# SECTION D-9

# MANAGEMENT OF WASTE IN CONTAINMENT BUILDINGS

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# SECTION D-9

# MANAGEMENT OF WASTE IN CONTAINMENT BUILDINGS

## D-9-1 Introduction

This section provides information regarding the design of containment buildings and management of wastes within containment buildings at the Facility. The objective of waste management within containment buildings is to manage wastes in mass (i.e., in other than containers or tanks), and this objective is achieved by the inherent design of the containment buildings and processing equipment, the training of personnel and management, scheduled inspections, and specific waste storage and treatment practices. The management of wastes in mass within containment buildings includes staging, storage, repackaging, processing, and treatment. The following containment buildings at the Facility are specifically designed and managed for this purpose:

- Containment Building / Container & Tank Management Unit 1200A.

Section D-1 of this Application describes the management of waste in containers within containment building units, and Section D-2 describes the management of waste in tanks within containment building units.

## D-9-2 General Design Features

Each of the containment building units at the Facility are designed to enable the management of wastes in accordance with the applicable portions of 40 CFR 264 Subpart DD and ADEM Administrative Code Rule 335-14-5-.30. This subsection describes the design of containment buildings for the management of waste in mass (i.e., not in containers or tanks). Although each containment building management unit is unique, some design features are common to all containment buildings in which waste is stored, treated, processed, or otherwise managed in mass. Information regarding these common features is provided in the following subsections. Additional information regarding unit-specific design features for each containment building unit is provided in Subsection D-9-6 of this section.

### D-9-2a Containment of Wastes

All containment building management units are equipped with a floor, covered with a roof, and have full-height perimeter walls. These components prevent exposure to the elements, minimize rain from falling or blowing into the containment areas, and assure the containment of managed wastes. The perimeter containment curbs and walls of the units are above the 100-year floodplain as documented in Subsection B-3b in Section B of this Application. In

addition to the perimeter curbs and walls, run-on is prevented by sloping the surrounding land surface away from the unit. Precipitation and surface water is routed away from the containment building units by gutters, downspouts, slopes, swales, and drainage pipes. These design features enable the containment building units to comply with the requirements of 40 CFR 264.1101(a)(1) and ADEM Administrative Code Rules 335-14-5-.30(2)(a)1., for the management of wastes in mass within the containment building units. In the event that rainwater is blown or tracked into a containment building management unit, it will be collected and properly managed (i.e., managed as a Facility generated waste, characterized based on knowledge of the waste that it contacted or characterized by other procedures as described in the Waste Analysis Plan (WAP)).

### D-9-2b Integrity of Containment Floors and Walls

To insure the floors (i.e., wearing surfaces) and walls within the containment building management units are free of leakable cracks or gaps (i.e., cracks or openings that compromise the containment system, as opposed to: 1) minor surface striations; 2) surface fractures covered and sealed by coatings; 3) cracks sealed with an appropriate sealant system; or 4) other such partial penetrations that do not compromise the containment system), well-proven construction techniques and quality construction materials are used, and the containment system is inspected in accordance with Subsection D-9-4d of this section. The design and construction of the floor system (primary barrier and secondary barrier) and containment wall will be of sufficient strength and thickness to support all live and dead loads imparted by their own weight, the weight of waste being stored or treated, and all personnel and heavy equipment to operate within the area. The primary barrier, secondary containment system, and containment walls are specifically designed and constructed of materials that are chemically resistant to the waste and liquids managed in a unit to prevent premature failure or deterioration. The floor, curbs, containment walls, and sumps of a containment building are formed of structurally reinforced concrete designed to support the greater of the weight of equipment and containers, or the weight of waste when stacked or piled to its full, allowable height. These components are designed and constructed according to applicable American Concrete Institute (ACI), American Society of Mechanical Engineers (ASME), and/or American Society of Testing Materials (ASTM) standards to prevent structural failure due to pressure gradients, settlement, compression, uplift, climatic conditions (freeze/thaw), and daily operational stresses. Floors, sumps, curbs, and containment walls are formed monolithically or with joints sealed by a waterstop. Construction joints and expansion control joints in containment floors are sealed and have waterstops. These containment system design features enable the containment building units to comply with the requirements of 40 CFR 264.1101(a)(2) and ADEM Administrative Code Rules 335-14-5-.30(2)(a)2., for the management of wastes in mass within the containment building units. Construction details for each of the containment building management units are provided in the drawings in Appendix D-1 to Section D of this Application.

## D-9-2c Secondary Containment

The containment building management units at the Facility are provided with secondary containment systems to enable the management of waste containing free liquids in accordance with 40 CFR 264.1101(3) and ADEM Administrative Code Rule 335-14-5-.30(2)(b)3. The sloping floors with individual sumps in conjunction with intermediate curbs, perimeter curbs, containment wall, or block walls provide separation between areas within a containment building used for the management of waste in mass and adjacent areas used for other purposes in order to comply with the requirements of 40 CFR 264.1101(d) and ADEM Administrative Code Rule 335-14-5-.30(2)(d). Curbs, walls, and dikes that are not monolithic with the floor are sealed to the floor to complete the containment. Joints are sealed with waterstops, and the areas used as a containment building are sealed with a chemical-resistant sealant system.

In addition to the secondary containment system provided for the management of waste containing free liquids in accordance with 40 CFR 264.1101(3) and ADEM Administrative Code Rule 335-14-5-.30(2)(b)3., the containment building management units are constructed with a perimeter containment curb at all openings that are not equipped with a containment wall. In conjunction with sloped floors and sumps (if any), the perimeter containment curbs provide the required secondary containment capacity for storage of waste in containers, in tanks, or in other waste treatment equipment in the unit. The perimeter curbs are constructed of reinforced concrete and are either formed monolithically or with joints sealed by a waterstop. The interior edge of the curb is coated with a chemical-resistant sealant system. In openings where vehicular access over the curb is required, ramps are utilized to complete the containment system. The curbs and ramps are maintained free of leakable gaps or cracks (i.e., cracks or openings that compromise the containment system, as opposed to: 1) minor surface striations; 2) surface fractures covered and sealed by coatings; 3) cracks sealed with an appropriate sealant system; or 4) other such partial penetrations that do not compromise the containment system). The perimeter curbs also aid in the containment of wastes, as described in Subsection D-9-2a, and aid in containing any free liquids that may emanate from wastes stored in mass as described in Subsection D-9-3d, or liquids resulting from the treatment of waste in mass in the unit.

In order to prevent the release of liquids, wet materials, or liquid aerosols (e.g., overspray from pressure washing, etc.) to other portions of the building or to the outside of the building in accordance with 40 CFR 264.1101(b)(3)(ii) and ADEM Administrative Code Rule 335-14-5-.30(2)(b)3.(ii), all perimeter containments and intermediate containments between containment building areas and other portions of a unit consist of containment walls and/or perimeter curbs with block walls or metal siding extending from the top of the wall or curb to the eave of the building roof. All openings in these walls are equipped with doors or are sealed to prevent the release of dust or aerosols. The junction between the concrete containment wall or curb and block walls are sealed. The junction between the metal siding and the concrete

containment wall or curb is equipped with a metal flashing that is sealed and caulked to the siding and extends over the concrete curb or wall.

### D-9-2d Containment System Interior Surface Coatings

Within containment building management units all existing floor surfaces, interior edges of curbs, insides of containment walls, and floor sumps (if any), are coated with a chemical-resistant sealant. There are four (4) types of concrete coating systems that have been used. Within a given unit, a single system or a combination of sealant systems have been used. Each type has been selected to provide the appropriate level of protection against chemical penetration and abrasion for all concrete secondary containment surfaces within the Facility. The four (4) types of concrete coating systems that have been used, designated as Types A, B, C, and D, are differentiated by the configuration of the surface to which they are applied. Appendix D-1-3 to Section D-1 of this Application provides a description of the surface configuration for which each type of concrete coating system has been utilized, the general functional properties required of each concrete coating system, and concrete coating descriptions and specifications which establish the minimum standards for each type of coating. Future modifications and improvements may continue to utilize these coating systems. Alternatively, new chemical-resistant sealing measures may be implemented as appropriate for the functional use of the area and with approval of ADEM.

