of Utah Administrative Code (UAC) R315-8-9.

## **2.0 Containers [UAC R315-8-9]**

**2.0.1** The Hill Air Force Base (Hill AFB) staff are responsible for providing guidance to hazardous waste generators for packaging requirements in accordance with U.S. Department of Transportation (DOT) regulations (49 CFR Subchapter C - Hazardous Materials Regulations). No leaking or damaged containers are accepted for storage.

**2.0.2** A variety of containers are used at the Hazardous Waste Storage Facility (HWSF) to store hazardous wastes. Each container going to the HWSF must meet DOT specifications (49 CFR Parts 172 and 178) for the particular contents. DOT-approved salvage drums (85-gallon over-packs) are used to repackage drums that appear corroded or that develop leaks.

**2.0.3** Because the containers used at the HWSF meet DOT specifications, the containers are kept closed except when sampling, and there are no visible gaps into the container when closed, the containers at the HWSF meet the requirements of UAC R315-8-9.10 and R315-8-22.

**2.0.4** Any container that was previously used is checked against the incompatibility information provided in Appendix V of 40 CFR Part 264 by the HWSF staff. If the previous material and the waste are incompatible, the container is triple rinsed with an appropriate solvent capable of completely removing the previous material before the container is reused (the solvent is collected, tested, and managed appropriately). Compatibility of the waste and the cleaning solvent is also checked. If there is a doubt about compatibility, the container is either triple rinsed or not used. Containers must be in good condition (i.e., no rust, no dents, proper seals, bungs with all gaskets) and of a reusable type. A previously used container may be reused to ship hazardous waste (and is not subject to the reconditioning and reuse provisions contained in UAC R315-8-9.4, 49 CFR 173.28, and 49 CFR 178) under the following conditions (49 CFR 173.12[c]):

**2.0.4.1** Except as authorized below, the waste must be packaged in accordance with 49 CFR and offered for transport in accordance with 49 CFR.

**2.0.4.2** Waste is transported on highways or appropriately designed roads only.

**2.0.4.3** Each package is inspected for leakage and is found to be free from leaks immediately prior to transporting.

**2.0.4.4** Each package is loaded by the shipper and unloaded by the consignee, unless the motor carrier is a private or contract carrier.

- 2.0.4.5 Prior to being accepted for storage, containers must be marked with certain information, either by a decal label stuck to the drum or by letters/numbers painted with the use of a stencil. The information required to be on the container is as follows:
- 2.0.4.6 The chemical name of the hazardous waste and the DOT proper shipping name of the waste
- 2.0.4.7 The EPA waste code (for example: D004, F001)
- 2.0.4.8 Name and address of the generator (in most cases this is Hill Air Force Base, UT 84056-5990)
- 2.0.4.9 The hazardous waste permit number for the HWSF: UT0571724350
- 2.0.4.10 The accumulation start date
- 2.0.4.11 The combined weight of the container and waste
- 2.0.4.12 The barrel number assigned by the HWSF prior to turn in for storage
- 2.0.4.13 The following hazardous waste statement:

**HAZARDOUS WASTE**

**Federal Law Prohibits Improper Disposal. If found, contact the nearest police, or public safety authority, or the U.S. Environmental Protection Agency.**

**3.0 Description of Containment System [UAC R315-8-9.6 (b)]**

**3.1 Basic Design Parameters, Dimensions, and Materials of Construction**

**3.1.1. Building 888**

- 3.1.1.1. Building 888, is a 12,800-square-foot concrete masonry block building with a roof to prevent accumulation of precipitation. As shown in Figure 9-1, The building contains 4 large bays (approximately 40 feet by 34 feet), 7 smaller bays (approximately 30 feet by 20 feet), and 7 storage closets (approximately 4 feet by 11 feet or 4 feet by 5 feet). The building incorporates the following design features:
  - 3.1.1.1.1 Six-inch curbs around each storage bay and closet, to retain spills. The rest of the building floor surrounding each storage bay is 4 inches higher in elevation than the floor of the models with 2-inch curbs. There are 2-inch curbs along the walls of the HWSU.
  - 3.1.1.1.2 Ramps, with a maximum slope of 8 percent, lead down into the bays.
  - 3.1.1.1.3 Floor areas for storage are coated concrete and are designed to accommodate rack, shelf, and bulk storage, as well as fully loaded, 4,000-pound forklift truck axle loads. Floor surfaces are zero slope except for ramp areas. The driveway

and the interior staging area are designed to support an H-20 vehicle (40,000 pound) load.

