

**ADDENDUM C**  
**PROCESS INFORMATION**

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**ADDENDUM C**  
**PROCESS INFORMATION**

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## 1 C PROCESS INFORMATION

2 This addendum discusses the processes used to store and/or treat waste containerized waste at the Waste  
3 Receiving and Processing Facility (WRAP) Operating Unit Group. The WRAP Operating Unit Group  
4 provides storage and treatment for dangerous and/or mixed waste generated both on and off the Hanford  
5 Facility. Permittees may store and treat the following wastes approved for storage and treatment at the  
6 WRAP Operating Unit Group: dangerous or mixed waste that is generated from processes at the Hanford  
7 site, or waste that is specifically identified in Section II, paragraph 8 of the Settlement Agreement re:  
8 Washington v. Bodman, Civil No. 2:30-cv-05018-AAM, January 6, 2006. No other wastes may be stored  
9 or treated at WRAP unless authorized via a permit modification decision pursuant to Permit Condition  
10 I.C.3. Requests for Permit modifications must be accompanied by an evaluation adequate for Ecology to  
11 comply with SEPA.

12 All containers of dangerous and/or mixed waste will be stored within the locations identified in Table C.1  
13 unless the containers are being processed through a processing line. A discussion of run-off and run-on  
14 control systems also is presented.

### 15 C.1 Process and Facility Description

16 WRAP Operating Unit Group is located in the 200 West Area.

17 WRAP consists of the following dangerous waste management units:

- 18 • 2336W Building Process Area (Storage, and Treatment within gloveboxes)
- 19 • 2336W Building NDA/NDE Area (Storage)
- 20 • 2336W Building Shipping and Receiving Area (Storage)
- 21 • 2336W Building Room 152 (Storage)
- 22 • 2404WA, Waste Storage Building (Storage and Treatment)
- 23 • 2404WB, Waste Storage Building (Storage and Treatment)
- 24 • 2404WC, Waste Storage Building (Storage and Treatment)

25 These storage/treatment areas provide space for the management and storage of various sizes of waste  
26 containers. Storage structures and areas are operated to maintain separate containment between  
27 containers of incompatible waste as described in [Section C.3](#) (incompatibility is defined in [WAC 173-](#)  
28 [303-040](#) and requirements are identified in [WAC 173-303-395](#)).

29 The WRAP dangerous waste management units provide structures, confinement equipment, and support  
30 functions. Within the 2336W Process Area gloveboxes the following waste management activities will  
31 occur:

- 32 • Visually examining waste, separating, and sorting waste.
- 33 • Treating or managing prohibited waste components.
- 34 • Repackaging waste to meet shipping and/or waste acceptance criteria for the receiving TSD unit  
35 or offsite facility.

36 Waste leaving the 2336W Building Process Area is typically ready to be transferred/ shipped to a  
37 receiving TSD unit or offsite facility; however the waste may be stored at WRAP for a period of time  
38 prior to the transfer/shipment out of WRAP.

39 Waste treatment activities within the 2336W Building Process Area and the 2404WC Building include:

- 40 • Deactivation.
- 41 • Solidification or absorption of liquids.
- 42 • Neutralization of corrosives.
- 43 • Microencapsulation.
- 44 • Macro-encapsulation.

- 1 • Absorption to accomplish deactivation.
- 2 • Volume reduction of waste.
- 3 • Deactivation of reactive waste.
- 4 • Venting and draining aerosol cans (2336W Process Area only).

5 Waste treatment activities within the 2404WA and 2404WB Buildings include:

- 6 • Absorption of free liquids.
- 7 • Absorption to accomplish deactivation.
- 8 • Neutralization of corrosive materials.

### 9 **C.1.1 2336W Building**

10 The 2336W building is the main WRAP Operating Unit Group building. The footprint of the structure is  
11 approximately 73 m (240 ft) by 61 m (200 ft) by 8.8 m (29 ft). The exterior design features of the  
12 building are shown in Figure C.1 and the layout is shown in Figure C.2. The building is subdivided into  
13 the following areas where dangerous and mixed waste can be handled, stored and treated, and the layout  
14 of each area is shown in the listed figure:

- 15 1. Shipping and Receiving Area (Figure C.3).
- 16 2. Nondestructive Examination (NDE) and Nondestructive Assay (NDA) Area (Figure C.4).
- 17 3. Process Area (Figure C.5).
- 18 4. Room 152.