### D-9-2e Control of Fugitive Dust Emissions

In accordance with 40 CFR 264.1101(c)(1)(iv) and ADEM Administrative Code Rule 335-14-5-.30 (2)(c)1.(iv), in order to control fugitive dust emissions during routine operating and maintenance activities the containment building units are equipped with dust collector(s) of sufficient size and exhaust volume to maintain the area such that there are no visible signs of dust or particulate emissions from any doors or openings as determined by the procedures in Method 22 in Appendix A of 40 CFR Part 60. The dust collector(s) is(are) serviced by air intake plenums strategically located throughout the area to allow treatment activities that may generate suspended particulate to be performed in any area of the containment building unit. All openings in the unit are specified, installed and maintained to provide an effective barrier against fugitive dust emissions and to allow proper operation of the dust collector(s).

### D-9-2f Certification of Containment Building Design

In accordance with 40 CFR 264.1101(c)(2) and ADEM Administrative Code Rule 335-14-5-.30(2)(c)2., and prior to the initiation of operation of a containment building, the Facility will obtain a certification from a qualified, registered professional engineer, that the containment building has been designed to meet the applicable portions of the standards for Containment Buildings established in 40 CFR 264.1101(a), (b) and (c) and ADEM Administrative Code Rules 335-14-5-.30(2)(a), (b) and (c).

Design certifications for containment buildings which are constructed after issuance of the permit are placed in the Facility Operating Record. Construction certifications pursuant to ADEM Admin. Code R. 335-14-5-.30(c)2 and 335-14-8-.3(1)(1)2.(i) shall be submitted to ADEM prior to placing newly constructed units into hazardous waste service.

### D-9-2g Minor Deviations from the Permit Design

During alterations to existing containment building management units, minor deviations may be required from the permit designs included within this Application. Such deviations may be required to facilitate the final design and construction of the unit through adherence to standard design and construction practices and requirements so that the unit can serve its intended purpose. The necessity for minor deviations from the permit designs of containment building management units may stem from requirements within one or more of several categories such as the following:

- to enable compliance with applicable codes, standards or regulations such as Building Codes, OSHA, or NFPA;
- to aid in the constructability of the unit;
- to allow for the substitution of equivalent or superior equipment;
- to allow for the substitution of equivalent or superior materials of construction.

These deviations will not alter the intent of the permit design or functionality of the unit and will not compromise the ability to manage the unit as required by the regulations. In addition, these deviations will not decrease the capacity of the secondary containment system for the unit as described in this Application and will not increase the amount of waste to be managed within the unit as described in this Application. Any deviations from the designs contained within this Application that constitute a material or substantial alteration or addition to a permitted unit in accordance with 40 CFR 270.41(a)(1) and ADEM Administrative Code Rule 335-14-8-.04(2)(a)1. will be submitted to the Department as a request for modification in accordance with the applicable portions of ADEM Administrative Code Rule 335-14-8-.04.

## D-9-3 General Management Practices

Each of the containment building units at the Facility are operated to enable the management of wastes in accordance with the applicable portions of 40 CFR 264 Subpart DD and ADEM Administrative Code Rule 335-14-5-.30. This subsection describes the practices that are utilized to manage waste in mass (i.e., not in containers or tanks) within containment buildings. Many of the management practices utilized are common to all containment buildings in which

waste is stored, treated, processed, or otherwise managed in mass. Information regarding these common management practices is provided in the following subsections. Additional information regarding unit-specific management practices for each containment building unit is provided in Subsection D-9-6 of this section.

### D-9-3a Types of Waste

Virtually every type of hazardous waste listed or identified by 40 CFR Part 261 and ADEM Administrative Code Chapter 335-14-2 and certain non-hazardous wastes are managed in containment buildings at the Facility. Tables C-1-1 and C-1-2, in Section C of this Application, lists the EPA waste codes for the hazardous wastes managed in mass within containment building units at the Facility. All EPA waste codes are listed in these tables due to the fact that EPA has determined that treatment residuals, wastewaters, dilute concentrations of hazardous waste constituents, and mixtures of hazardous constituents in non-hazardous waste maintain, by virtue of the waste derived-from rule and mixture rule, their listed code(s) regardless of the concentration of hazardous constituents in the waste. Treatment residues from wastes bearing the waste codes listed in Tables C-1-1 and C-1-2 will also be managed in accordance with the Permit and particularly the Waste Analysis Plan provided in Section C of this Application. The physical characteristics of the waste managed in mass within containment building units at the Facility include solids, debris, non-pumpable semi-solids, and any combinations thereof, all with or without free liquids. These various types of wastes are managed within containment building units in a manner to prevent accelerated corrosion or deterioration of the containment components or undetectable failure of the primary barrier of a containment building or secondary containment system.

### D-9-3b Storage and Treatment Decisions

After sampling, analyses, and acceptance procedures are complete, a determination is made as to the most appropriate means of storing, processing, or treating the waste as outlined in the Waste Analysis Plan in Section C of this Application. The physical characteristics, chemical composition, and chemical compatibility of the wastes with the materials of construction of the containment building system dictate whether a certain waste stream is managed within a containment building. All decisions regarding the storage, treatment and/or processing of wastes in containment buildings are made in accordance with the Waste Analysis Plan in Section C of this Application.

### D-9-3c Receiving and Staging Waste Prior to Management in Containment Buildings

Wastes arrive at the Facility as described in Subsections B-5a and B-6a in Section B of this Application. On arrival and after initial waste receiving operations, but prior to the receiving, unloading, or staging of waste in mass within a containment building, bulk containers are directed to the parking area PK-1000, one of the bulk container storage units (i.e., Units 406 or

2200), or one of the bulk container storage areas in Units 520, 700, 703A, or 1200A. Loads of other than bulk size containers (e.g., small containers) are normally directed to parking area PK-700 or to an unloading dock at one of the container management units to await off-loading, or are positioned in a contained area within one of the bulk container storage units (i.e., Units 406 or 2200). The procedures for receiving, holding, and accepting waste are outlined in Subsection B-5a of Section B and in the Waste Analysis Plan, Section C, of this Application.

### D-9-3d Free Liquids In a Containment Building

Wastes managed in mass (i.e., not in a container or tank) within containment building units are primarily solid; however, these wastes may contain some free liquids. Prior to receiving, unloading, and staging waste in mass within a containment building, the waste is inspected to assure that the quantity of free liquid, if any, in the waste is less than the quantity that would exceed the capacity of the secondary spill containment system, and less than the quantity that would prevent the proper management of the waste in mass within a containment building. These liquids will drain to the floor sumps within the containment buildings and be removed and stored in containers or in tanks. Calculations of the capacity of the secondary spill containment system in areas of containment buildings in which wastes are managed in containers and in mass are provided in Appendix D-1-2 of Section D-1 of this Application. Procedures used to inspect and test for free liquids are included in the Waste Analysis Plan in Section C of this Application.

### D-9-3e Inspection and Removal of Liquids

The storage and treatment of wastes within the containment building systems are done such that visual inspection of all floor sumps, liquid collection sumps and leak detection sumps is allowed. This allows inspection of the integrity of the floor sumps as well as the detection of accumulated liquids in the floor sumps, liquid collection sumps and leak detection sumps as described in Subsection D-9-3j of this section. Any liquids in the floor sumps, liquid collection sumps, and leak detection sumps are removed at the earliest practicable time to minimize the accumulation of liquids on these barriers. Liquids collected from the liquid collection and leak detection systems will be managed based on the source of the liquid (e.g., liquids resulting from the storage or treatment of waste in mass, liquids resulting from the treatment of debris, rinsate from the washing of vehicles, rainwater blow-in, etc.). Liquids resulting from the management of waste in mass (i.e., not in a container or tank) will be removed from sumps, placed in a container or tank, and subsequently treated or disposed of in accordance with regulations applicable to the waste from which the liquid was generated. Debris treatment residuals such as rinse waters will be collected, stored, and managed in accordance with 40 CFR 268.45 and ADEM Administrative Code Rule 335-14-9-.04(6). Liquids collected from the leak detections systems will be properly managed (i.e., managed as a Facility generated waste, characterized based on knowledge of the waste that it contacted or characterized by other procedures as described in the Waste Analysis Plan).