- 3.1.1.1.4** The building floors have an epoxy coating to inhibit chemicals from leaking through them. Concrete joints have an internal water stop and joint sealer. The epoxy coating is applied over the entire floor surface including curbs and joints. A vapor barrier is placed beneath the concrete. After spills, the integrity of the floor coatings and sealants are visually inspected and repaired as necessary.
- 3.1.1.1.5** Emergency personnel exit doors have raised thresholds (6 inches) to prevent escape of interior spills to the outside.
- 3.1.1.1.6** Multi-tier storage racks are used in the storage bays. Storage racks promote drainage and prevent the drums from being in contact with standing liquids. The storage racks can store a maximum of three tiers high, with shelving two feet deep and various lengths. A storage cabinet used for small quantities of sensitive items or water reactives can be installed in a storage bay.
- 3.1.1.1.7** Drums (containers) are placed on pallets to facilitate movement before being placed on the rack shelves. Pallets are placed one high on each tier of shelving. Depending on the hazard class, shelving may be a maximum of three tiers high. This storage configuration elevates the wastes from the floor, prevents potential contact with spilt material, and facilitates inspections.

### **3.1.2 Building 898, Hazardous Waste Storage Unit**

- 3.1.2.1** The Hazardous Waste Storage Unit (HWSU), also known as Building 898, is a 4,000 square-foot concrete masonry block building with a roof to prevent accumulation of precipitation and open ends to provide ventilation. Building 898 contains 10 bays, shown in Figure 9-2, all approximately 20-feet-by-20-feet. The building incorporates the following design features:
  - 3.1.2.1.1** At least 4 inch curbs around each bay to retain spills.
  - 3.1.2.1.2** Floors in the storage areas are all coated concrete and are designed to accommodate bulk storage and fully loaded, 4,000-pound forklift truck axle loads. The driveway and staging area are designed to support an H-20 vehicle (40,000) pound load.
  - 3.1.2.1.3** The building floors have an epoxy coating to inhibit chemicals from leaking through them.
  - 3.1.2.1.4** Drums are placed on pallets to facilitate movement before being placed in the bays.

## **3.2 Storage Capacity of the Containment System**

**3.2.1** As stated in UAC R315-8-9.6.(b)(3), the containment systems have sufficient capacity to contain 10 percent of the volume of containers or the volume of the largest container, whichever is greater. In most cases for both Building 888 and 898, 10 percent of the total volume of containers will be the greatest volume since the largest individual container stored within a bay is a 55-gallon drum.

**3.2.2** There are three sizes of bays within Buildings 888 and 898 (Type A, Type B, and Type C). Storage closets are also present in Building 888. A 6-inch curb surrounds each bay and storage closet. For spill capacity calculations, a 4-inch curb is assumed for the bays in order to be conservative. For storage capacity calculations in building 888 it was assumed that each pallet holds four 55-gallon drums and is stacked three tiers high. Storage of hazardous waste in building 898 is limited to one pallet high. Table 9-1 provides the bay dimensions, spill capacity, and storage capacity for each bay type. As shown in Table 9-1, each bay type can contain more than 10 percent of the total container volume.

## **3.3 Provisions for Preventing or Managing Run-On**

**3.3.1** Building 888 is completely enclosed on all four sides and covered with a roof. Building 898 is enclosed on three sides, covered with a roof, and has a flexible plastic curtain/door on the west side. The floors of both buildings are constructed of concrete a minimum of 6 inches thick. The buildings are not located in the 100-year floodplain. The building entrance thresholds are raised to prevent run-on, and the surrounding areas are graded to drain away from the buildings. Because of this, no run-on into internal the containment systems is expected.