19 Storage of dangerous waste occurs in the Shipping and Receiving Area, NDE and NDA Area, Process  
20 Area, and Room 152.

21 The 2336W Building is designed and constructed to meet NFPA codes and is equipped with fire, heat,  
22 and smoke detectors along with a fire suppression system.

23 Containment requirements for the storage areas within the 2336W building are discussed in Section C.2.2.  
24 Management of incompatible wastes is discussed in Section C.3. These 2336W Building Areas are  
25 further described as follows:

#### 26 **C.1.1.1 Shipping and Receiving Area**

27 The Shipping and Receiving Area occupies the southeast corner of the building and supports storage,  
28 container handling, and transport container loading operations (Figures C.2 and C.3).

29 Loading docks, a drive-through bay for truck access and container operations, container storage  
30 equipment, and material handling and specialized container loading equipment will be maintained as part  
31 of this area. This area also contains a mechanized Automated Stacker/Retriever System (AS/RS) system  
32 that transports, stores and retrieves drums using a computerized control system. The primary purpose for  
33 the AS/RS is to limit the radiation exposure received by personnel.

34 A fire suppression system covers the entire Shipping and Receiving Area.

35 The maximum storage capacity of the Shipping and Receiving Area is identified in Table C.1.

36 No treatment will take place in the Shipping and Receiving Area.

#### 37 **C.1.1.2 NDE and NDA Area**

38 The NDE and NDA Area provides approximately 700 m<sup>2</sup> (7,535 ft<sup>2</sup>) for equipment and container storage  
39 (Figures C.3 and C.5).

40 The NDA equipment will be used to determine the Atomic Energy ACT (AEA) regulated material  
41 content of each waste container. The NDE will be used to identify waste items to indicate the physical

1 appearance of the waste, identify if liquids are present, and/or identify if other suspect nonconformance  
2 waste forms are present to support waste characterization and processing.

3 Typically, waste containers are routed through the NDE examination and NDA assay vaults. Then,  
4 containers are routed to one of the 2404 buildings for storage and/or headspace gas sampling. Containers  
5 that are found to include prohibited items as described in Addendum B can be processed through the  
6 Process Area gloveboxes to remove and/or treat these items. Containers with prohibited items also may  
7 be transferred to another TSD unit or offsite TSD facility, stored at WRAP dangerous waste management  
8 units until repackaging, and/or treatment may be performed within the gloveboxes.

9 The maximum storage capacity of the NDE and NDA area is identified in Table C.1.

10 No treatment will take place in the NDE and NDA Area.

### 11 **C.1.1.3 Process Area**

12 The Process Area is approximately 30 m (100 ft) long by 22.9 m (75 ft) wide. The height varies from 6.7  
13 m (22 ft) to 7.9 m (26 ft) (Figures C.2 and C.5). The Process Area contains the four glovebox lines and  
14 the drum storage carousel.

15 The Process Area supports the WRAP Operating Unit Group mission of safely ensuring that disposal  
16 containers meet waste acceptance criteria. Inherent in this mission are providing structures, equipment,  
17 and support functions for waste visual examination, separating and sorting compliant and prohibited  
18 waste items, treating or managing prohibited waste, and repackaging waste into acceptable containers.

19 A water fire protection system is provided as described in Addendum F. Dry chemical fire suppression  
20 systems cover the inside of each glovebox. The Process Area is supported with a high-efficiency  
21 particulate air (HEPA)-filtered exhaust system located in an adjacent room that contains the exhaust fans  
22 and HEPA filtration equipment.

23 The maximum volume capacity of the Process Area is identified in Table C.1.

24 Waste containers routinely enter and leave the Process Area through the airlock located in the NDE and  
25 NDA Area. An additional airlock will be provided for transferring sample containers between the Process  
26 Area and the count room. Waste containers will be handled directly from the airlock or from the lag  
27 storage carousel to the appropriate process glovebox enclosure. Once inside, they will be opened and  
28 processed. The container processing will be accomplished within the enclosure in various sections where  
29 waste will be handled as follows:

- 30 • Received into the enclosure.
- 31 • Opened and emptied.
- 32 • Compacted (empty drums).
- 33 • Sorted or visually examined.
- 34 • Prohibited items removed (may be sampled, treated, or transferred out).
- 35 • Repackaged.
- 36 • Loaded out (repackaged/transfer containers).

37 The processed waste containers will be transported back through the airlock to the NDE and NDA Area  
38 and to the Shipping and Receiving Area for transfer to storage to an onsite TSD unit, offsite TSD facility  
39 or other approved onsite disposal facility.