In the event that rainwater is blown or tracked into a containment building management unit, it will be collected and properly managed (i.e., managed as a Facility generated waste, characterized based on knowledge of the waste that it contacted or characterized by other procedures as described in the Waste Analysis Plan).

### D-9-3f Separation of Incompatibles

Prior to the staging, storage or treatment of wastes in mass (i.e., not in a container or tank) in a containment building, the compatibility of the waste is assessed in accordance with the Waste Analysis Plan in Section C of this Application. This assessment will consider the compatibility of the waste with the contents and the materials of construction of the containment building and with other wastes to be simultaneously managed in mass within the containment building. Based on the results from sampling and analyses, chemically incompatible wastes will be managed in mass only within segregated containment areas of containment buildings. Prior to storing or treating wastes in mass in an area of a containment building that was previously used to manage chemically incompatible waste in mass, the area will be rinsed, and all liquids will be removed from the liquid collection sump(s). Liquids removed from the liquid collection systems within containment building units will be managed as described in Subsection D-9-3e of this section. As shown in Appendix D-1, Unit 1200A contains two (2) areas to manage waste in mass, which are segregated by a sloping floor.

### D-9-3g Special Requirements For Ignitable and Reactive Waste

No smoking or other ignition-causing activities will be permitted in or adjacent to containment building management units that store, treat, or process ignitable or reactive waste. Warning signs are posted at the main entrance gate and at outside entrances into the affected management unit. Maintenance activities that might require or generate ignition-causing activities are conducted a safe distance from the unit, when practical. If this is not possible or is impractical, the activities are conducted only with the express, written permission of the Facility's Environmental, Health and Safety Manager (or designee) and are conducted in accordance with applicable OSHA standards. As illustrated on the Facility Layout (Drawing No. 0100-020-001) in Appendix D-1 to Section D of this Application, all containment building management units are located more than 50 feet from the Facility property boundary. Water and/or chemical, hand-held or portable fire extinguishers are available for firefighting purposes in Containment Building Management Units or portions of units designed and operated as Containment Buildings. When and where water reactive waste is stored, a chemical fire extinguisher is available for firefighting purposes.

### D-9-3h Storage Volumes in Containment Buildings

The maximum volumes of storage in mass within containment buildings (i.e., Unit 1200A) are provided in Appendix D-9-1 to Section D-9 of this Application. Drawings illustrating the height of the containment walls and other physical characteristics of each of the containment building units at the Facility are provided in Appendix D-1 to Section D of this Application.

### D-9-3i Arrangement of Waste in Containment Buildings

Within a containment building, waste may be placed in mass on the floor, stacked or piled, or otherwise managed in any configuration provided that the following conditions are maintained:

- the total volume of waste managed in mass in a containment building does not exceed the maximum volume in accordance with Subsection D-9-3h of this section;
- the height of wastes that are not in containers or tanks and that are stored in contact with or may come in contact with a perimeter containment wall does not exceed the height of the containment wall exclusive of the curb height at doorways and aisles;
- egress aisle space between groups of waste stored in mass is not less than three (3) feet;
- sufficient aisle space is allowed for the inspection of containers or tanks within the containment building;
- sufficient space is allowed for the operation of equipment; and
- at doorways and other openings in the perimeter containment wall, sufficient space is allowed to prohibit waste from slipping, sliding, or sloughing out of the containment building or containment building area through these openings.

Configurations for the management of waste in mass (i.e., not in containers or tanks) in each containment building are described in the unit-specific information provided in Subsection D-9-6 of this section.

### D-9-3j Inspection of Containment Building Management Units

Inspection of containment building storage, processing, treatment, and handling operations is performed in accordance with the Inspection Plan provided in Section F of this Application. These inspections are performed at least once every seven (7) days and include the inspection of all floor sumps, liquid collection sumps, leak detection sumps, dust collector exhausts, the primary containment wearing surface and walls, and the area immediately surrounding the building for signs of a release of hazardous waste.

The wearing surfaces and containment walls within containment building units will be maintained to be free from leakable cracks or gaps (i.e., cracks or openings that compromise the containment system, as opposed to: 1) minor surface striations; 2) surface fractures covered and sealed by coatings; 3) cracks sealed with an appropriate sealant system; or 4) other such partial penetrations that do not compromise the containment system) or other deterioration that could allow hazardous waste to be released from the primary barrier or containment walls into the secondary containment system or to the outside of the unit.

In the unlikely event of any release from the primary barrier or to the outside of the containment building unit, the unit will be removed from service upon the detection of such release, and the incident will be recorded in the Facility's operating record. Within seven (7) days of the discovery of the condition, the Facility will notify the Department of the condition and within fourteen days will advise upon the cause of the release, the required repair procedures, and a schedule for repairs to be completed. After completion of these repairs, the Facility will provide the Department with verification, prepared by a qualified, registered professional engineer, that the repairs have been completed in accordance with the aforementioned procedures and schedule.

### D-9-3k Storage of Non-Hazardous Waste in Containment Buildings

The Facility manages virtually every type of non-hazardous and hazardous waste materials. Non-hazardous wastes are managed in the same containment building management units as are used to manage hazardous wastes. In some respects, non-hazardous wastes are managed with techniques similar to those employed in the management of hazardous wastes. For example, only chemically compatible non-hazardous wastes are stored in the same secondary spill containment area with other non-hazardous or hazardous wastes. With regard to the required secondary containment capacity, non-hazardous wastes stored in the same secondary containment system as hazardous wastes will be considered to contribute to the total allowable volume which can be managed within that secondary containment.

### D-9-3l Accumulation of Facility Generated Waste

Containers, usually drums, are used to accumulate Facility generated wastes, which are primarily discarded PPE, but which also include other Facility generated wastes (e.g., pump strainer residues, tank bottoms, clean-up residues from small spills, etc.) The Facility is the generator of these hazardous wastes. The accumulation containers are located near the point of initial waste generation and are managed in accordance with the requirements of 40 CFR 262.34(c) and ADEM Administrative Code Rule 335-14-3-.03(5)(c). Wastes are typically accumulated in containers with a capacity of 55 gallons or less and are labeled in accordance with 40 CFR 262.34(c)(1)(ii) and ADEM Administrative Code Rule 335-14-3-.03(5)(c)1.(ii) so that the accumulation containers are clearly distinguishable from

containers used to receive and store waste for processing or treatment. Within three (3) days of the accumulation of fifty-five (55) gallons of hazardous waste in a container or one (1) quart of acutely hazardous waste in a container at a satellite accumulation point, the container is transferred into a permitted container storage unit at the Facility.

### D-9-3m Recordkeeping for Wastes Managed in Containment Buildings

In accordance with the requirements of 40 CFR 264.73(b)(1) and ADEM Administrative Code Rule 335-14-5-.05(4)(b)1., the Facility maintains in the Facility Operating Record a description and quantity of each hazardous waste managed in containment building management units and the method(s) and date(s) of treatment, storage, or disposal. In accordance with the requirements of 40 CFR 264.73(b)(2) and ADEM Administrative Code Rule 335-14-5-.05(4)(b)2., the Facility also maintains in the Facility Operating Record a description and quantity of hazardous waste transferred into and out of each of the containment building management units at the Facility.