**3.3.2** A sealed concrete spill containment area outside the buildings is designed to control a spill during loading/ unloading operations. The spill containment catch basin has a valve that is closed before hazardous waste or materials are handled outside. The valve is interconnected to the entry cargo door with an electric relay so that it will sound an alarm horn if the valve is not closed when the door is opened.

**3.3.3** If a spill collects in the catch basin, the spilled waste is pumped into another container and processed by the receiving personnel as the original container would have been. The spilled waste is identified the same way as the container it came from or, if the amount is minor, it is removed using absorbent material and may be placed in the waste's original container.

**3.3.4** Spills on the loading/unloading area of both buildings are immediately cleaned up to prevent rainwater from ponding in the catch basin. If rainwater is ponded in the catch basin, then the waste mixture is tested to determine if it is hazardous, based on knowledge of the spilled material. If the spilled waste is a listed waste (i.e., F, K, P, or U waste codes), then the spilled waste is managed as the appropriate listed waste code, and testing may not be needed.

- 3.3.5** During inclement weather, loading/unloading will take place inside the buildings so rainwater will not mix with a spilled waste.
- 3.3.6** Spilled or leaked waste is immediately removed from the containment systems using either absorbent material followed by mechanical pickup, or by a pump. Spilled liquids are analyzed according to the hazardous designation of the particular area with the spill and for the specific chemicals that resulted in the spill. The type of spilled waste is evident from the container labels involved in the spill and/or from the log books kept onsite, which record the name and location of all hazardous wastes stored. Personnel assigned to handle hazardous materials and wastes are trained to contain spills and will follow the spill contingency plan for the removal process.
- 3.3.7** Containers stored in outside storage areas are managed to prevent the presence of free liquid within the containers. In the event that free liquids are observed within the containers, immediate action will be taken to remove or otherwise immobilize the observed liquid (e.g, through the addition of sorbents.) If a spill of free liquid or evidence of a spill is observed outside of the container, the spill contingency plan will be followed to manage the spilled material.
- 3.4 Storage Areas for Containers Without Free Liquids [UAC R315-8-9.6c]**
- 3.4.1** Inside Storage. All containers smaller than 2 cubic yards that contain hazardous waste, regardless of whether or not they contain free liquids, are stored inside the hazardous waste storage buildings. As previously stated, the buildings 888 and 898 are roofed to prevent precipitation from entering the storage area, and the storage shelves in building 888 elevate the containers to prevent contact with liquids that may accumulate on the floor. Storage building areas are equipped with secondary containment. All containers are handled as if they contain free liquids and, therefore, will not be tested for the presence of free liquids.
- 3.4.2** Outside Storage. Waste containers with volumes greater than 2 cubic yards that do not contain free liquids may be stored outside of buildings 888 and 898 within the fenced area of the HWSF in compliance with R315-8-9.6(c). In compliance with R315-8-9.6(b), containers holding F020, F021, F022, F023, F026, and F027 shall not be stored outside without a containment system. Waste containers stored outside will be verified and documented to be free of free liquid and will be subject to the inspection requirements in Attachment 4.
- 3.5 Requirements for Ignitable or Reactive Wastes and Incompatible Wastes [UAC R315-8-9.7 and 8-9.8 a, b, and c]**
- 3.5.1** **As of permit issuance, setback requirements of R315-8-9.7 were met.** The bays (rooms) and closets are designed to provide isolation from adjacent storage rooms and other areas of the building for flammables and incompatibles. The following design features isolate each room and are applicable to both buildings:

- 3.5.1.1** Internal and external walls or partitions are extended from floor to the roof of the building.
- 3.5.1.2** Both roofs are composed of noncombustible materials.
- 3.5.1.3** Both buildings have positive or open ventilation.
- 3.5.1.4** Interior electrical equipment in the flammable areas in Building 888 meets the requirements for Class I, Division 2 hazardous locations as prescribed by the National Electric Code. Walls are 2-hour fire-rated.
- 3.5.1.5** There is an automatic sprinkler system to protect all areas of both buildings.
- 3.5.1.6** Heat detectors are used for fire detection in both buildings.
- 3.5.1.7** The enclosed storage cabinets in Building 888 are used for small, sensitive items.
- 3.5.1.8** No smoking is allowed at the HWSF.
- 3.5.1.9** The identity and characteristics of hazardous wastes are made known to the HWSF at the time of receipt, allowing them to store the waste based on compatibility. Incompatible wastes are stored in separate rooms or closets.
- 3.5.1.10** The compatibility category of waste in storage in each bay or closet is clearly marked on all entrances to the bay, when the bay is used for waste storage.
- 3.6** **Container Management [UAC R315-8-9.4]**
  - 3.6.1** No leaking or damaged containers are accepted for storage at the HWSF. If a container holding hazardous wastes should begin rusting or leaking during storage at the HWSF, it is over-packed into another container that is compatible with the requirements of UAC R315-8. Containers holding waste are kept closed during storage, except when sampling is being performed. A container will not be opened, handled, or stored in a manner that may cause it to be ruptured or otherwise damaged.
  - 3.6.2** Approximately 4-foot-by-4-foot wooden pallets are loaded with one to four 85-gallon drums or smaller containers and placed one-deep in steel racks designed for this purpose. The storage racks are placed along two opposite sides of the A-sized and B-sized storage bays to create approximately an 11-foot clear aisle between them (C-sized storage bays also have storage racks in the middle of the room). The racks have a maximum of three levels of horizontal support allowing for a maximum stacking height of three individually supported pallets. As an option to pallets, small containers can be placed in 2-foot-deep-by-18-inch-high shelves. Enclosed fire-rated cabinets can be installed if needed.
  - 3.6.3** This storage configuration facilitates material handling and container inspection by storing pallets only one deep. A narrow aisle forklift is used to load/unload the pallet racks. The forklift has right angle stacking aisle width capability within 8 feet and can maneuver within the bays.

- 3.6.4** Hazardous wastes received at the HWSF have been appropriately packaged, labeled, marked, and sealed at the point of generation. Upon receipt at the load/unload area, the containers and packaged wastes are loaded from the truck(s) and inspected for damage. If a container is received in damaged or obviously poor condition, the contents are over-packed with an appropriate container (e.g., 85-gallon over-pack drum). A sufficient supply of such over-pack containers is stored for this purpose. Drums are unloaded by a forklift and/or drum handler.
- 3.6.5** Prior to being moved to designated storage locations in the buildings, the containers are placed on pallets of a size appropriate to the storage location. Wastes restricted from land disposal are marked with the date and EPA hazardous waste number(s) before being placed into storage. This marking must be separate from the accumulation start date. In most instances a forklift and a drum handler are used for ease in handling. Incompatible wastes are transferred separately in storage and handling operations. All wastes entering the HWSF are entered onto the inventory log for tracking purposes.
- 3.6.6** The HWSF has a regular forklift that handles drums that are on pallets. The HWSF also has an attachment for the forklift that enables movement of individual drums without pallets. The attachment encircles the drum so that the forklift can lift the drum by the raised top rim; drums can also be placed in over-packs in this way. With this attachment, the operators do not have to manhandle damaged or corroded drums in order to over-pack them. Also, to avoid damaging containers, only trained forklift operators are allowed to move the containers and only palletized containers are stored on the racks.
- 4.0 Inspections [UAC R315-8-9.5]**
- 4.0.1** At least weekly, HWSF staff inspect the areas where containers are stored, looking for leaking or corroded or damaged containers and for deterioration of the containment system caused by corrosion or other factors. More information on inspections can be found in Attachment 4 to this Permit.
- 5.0 Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes**
- 5.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes [UAC R315-8-2.8(a)]**
- 5.1.1.** Wastes are only stored in containers at the HWSF. Containers will be compatible with the contained wastes; therefore, the only source of ignition will be external to the containers. Non-sparking tools will be used to open ignitable or reactive waste containers, if such containers had to be opened (e.g., for sampling). Hazardous wastes received at the HWSF will be in non-leaking containers, safe to handle, and will be in containers that are manufactured to meet the U.S. Department of Transportation (DOT) container specifications [49 CFR Parts 173, 178 and 179]. This will further minimize the potential for

- ignition and reaction of hazardous wastes. Containers holding either ignitable or reactive wastes are located more than 50 feet from the facility's property line.
- 5.1.2** Wastes will be separated at the HWSF and protected from sources of ignition or reaction, such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, and sparks (static, electrical, or mechanical). Smoking is not allowed at the HWSF.
- 5.1.3** Wastes will be classified as ignitable, reactive, corrosive, toxic, polychlorinated biphenyl (PCB), acids, or bases. These determinations will be based upon Hazardous Materials Information System (HMIS) information, other standard hazardous material reference data, and/or lab analyses. Refer to Attachment 2 for more detail. In order to prevent a possible source of external ignition, the building in which drums containing ignitable and reactive wastes are stored clearly displays "No Smoking" signs around the entire area. Spark-proof tools (brass hammers, wrenches) will be used on all containers storing ignitable materials.
- 5.2** **General Precautions for Handling Ignitable or Reactive Wastes and Mixing of Incompatible Wastes [UAC R315-8-2.8(a)]**
- 5.2.1** General precautions for handling ignitable or reactive wastes are presented in the above section. Containers are not opened (except for sampling) and wastes are not mixed at the HWSF. Furthermore, incompatible wastes will not be stored in the same storage area. A hard copy of, or electronic access to, 40 CFR 265 Appendix V - *Examples of Potentially Incompatible Waste*, is available at the facility to assist personnel in determining the compatibility of wastes.
- 5.3** **Management of Ignitable or Reactive Wastes in Containers [UAC R315-8-2.8(b)]**
- 5.3.1** All reactive wastes will be kept separate from each other at all times. Therefore, the possibility of igniting the ignitable wastes via the heat generated by an accidental reaction involving the reactive wastes is greatly reduced. Ignitable wastes are stored away from reactive wastes; the ignitable wastes have a separate storage bay.
- 5.4** **Management of Incompatible Wastes in Containers [UAC R315-8-2.8(b)]**
- 5.4.1** Incompatible wastes or materials will not be mixed or stored together at the HWSF. All incompatible wastes will be kept separate from each other. HWSF personnel use the HMIS, National Fire Protection Association (NFPA) as revised, and the Consolidated Hazardous Item List (CHIL) manual so that wastes are handled and stored safely.
- 5.4.2** Containers are segregated by waste type (Attachment 2) and stored in storage areas containing similar waste types. Each storage area has a secondary containment system to prevent mixing of spilled or leaked material or runoff containing waste residues from other storage areas. Containment of spills in each storage area is provided by curbing or dead-end sumps in the floor with

sufficient depth to contain spills. Containers are stacked on specific pallet racks and remain in either Building 888 or 898 until removed for sale, recycling, or disposal.

**Table 9-1**  
 Containment System Spill and Storage Capacity

Bay Type	Number of Bays & Building Number	Approximate Bay Dimensions	Approximate Area of Bay Type (Square Feet)	Number of Pallets per Bay (Number of 55-gal Drums)	Storage Capacity (gallons)	Spill Capacity (gallons)	10 percent of Storage Capacity (gallons)
Type A	7 - Bldg 888	20'x30'	600	36 (144)	7,920	1,490	792
Type B	4 - Bldg 888	40'x34'	1,360	72 (288)	15,840	3,380	1,584
Type C	10 - Bldg 898	20'x20'	400	8.5 (34)	1,870*	990	187
Storage Closet	7 - Bldg 888	10.5'x4'	42	6 (24)	1,320	157	132

**Note:** Dimensions based on as-built drawings.

Types A, B, and C: Assume 4-inch curb for spill capacity calculations

Storage Closet: Assume 6-inch curb for spill capacity calculations

Spill Capacity (gallons) = (Room Dimension in feet) x (curb height in feet) x (1 cubic feet/7.48 gal)

Storage Capacity (gallons) = (Maximum Number of 55-gal Drums) x (55 gal)

\*Storage limits in building 898 are governed by bay III.G.