## D-9-4 General Management Practices for Treatment in Containment Buildings

The information within this section pertains to the treatment of waste in mass (i.e., not in containers or tanks) in containment buildings at the Facility. Although each containment building management unit and the treatment systems within the containment buildings are unique, certain management practices apply to the treatment of wastes in mass within all containment buildings. These management practices are provided in the following subsections. Additional unit-specific information is provided in the individual descriptions for each unit provided in Subsection D-9-6 of this section.

### D-9-4a Types of Waste Treated within Containment Buildings

The Facility receives varying quantities and types of wastes and, throughout the subsections that follow, reference is made to the types and quantities of waste that can be treated within each containment building management unit. Within each of the containment building management units and the treatment systems used therein, a broad range of waste codes and waste types can be treated. Section C of this Application lists the EPA waste codes that are stored, treated and disposed at the Facility, all of which may be managed within containment buildings. All waste codes are listed in Section C because the EPA has determined that treatment residuals, wastewaters, dilute concentrations of hazardous waste constituents, and mixtures of hazardous constituents in non-hazardous waste maintain, by virtue of the waste derived-from rule and mixture rule, their listed code(s) regardless of their concentration of hazardous constituents in the waste. Therefore, specific waste code groupings designated for treatment within each of the containment building units or treatment systems within each containment building units cannot be compiled.

### D-9-4b Treatment Decisions

As outlined in the Waste Analysis Plan in Section C of this Application, a determination is made as to the best means of storing, processing, or treating the waste at the Facility. The physical form, chemical composition, compatibility, and the operator's knowledge of the waste dictates whether a waste stream is stored, treated, or processed within a containment building management unit at the Facility. In all cases, prior to the treatment or processing of wastes in mass (i.e., not in containers or tanks) in a containment building, the wastes are assessed for chemical compatibility. All decisions on treatment and processing are made in accordance with the Waste Analysis Plan and the Regulations. Treatment of waste in mass within a containment building will normally be performed on a batch or campaign basis, with only compatible waste streams stored or treated simultaneously.

### D-9-4c Compatibility

Before waste is placed in a containment building, it is assessed in accordance with the Waste Analysis Plan to determine the following:

- it belongs chemically to one of the classes of wastes allowed to be managed in the containment building (e.g., it actually exhibits one or more of the properties of ignitability, corrosivity, or reactivity, etc.);
- it is compatible with the materials of construction of the wearing surface of the primary barrier of the containment building; and
- it is compatible with the waste currently managed in the containment building, or previously managed in the containment building, if residues of the previous waste exist and the containment area is not rinsed between campaigns.

If these conditions cannot be met, the wastes are not placed in the containment building. In the case of incompatibility with waste previously stored in the containment building, the wastes are not placed in the containment building until the area of the containment building has been emptied of current wastes and/or one of the following procedures are completed:

- the area is rinsed to remove the residuals of the previous waste stream; or
- the area is flushed with a transition waste that meets the following criteria:
  - is mutually compatible with the residuals of the previous wastes;
  - is compatible with the waste to be placed in the containment building; and
  - is compatible with the materials of construction of the containment building.

## D-9-4d Inspection of Treatment and Processing Systems

Inspection of the treatment and processing areas, systems, and equipment used to manage waste in mass (i.e., not in containers or tanks) in a containment building at the Facility are described in the Inspection Plan in Section F of this Application

## D-9-4e Treatment Capacity Units

Unit-specific treatment capacities of wastes conducted in mass in containment buildings are provided in Subsection D-9-6b(1) for Unit 1200A. These capacities are based on the volume of waste received and may be expressed in time units of minutes, hours, days, weeks, months, or years. However, due to the wide variety of wastes processed and the various physical states, instantaneous rates will vary and can exceed the stated rates. Thus, all units of treatment capacity are implied to be average annualized totals equated to the specific time units expressed within each of the unit-specific discussions. Units of measure normally associated with liquids, such as gallons, may also be used to express an equivalent volume of solids. Likewise, units of measure normally associated with solids, such as cubic feet (cu.ft.), or cubic yards (cu.yd.) may also be used to describe an equivalent volume of liquids. However, in general, the units of measure for wastes relative to weight versus volume are based on 8.34 pounds per gallon (ppg) for liquids, and 9.9 ppg or 74.1 pounds per cubic foot (pcf) equivalent of solids.

## D-9-4f Prevention of Hazardous Waste Trackout from Containment Buildings

Whenever waste is managed in mass on the floor of a containment building unit, specific measures are taken to prevent the tracking of any significant quantities of hazardous waste out of the unit or area by the tires of delivery vehicles, heavy equipment, portable treatment equipment such as mixers, compactors, and washers, and other such items that come in contact with hazardous waste. Prior to removal or exit from the containment building or containment area within a building, such equipment or other items will be cleansed by dry-brushing, rinsing, or other means as necessary to prevent tracking of hazardous waste out of the unit. Any residues or rinsate generated from this cleansing process will be collected and properly managed (i.e., managed as a Facility generated waste, characterized based on knowledge of the waste that it contacted or characterized by other procedures as described in the Waste Analysis Plan). Prior to removal or exit from a containment building, all cleansed equipment will be visually inspected by the unit supervisor or his designee to ensure that no significant quantities of hazardous waste are tracked out of the unit. Depending on the arrangement of wastes in mass, containers, tanks, or portable treatment equipment within a containment building management unit at the time of decontamination, the decontamination of equipment to prevent trackout in accordance with 40 CFR 264.1101(c)(1)(iii) and ADEM Administrative Code Rule 335-14-5-.30(2)(c)1.(iii) may be performed in any area within the confines of the containment building.

In order to prevent the tracking of any significant quantities of hazardous waste out of a containment building or containment area within a building by personnel, each containment building management unit is equipped with an attached personnel decontamination room that is separated from the areas in which hazardous wastes are managed. Within these decontamination rooms, personnel can remove and dispose of all contaminated PPE prior to exiting the building or unit.

### D-9-4g Control of Fugitive Dust Emissions

During routine operating and maintenance activities, the dust collector(s) described in Subsection D-9-2e of this section will be operated, and all building openings (e.g., doors, windows, etc.) will be managed as required to maintain a state of no visible emissions from any openings in the unit in accordance with 40 CFR 264.1101(c)(1)(iv) and ADEM Administrative Code Rule 335-14-5-.30 (2)(c)1.(iv). If necessary to maintain this state of no visible emissions from a containment building unit, waste treatment and other activities will be suspended during the periods required for personnel, vehicles, or heavy equipment to enter or exit the building. Determinations of the presence of visible emissions will be made in accordance with the procedures described in Method 22 in Appendix A of 40 CFR Part 60. The dust collector and air exhaust system will be operated in accordance with sound air pollution control practices and will be maintained in good working condition.

## D-9-5 Description of Treatment Process Performed in Containment Buildings

Hazardous wastes are treated in one (1) containment building unit at the Facility (i.e., Unit 1200A). Treatment performed in mass (i.e., not in containers or tanks) in containment buildings (T94) includes the following processes:

| **CONTAINMENT BUILDING TREATMENT PROCESSES (T94)** | **SPECIFIC HANDLING CODES** |
|---|---|
| A. Chemical Treatment Processes | |
| 1. Chemical fixation | T21 |
| 2. Chemical oxidation | T22 |
| 3. Chemical precipitation | T23 |
| 4. Chemical reduction | T24 |
| 5. Chlorination | T25 |
| 6. Cyanide destruction | T27 |

| | |
|---|---|
| b. Blending | T50 |
| c. Leaching | T59 |

Treatment may be accomplished by a number of processing steps applicable to the particular type of waste. The sequence of processing operations varies with the physical state of the waste (i.e., solid, semi-solid, or liquid). In order to treat a particular waste, it may be necessary to utilize one or more of the treatment processes identified above. Normally, however, a particular waste requires only one type of treatment, and portions of the waste residuals are then directed for further treatment as appropriate. The necessary steps preceding the processing of wastes in mass within containment buildings, such as compatibility evaluation, acceptance, and treatability evaluations, are described in this section and in the Waste Analysis Plan in Section C of this Application. Within each containment building unit, certain general treatment processes are conducted, such as decanting, repackaging, bulking, blending, mixing, phase and component separation, etc. These treatment processes may be conducted within any of the containment building units. Descriptions of these general treatment processes are provided in the following subsections. Unit-specific treatment and processing functions are described in the discussion of each containment building provided in Subsection D-9-6 of Section D-9 of this Application.