Figure 9-1  
HWSF Building 888 Floor Plan with Bay Numbers and Storage Rack Arrangement

RCRA Part B Permit  
Hill Air Force Base, Utah

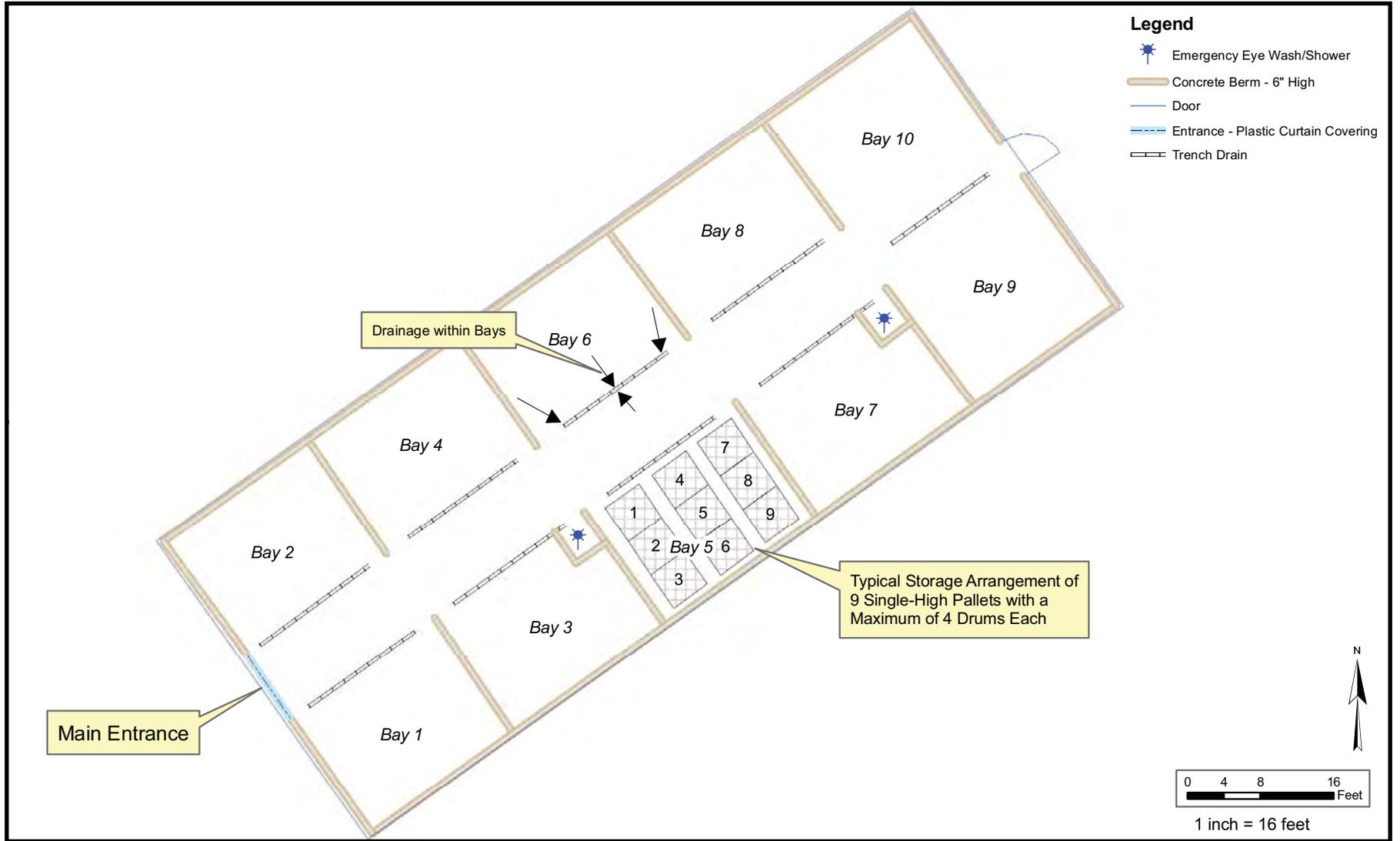


Figure 9-2  
**HWSF Building 898 Floor Plan**  
RCRA Part B Permit  
Hill Air Force Base, Utah