## D-9-5a Phase and Component Separation

### D-9-5a(1) Description of the Phase and Component Separation Process

The phase and component separation of waste in mass (i.e., not in a container or tank) within a containment building consists primarily of screens or other sorting mechanisms or systems. These systems allow the selective separation of certain portions of a waste. The selective separation of the various components within a waste provides components which are more amenable to further treatment than is the composite mixture. Multi-layered wastes and wastes consisting of various particle sizes are particularly amenable to phase and/or component separation. The separated fractions or components are sent to appropriate off-site reclamation or treatment facilities or directed to on-site treatment or disposal units.

### D-9-5a(2) Types of Waste Phase and Component Separated

Practically all types of liquid, semi-solid, and solid wastes may undergo phase and component separation within containment building management units at the Facility. The actual types of waste considered for phase and component separation depend on the type of end recovery, treatment or disposal required. For example, inorganic wastes may be separated for debris treatment and stabilization prior to disposal.

### D-9-5a(3) Management of the Phase and Component Separation Process

Due to the relative simplicity of the phase and component separation process, the design and management of the process design is relatively simple. The uniqueness of the process is in the identification of the strata or components to be separated within the waste. This determination is made by sampling and by the waste profile information. The separation of solids may be performed using screens or other devices. Due to the nature of the process, all operations are manually controlled.

## D-9-5b Blending and Mixing

### D-9-5b(1) Description of the Blending and Mixing Process

Select wastes may be mixed or blended, providing the assessment prescribed in the Waste Analysis Plan in Section C of this Application demonstrates that none of the following conditions will result from the mixing or blending:

- extreme heat or pressure;
- fire or explosion, or the risk thereof due to production of flammable fumes;
- violent reaction;
- production of harmful quantities of toxic mists, fumes, dusts, or gases; or
- other types of reactions which might harm the Facility structure, or human health, or the environment.

The blending and mixing process consists of taking two or more wastes, or waste and reagents, and blending and mixing them in prescribed ratios in accordance with the Waste Analysis Plan.

### D-9-5b(2) Types of Waste Blended and Mixed

Practically all types of liquid, semi-solid, and solid waste may be blended and mixed within containment building management units, provided they are mixed and blended in conformance with the requirements of the Waste Analysis Plan provided in Section C of this Application. The types of waste mixed and blended will depend on the type of end recovery, treatment, or disposal required.

### D-9-5b(3) Management of the Blending and Mixing Process

The mixing and blending processes are conducted in the containment buildings within the confines of the containment for the area. Depending on their physical and chemical characteristics and in accordance with the procedures in the Waste Analysis Plan provided in Section C of this Application, wastes are transferred from one or more receiving containers or tanks, or for wastes that are not in containers or tanks (i.e., loose or mass waste), from one or

more masses. Prior to transfer, the operator checks the receiving container, tank, or mass to assure that ample capacity remains to prevent overfilling or over topping the mass. All operations are supervised and are generally manually controlled. Particular attention is given to the compatibility of combined wastes with respect to materials of construction of containments.

## D-9-5c Bulking and Repackaging

### D-9-5c(1) Description of the Bulking and Repackaging Process

Wastes may be bulked into masses or from masses into containers or tanks, and/or may be repackaged from masses into containers, provided that the wastes are compatible with the container. The process of bulking and repackaging may be performed within any containment building management unit at the Facility.

### D-9-5c(2) Types of Waste Bulked and Repackaged

Practically all types of wastes including liquids, semi-solids, and solids may be bulked or repackaged, provided they are of the same waste stream or, in the case of bulking different waste streams (see also Mixing and Blending above), provided that the wastes conform to the requirements of the Waste Analysis Plan provided in Section C of this Application, and provided the waste is compatible with the materials of construction of the containments. The types of waste bulked or repackaged depend on the type of end recovery, treatment, or disposal required.

### D-9-5c(3) Management of the Bulking and Repackaging Process

The bulking and repackaging processes may be conducted within any of the containment building management units. These processes take place within the confines of the containment of these management units. All operations are supervised by Facility personnel and are manually controlled.

## D-9-5d Treatment of Debris Wastes

Containment building management units are used to treat debris waste by the procedures and methods described within this subsection. One or more of the chemical or physical treatment techniques described below may be used to render a debris waste amenable to direct landfill disposal, to subsequent treatment via stabilization, or to subsequent management in containers, tanks, or in mass within containment buildings.

Physical treatment technologies, which may be employed to render contaminated debris available for landfill disposal, include extraction techniques such as abrasive blasting, scarification, spalling, vibratory finishing, high pressure washing, or immobilization techniques including macroencapsulation and sealing. Other physical treatment techniques which may be employed to render wastes available for landfill disposal or more amenable to subsequent

stabilization or management in containers, tanks, or in mass within containment buildings include waste size reduction, waste blending and bulking, and leaching.

Chemical treatment technologies which may be employed to render contaminated debris available for landfill disposal include chemical extraction via washing with water or chemical reagents that enhance the removal of hazardous contaminants from the surface of debris, and immobilization techniques such as microencapsulation.

Debris treatment residuals such as blast grit or rinse waters generated from the aforementioned physical or chemical treatment technologies will be managed in accordance with the requirements of 40 CFR 268.45(d) and ADEM Administrative Code Rule 335-14-9-.04(6). Treated wastes which do not meet the land disposal restrictions will be collected, stored, and subsequently treated prior to final disposal. The process or storage areas of a containment building management unit may be used to store wastes during curing, treatment verification testing, and as needed to schedule subsequent treatment or disposal.

Any of the aforementioned treatment techniques may be employed using specialized equipment to render contaminated debris available for landfill disposal or to provide treatment or pre-treatment of debris treatment residuals or wastes separated from the contaminated debris prior to landfill disposal.

**D-9-5d(1) Physical Treatment Technologies**

The primary physical treatments that are performed on debris waste include the various physical extraction techniques that are designed to remove the surface contamination and/or surface layers. The physical extraction techniques which may be performed on debris waste within containment buildings are as follows:

(a) abrasive blasting with water or air propelled solid media such as sand, steel shot or glass beads;

(b) scarification with surface striking heads or grinding wheels;

(c) spalling by drilling or chipping holes into the surface of the debris;

(d) vibratory finishing utilizing scrubbing media or oscillatory mechanical devices;

(e) spraying with high pressure steam or water; or

(f) removal of debris components.

The physical treatment techniques listed above may be performed utilizing portable equipment which may be temporarily stationed in the containment building management unit. Solid treatment residuals from techniques (a) through (d) above will be collected within the area by sweeping or with filtered vacuum systems. Liquid treatment residuals from technique (e) above

will be collected with portable pumps from the liquid collection sumps within the containment building process area(s). Within containment buildings, the utilization of the ventilation system and dust collector, and the management practices as described in Subsection D-9-3 of this section, will minimize the escape of airborne fugitive emissions from the unit during the use of these techniques. The removal of the debris components from technique (f) may be performed within any containment building management unit and allows the separated debris to be further processed as debris and the non-debris component to be treated as necessary to meet the required restrictions.

Other physical treatments which may be performed to render contaminated debris available for landfill disposal include immobilization techniques such as macroencapsulation or sealing. Both of these techniques involve the application of surface coating materials which will substantially reduce the exposure of contaminated debris surfaces to media which may leach contaminants after disposal. The application of such coatings will require the use of specialized portable mixing and/or application equipment, which may be temporarily stationed in an area of each containment building management unit. Specific requirements for the control of applied coatings and of airborne fugitive emissions will be addressed on a case-by-case basis to comply with the requirements of 40 CFR 264.1101 and ADEM Administrative Code Rule 335-14-5-.30(2) and the Facility's air permit. Another immobilization technique consists of the placement, compaction or compression of waste materials into a macroencapsulation device (e.g., PPE compacted into a suitable container).

Macroencapsulation will be achieved by the placement of debris or intact containers of over 51% debris with less than 10% void space into a macroencapsulation device. The macroencapsulation devices currently approved by ADEM are a macroencapsulation vault (macro-vault) and macroencapsulation bag (macro-bag). Macroencapsulation of debris waste involves using an HDPE or other leachate compatible material typically sized to fit inside a bulk size container (capacity greater than 650 gallons), a smaller, more common size container (i.e., containers of less than 650 gallon capacity, such as 55-gallon drums, 80-gallon over-packed drums, etc.), or a custom-sized container (specifically designed to fit larger debris, which will not fit into a roll-off box) subject to ADEM approval prior to implementation. The general types of debris which can be placed in each approved macroencapsulation device are presented in the Emelle Facility’s Standard Division Practices for macro-vaults and macro-bags.

Procedures will be implemented to minimize the threat to the macroencapsulation device integrity, when necessary. If necessary, filler material is then added to fill the voids between the debris materials and to ensure that the macroencapsulation device is at least 90% full. Fill material may be added in the containment building (Unit 1200A), Unit 2000, or Unit 2200. Fill materials may be added while macroencapsulation devices are within a containment area or due to space restrictions and/or regulatory restrictions, fill material may be added to

macroencapsulation devices outside containment areas in accordance with the following procedure:

- Macroencapsulation devices are pulled just outside the containment area.
- Fill material is added via concrete truck, front end loader, or by other suitable measures.
- While filling, the fill material is spread (typically done manually).
- Fill material is allowed to cure if necessary, prior to movement back into containment.
- Macroencapsulation devices are moved back into containment.

Typically, four macroencapsulation devices are processed in a batch at one time. This process shall be limited to a maximum of 8 hours that any one box will be out of a containment area. The process shall not be done outside containment during times of precipitation. If precipitation occurs after the process has commenced, the process shall cease and the macroencapsulation device shall be immediately tarped. The weather condition shall be evaluated to determine:

- If subsequent continuation of the process is feasible outside the containment area after the precipitation event; or
- If the process can continue inside the containment area; or
- If the process shall cease and the macroencapsulation devices moved back into a containment area.

Once the filler material and debris are stable (e.g., if the filler material is a cement slurry, the cement has cured), a cover is placed and sealed to the top of the macroencapsulation device. The sealing of the macroencapsulation devices shall be done in a manner to preclude any gaps or cracks between the top and body of the macroencapsulation device. Sealing of the covers to the macroencapsulation device body shall occur in the containment building (Unit 1200A), in Units 2000 or 2200. A visual inspection of the sealed cover is conducted after completion of the sealing operation. Sealing of the macroencapsulation device around the waste will create a totally encapsulated mass for disposal. Once the macroencapsulation device is sealed and passes inspection, the macroencapsulation device may be stored within a storage unit or transported to the landfill for disposal. The handling of the macroencapsulation devices shall be done in a manner to ensure that the integrity of the seal between the top and macroencapsulation device is maintained.

The immobilization techniques described herein (i.e., sealing and macroencapsulation) will achieve complete encapsulation of the debris. All encapsulation materials used will be resistant to degradation by the debris, its contaminants and the materials with which it may come into contact after disposal (e.g., leachate). The determination as to the suitability of encapsulation materials will be based on the following factors:

- materials of construction of the land disposal unit (e.g., HDPE, etc.);
- industry standards and standards developed at other disposal facilities; or
- other materials as verified by testing (i.e., EPA Publication SW-846, Method 9090, etc.).

These standards will ensure that the likelihood of migration of contaminants is substantially reduced.

Some physical containment techniques are also employed to provide a waste that is subsequently more amenable to stabilization or other treatment. Waste size reduction, bulking, and blending may be performed to achieve these goals. The average particle size of contaminated debris or other waste may be reduced with the use of a portable shear shredder or other such devices. Contaminated debris will not be reduced to a particle size of less than 60 mm prior to treatment, unless waste-specific treatment techniques are to be subsequently employed. Debris that has been decontaminated by cleaning and separation of the debris from the waste via a physical or chemical extraction technique may be reduced in size to accommodate subsequent disposal. Contaminated debris will not be sized subsequent to treatment unless it is to be re-treated. Other wastes may be reduced in size prior to treatment. Such wastes which are compatible and require the same treatment prior to disposal may be blended into bulk loads within the confines of the containment building management unit.

**D-9-5d(2) Chemical Treatment Technologies**

The primary chemical treatment technologies that are performed on contaminated debris and other wastes include chemical extraction and microencapsulation.

The chemical extraction of specific or non-specific contaminants from the surface of debris may be achieved by washing the debris surface with aqueous solutions of contaminant solubilizing chemicals. This process is similar to and may be performed with the same equipment as used to physically extract surface contamination of debris by high-pressure washing. However, the use of chemicals, surfactants, water baths, and/or elevated temperatures or pressures will allow the removal of contaminants from the solids in a manner similar to leaching. Chemical extraction of contaminants via washing of the waste will be performed on the wearing surface of containment buildings or within specialized portable washing equipment which may be stationed

in the processing areas during use. Reagents to be used in the chemical washing process will be selected and managed in a manner to prevent accelerated corrosion or deterioration of the containment components or undetectable failure of the primary barrier of a containment building or secondary containment system. Wash solutions collected from the liquid collection sump during such a process may be recirculated to the application unit during the treatment of compatible waste batches requiring the same washing procedures. All spent wash solutions will be managed in accordance with the requirements of 40 CFR 268.45(d) and ADEM Administrative Code Rule 335-14-9-.04(6).

Another chemical treatment technique which is performed on debris waste within containment building management units is immobilization of contaminants through microencapsulation. Microencapsulation is utilized to immobilize or reduce the leachability of contaminants on debris surfaces or in other types of wastes. Microencapsulation or stabilization of debris or other wastes will be achieved by bringing the contaminant into intimate contact with one of a number of materials in the presence of adequate hydration waters. Other reagents may also be added to the mixture to enhance the curing and/or compressive strength of treated wastes. In addition, other types of immobilization agents may be used provided a determination as to the suitability of these agents is performed based on industry standards and standards developed at other disposal facilities, or based on verification by testing that the leachability of contaminants are immobilized or reduced. The microencapsulation to be performed within containment building management units may be the final treatment of contaminated debris prior to disposal or may be pre-treatment of wastes prior to final stabilization. Containment building management units without fixed installations employ specialized portable mixing and reagent application equipment which will be stationed within the containment building management units to perform this treatment.

**D-9-5d(3) Combinations of Treatment Technologies**

In some instances, the proper treatment of contaminated debris or other waste may only be achieved by utilizing combinations of the various physical and chemical treatment technologies described in Subsection D-9-5d(1) and (2). This subsection describes some of the potential combinations of treatment which may be used. However, since there are a large number of potential combinations, and since information on each individual treatment technique has been previously provided, a discussion of all treatment combinations is not warranted or provided.

One of the most common combination treatments will involve the removal of surface contamination via a chemical or physical extraction technique followed by macroencapsulation, sealing or immobilization via microencapsulation. A specific example of this combination is the removal of surface contaminants from debris to prepare the surface for application of sealants to still-contaminated debris, as certain surface contaminants may interfere with some immobilization techniques.

Another example of combination treatments involves the use of microencapsulated wastes as an agent in a mixture used for macroencapsulation of contaminated debris. Microencapsulated wastes are applied to contaminated debris to form a seal of inert materials which substantially reduces the exposure of the surface of the debris to potential leaching media upon landfill disposal. Microencapsulated wastes are applied to achieve a full surface coating on contaminated debris, to form a seal around the debris, and/or to fill void spaces within the debris (i.e., macroencapsulation) by submerging the debris within the microencapsulated waste, by pouring the microencapsulated waste into a container of debris such that the debris is completely surrounded, or by other similar methods that successfully achieve macroencapsulation. Microencapsulated waste used to macroencapsulate debris is subject to compatibility and land disposal restriction (LDR) testing requirements as described in the Waste Analysis Plan provided in Section C of this Application. The use of microencapsulated waste to macroencapsulate debris minimizes the use of reagents or materials.

For debris with hard-to-remove surface contamination, a combination of physical extraction techniques, such as abrasive blasting and high pressure washing, may be required to achieve a clean debris surface.

Other combination treatment techniques may be required to achieve the alternate treatment standards for hazardous debris or the waste-specific treatment standards for other types of wastes. Combination and multiple treatment techniques may be employed within containment building management units as required to achieve appropriate disposal treatment standards. The design and management of containment building management units allows storage and treatment to be performed in a manner that fully complies with the requirements of 40 CFR 264 Subpart DD and ADEM Administrative Code Rule 335-14-5-.30, and 40 CFR 268 Subpart D and Subpart E and ADEM Administrative Code Rules 335-14-9-.04 and 335-14-9-.05.

**D-9-5d(4) Debris Waste Treatment Capacities**

As described within the previous subsections, numerous hazardous waste treatment techniques will be performed on debris wastes within the containment building management units at the Facility. The actual treatment capacity that may be achieved for each of these techniques will vary depending on the physical and chemical characteristics of the debris waste or contaminants. The treatment capacities for each technique are indicated within the unit-specific information provided in Subsection D-9-6 and represent the average capacity that may reasonably be achieved based on the physical and operational constraints of the containment building management unit and as observed in practice. The storage of untreated, treated, curing, or cured wastes within the containment building management units or areas is not considered as a portion of the treatment capacities, but is limited by the storage capacities provided for each unit in Appendix D-9-1. The estimated design treatment capacities for specific

debris treatment techniques are normally expressed in tons per hour (tph) of untreated wastes and, unless otherwise stated in the unit-specific information provided in Subsection D-9-6, are as follows:

**CONTAINMENT BUILDING TREATMENT PROCESSES (T94)**

| | Treatment Technology | Treatment Technique | Treatment Code |
|---|---|---|---|
| **Chemical** | Extraction | Water Washing | T34 |
| | Immobilization | Microencapsulation | T34 |
| **Physical** | | Abrasive Blasting | T47 |
| | | Scarification | T47 |
| | Extraction | Spalling | T47 |
| | | Vibratory Finishing | T47 |
| | | High Pressure Washing | T47 |
| | Size Reduction | Shear Shredding | T47 |
| | Removal of | Blending | T50 |
| | Specific | Phase Separation | T50 |
| | Components | Screening | T47 |
| | Immobilization | Macroencapsulation | T39 |
| | | Sealing | T47 |

## D-9-6 Unit-Specific Information

The subsections which follow provide a description of the unique design features of and the management practices utilized within the containment building management unit at the Facility. The general design features described in Subsection D-9-2, and the general management and treatment practices described in Subsection D-9-3, Subsection D-9-4 and Subsection D-9-5 apply to this unit, with any exceptions noted in this subsection.

### D-9-6a Containment Building / Container & Tank Management Unit 1200A

Unit 1200A is located to the south of existing Unit 1400 and to the east of Unit 2000, as shown in Drawing No. 0100-020-002, in Appendix B-3 of Section B of this Application.

The process and instrumentation diagrams (P&ID), process flow diagram (PFD), plan view of the layout, sections, and details of the construction of this unit are provided in the drawings in Appendix D-1 to Section D of this Application, including the following:

- Drawing No. 1200A-010-000 Building 1200A, Piping/Instrumentation Symbology;

- Drawing No. 1200A-010-002A Building 1200A, P&ID;
- Drawing No. 1200A-010-003 Building 1200A, P&ID;
- Drawing No. 1200A-010-004 Building 1200A, P&ID;
- Drawing No. 1200A-010-005 Building 1200A, P&ID;
- Drawing No. 1200A-010-006 Building 1200A, P&ID;
- Drawing No. 1200A-020-001 Building 1200A, General Arrangement;
- Drawing No. 1200A-020-002 Building 1200A, General Arrangement;
- Drawing No. 1200A-030-002 Building 1200A, Elevations;
- Drawing No. 1200A-030-003A Building 1200A, Sections;
- Drawing No. 1200A-030-004A Building 1200A, - Liner System Subgrade Plan;
- Drawing No. 1200A-030-005 Building 1200A, - Containment Details & Sections;
- Drawing No. 1200A-040-001 Building 1200A, Ground Floor and Foundation - Sections and Details;
- Drawing No. 1200A-040-002 Unit 1200A, Batch Stabilization Mixing Tanks - T-1201A & T-1202A; and

As shown in these drawings, Unit 1200A consists of the containment building / container management area, which includes the following components:

- a covered and contained area for the unloading and cleaning of waste delivery vehicles and for the storage and processing of waste in containers and in mass (i.e., not in containers or tanks);
- two in-ground mixing tanks (T-1201A and T-1202A);
- backhoes to mix wastes with the reagent in the tanks;
- reagent storage silos and feed systems;
- fugitive dust collection and management systems; and
- contained areas for container unloading/loading, container storage and treatment, storage and treatment of wastes on the floor of the unit, and for operation of the backhoes.

Unit 1200A is equipped with an eight-foot-high containment wall, a dual barrier containment system, and other features to comply with the requirements of 40 CFR 264 Subpart DD and ADEM Administrative Code Rule 335-14-5-.30 for Containment Buildings.

Information on the management of waste in containers and tanks in Unit 1200A is provided in Section D-1 and in Section D-2 of this Application, respectively.

**D-9-6a(1) Types and Quantities of Wastes Managed in Unit 1200A**

Due to the mixture and derived-from rules, wastes managed in mass (i.e., not in containers or tanks) in Unit 1200A may be virtually any type of hazardous waste listed and identified by waste code in 40 CFR Part 261 and in ADEM Administrative Code Chapter 335-14-2, TSCA-regulated PCB wastes, non-hazardous wastes, and treatment residues from those wastes. Therefore, Unit 1200A is used to manage acute hazardous, corrosive, toxicity characteristic, and certain ignitable and reactive wastes. Although the wastes to be managed in mass in Unit 1200A generally will be solids and semi-solids, these wastes may contain some freestanding liquids before and during treatment (i.e., while curing).

The maximum quantity of wastes that will be stored in mass (i.e., not in containers or tanks) in Unit 1200A (S06) is provided in the calculations in Appendix D-9-1 of Section D-9. The maximum quantity for the treatment of wastes in mass (i.e., not in containers or tanks) in Unit 1200A (T94) via bulking and repackaging, mixing and blending, encapsulation, separation, decanting, etc., exclusive of treatment in tanks or containers and transfers between containers and tanks, is 150,146 gallons per day based on processing the entire mass waste storage volume each day.

In addition, the estimated maximum quantity for the treatment of debris waste in mass in Unit 1200A (T94) is 120 tph as described in Subsection D-9-5d(4) of this section.

Information on the additional storage and treatment capacities of waste managed in containers and in tanks in Unit 1200A is provided in Section D-1 and in Section D-2 of this Application, respectively.

**D-9-6a(2) Design of Containment Building Unit 1200A**

This section describes the physical design features of Unit 1200A. Information on design features of tank systems in this unit is provided in Section D-2 of this Application.

Unit 1200A (see Drawing No. 1200A-020-001), is enclosed by a structural steel frame, metal siding and roof panels, and fully closing personnel and equipment doors. The metal building has an approximate eave height of 45'. The high building eave provides sufficient clearance for the unloading and loading of the various types of waste delivery vehicles (i.e., roll-offs, dumps, tankers, and van trailers connected to high lift cabs). This building encompasses the following:

- waste truck unloading area which can be used for unloading waste into the waste tanks, an area to wash down the tail gates and rear tires of trucks, and loading aisles for treated waste transfer or for storing and processing waste in mass;
- two in-ground mixing Tanks (i.e., T-1201A and T-1202A);
- the excavator work aisle at the front of Tanks T-1201A and T-1202A;
- treated waste container out-loading aisles at the sides of the Tanks T-1201A and T-1202A;
- the treated or shredded waste container area between Tanks T-1201A and T-1202A;
- reagent delivery systems;
- the area behind the reagent delivery system that is used for the storing and processing waste in mass;
- an elevated control room; and
- other ancillary items.

At the exterior perimeter to this building there are two contained areas within which dust collectors are located. These areas are separated from the containment building area (i.e., Containment 1) by full height partition walls. Air handling ducts connect the dust collector to several strategically located air intake plenums for the collection of particulate.

The base of the building in the containment building area is constructed of a sloping, reinforced concrete slab encircled by a perimeter containment wall. The height of the perimeter wall is eight (8) feet, except at the doors where an eight-inch-high curb or ramp completes the secondary containment. Ramps at the truck accesses allow vehicles to traverse the containment system. This slab forms the wearing surface for the containment building. The slab slopes in the direction of each treatment tank at a minimum rate of 1/8" per foot. The perimeter containment wall and the sloping floor of the building aid in the collection of solids and washwater generated during periodic cleaning. The interior of the wall panels, the intermediate support members, and the main building supports are coated to prevent corrosion caused by periodic washdowns. The perimeter containment wall, the building system, and the doors of the building prevent exposure of the building interior and wastes being managed therein to precipitation, wind and run-on and assure the containment of wastes managed in this area.

Along the western perimeter of the containment building there are reagent storage silos. The primary purpose of the reagent silos is to store reagents and to supply them to the treatment tanks. Hazardous waste is not stored or treated in these silos. Each of the silos has the capabilities to receive dry reagent directly from pneumatic delivery vehicles.

As shown in the sections and details on Drawing Nos.1200A-030-004A and 1200A-030-005 in Appendix D-1 to Section D, underlying the reinforced concrete wearing surface is a dual liner system that is designed to comply with the requirements for management of wastes containing free liquids as outlined in 40 CFR 264.1101(b) and ADEM Administrative Code Rule 335-14-5-.30(2)(b). The dual liner system beneath the wearing surface consists of the following layers described in descending order:

- wearing surface support fill - comprised of a compacted ( i.e., compacted to 98% density per ASTM D698) layer of fill soil a minimum of two (2) feet in thickness;
- liquid collection drainage layer - comprised of a non-woven geotextile over a course granular aggregate layer a minimum of 12" in depth, underlain by a non-woven geotextile;
- primary barrier - comprised of a 60-mil synthetic HDPE liner (e.g., Secondary Liner as specified in Subsection D-6-1-4-2c in Attachment D-6-1-4 of Section D-6 of this Application) underlain by a geosynthetic clay liner;
- secondary leak detection drainage layer - comprised of a geocomposite drainage net with a transmissivity of $3 \times 10^{-5}$ $m^2$/sec., or greater; and
- secondary barrier - comprised of a 60-mil synthetic HDPE liner (e.g., Secondary Liner as specified in Subsection D-6-1-4-2c in Attachment D-6-1-4 of Section D-6 of this Application) underlain by a geosynthetic clay liner (e.g., Bentofix NS as manufactured by Fluid Systems, Inc., or equal).

This dual liner system slopes at a minimum of 1% to the building's perimeter to a liquid collection sump to minimize the accumulation of liquids on the primary barrier. As shown in the Plan View on Drawing Nos. 1200A-030-004A and 1200A-030-005, the dual liner system slopes in different directions forming six (6) discrete zones. The slope and design of the barrier systems promote rapid drainage of liquids and early detection of failure of the primary barrier. Each of the zones is equipped with independent liquid collection sumps and secondary leak detection sumps at the lowest point. Each sump is equipped with a riser pipe to allow detection and to remove any accumulated liquids (see Drawing No. 1200A-030-005, Detail 1/1). If there is a release of hazardous waste from the primary barrier, action will be taken as described in Section D-9-3j.

**D-9-6a(3) Management of Wastes in Unit 1200A**

As previously stated, Unit 1200A can be used to manage waste in mass, tanks, or containers. The management practices employed during the management of waste in mass in Unit 1200A are described in Subsection D-9-3 and Subsection D-9-4 of this section. The management of

waste in containers and tanks in Unit 1200A is described in Section D-1 of this Application and in Section D-2 of this Application, respectively.

[End of Section D-9 Text]

# APPENDIX D-9-1

# SECTION D-9

# CALCULATIONS OF STORAGE VOLUMES IN MASS IN CONTAINMENT BUILDINGS

Revision No.
5.0

# APPENDIX D-9-1

# SECTION D-9

# CALCULATION OF STORAGE VOLUMES

# IN MASS IN CONTAINMENT BUILDINGS

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# APPENDIX D-9-1

# SECTION D-9

# CALCULATION OF STORAGE VOLUMES

# IN MASS IN CONTAINMENT BUILDINGS

## D-9-1-1 Storage In-Mass within Containment Building Unit 1200A

See Figure D-9-1.1 at the end of this Appendix for a typical layout of waste in mass in Areas A through H within Containment Area 1 of Containment Building/Container & Tank Management Unit 1200A.

- Volume Bulked In Containment Process Area

  Assume average angle of repose is 37.5° (which results in a horizontal distance of 10.5 feet) and the height of waste is 8 feet, unless noted otherwise:

### D-9-1-1a Areas A & B

Volume for each area using the average end area method:

1/2 x ((30' x 26') + (15.5' x 9.0')) x 8' = 3,678 cu. ft.

3,678 cu. ft. * 2 areas = 7,356 cu. ft.

### D-9-1-1b Area C

Volume for the area using the pyramid and wedge approximation method:

(1/3 x (21' x 21') x 8') + (1/2 x (21' x 8') x 25') = 1,176 + 2,100 = 3,276 cu. ft.

### D-9-1-1c Area D

Volume for the area using the average end area method:

1/2 x ((48' x 14.5') + (27' x 4')) x 8' = 3,216 cu. ft.

### D-9-1-1d Area E

Volume for the area assuming a waste height of 4' and using the pyramid and wedge approximation method:

(1/3 x (10' x 10') x 4') + (1/2 x (10' x 4') x 10') = 133 + 200 = 333 cu. ft.

### D-9-1-1e Area F

Volume for the area assuming a waste height of 6' and using the pyramid and wedge approximation method:

(1/2 x 1/3 x (16' x 16') x 6') + (1/2 x (16' x 6') x 8') = 256 + 384 = 640 cu. ft.

### D-9-1-1f Areas G & H

Volume for each area using the average end area method:

1/2 x ((22' x 29') + (18.5' x 1.0')) x 8' = 2,626 cu. ft.

2,626 cu. ft. * 2 areas = 5,252 cu. ft.

**Total = 20,073 cu ft**

**or 150,146 gallons**

[End of Appendix D-9-1 Text]

# APPENDIX D-9-1

# SECTION D-9

# CALCULATION OF STORAGE VOLUMES IN MASS IN CONTAINMENT BUILDINGS

# FIGURES

# FIGURE D–9–1.1
# TYPICAL ARRANGEMENT OF WASTE IN MASS IN CONTAINMENT BUILDING UNIT 1200A