### 40 **C.1.1.4 Room 152**

41 Room 152 is located between the Shipping and Receiving Area and the Extra Loading Dock and Storage  
42 Area (Figure C.3).

43 Containment requirements are discussed in [Section C.2.2](#). Management of incompatible wastes is  
44 discussed in [Section C.3](#).

1 No treatment is performed in Room 152.

2 The maximum storage capacity for Room 152 is identified in Table C.1.

### 3 **C.1.2 2404W Waste Storage Buildings**

4 The 2404W-series buildings are pre-engineered metal buildings (Figure C.6). The dimensions of each  
5 building are 54.9 m (180 ft) long by 36.6 m (120 ft) wide. Each storage building has one 3.1 m (10 ft) by  
6 3.7 m (12 ft) overhead rollup door at each end of the building.

7 Containment requirements are discussed in [Section C.2.2](#). Management of incompatible wastes is  
8 discussed in Section C.3. These buildings are protected with automatic dry-pipe sprinkler systems and  
9 manual fire extinguishers. Power roof ventilators with filtered air inlets around the perimeter of the  
10 building provide ventilation in Buildings 2404WA and 2404WB. Building 2404WC has a pad-mounted  
11 heating, ventilating, and air conditioning (HVAC) system to provide a temperature-controlled  
12 environment.

13 The 2404W Waste Storage Buildings (2404WA, 2404WB and 2404WC) provide a total area of 6,020.1  
14 m<sup>2</sup> (64,800 ft<sup>2</sup>) of storage space for waste containers. The maximum storage volume capacity for waste  
15 storage in each of the storage buildings is identified in Table C.1.

### 16 **C.1.3 Temporary Storage on Pavement and Concrete outside the DWMU boundaries**

17 The WRAP operations involve in process activities outside of the WRAP dangerous waste management  
18 unit boundaries to safely and efficiently manage waste. These in-process activities often necessitate that  
19 the containers are moved onto asphalt or concrete surfaces within the WRAP for a short period of time,  
20 not to exceed 24 hours. Large containers, palletized containers, and banded-containers are placed on the  
21 asphalt or concrete to facilitate the in-process waste activities. These in-process activities include, but are  
22 not limited to:

- 23 • Processing waste containers through NDA and NDE units
- 24 • loading and unloading of waste containers for shipments;
- 25 • performing surveys of containers;
- 26 • transferring containers from one storage location to another storage location;
- 27 • relocating a container from storage for treatment;
- 28 • performing TSD unit, inspections and repairs (such as building, roof, or floor repair);
- 29 • relocating containers to meet safety requirements;
- 30 • overpacking containers
- 31 • palletizing and banding containers
- 32 • “mining” for a container, which entails pulling containers out of a storage area to retrieve a  
33 certain container. This practice keeps the containers out of the direct path of ongoing forklift  
34 activities and minimizes the potential for a drum handling accident while “mining” containers.

35 The following requirements are applicable to containers with dangerous waste placed onto pavement or  
36 concrete outside of the WRAP dangerous waste management units:

- 37 • Containers are actively controlled by WRAP operations
- 38 • Containers are in good condition and identified in accordance with [WAC 173-303-630](#)(2) and (3).
- 39 • Containers will always be closed, [[WAC 173-303-630](#)(5)(a)].
- 40 • Containers will not be handled in a manner which may rupture the container or cause a leak  
41 [[WAC 173-303-630](#)(5)(b)].
- 42 • There will be a minimum 30-inch separation between aisles of containers, and containers can be 2  
43 wide to form an aisle [[WAC 173-303-630](#)(5)(c)].

- 1 • Containers will be elevated or otherwise protected from contact with accumulated liquids and any  
2 run-on [[WAC 173-303-630\(7\)\(c\)](#)], except when operations finds it necessary to place containers  
3 directly on the asphalt or concrete to facilitate processing.
- 4 • If placement occurs beyond 24 hours. Ecology will be notified as to why the placement must  
5 exceed the 24 hour period and when the container is expected to be moved into a storage location.  
6 Ecology will be notified by phone and / or email to the project manager.
- 7 • If any leakage/spill is noted, spill response actions will be performed and the area cleaned up to  
8 meet clean closure standards. This clean up activity will be maintained in the Hanford Facility  
9 Operating Record, WRAP file.

## 10 **C.2 Containers**

11 All waste accepted for storage at WRAP Operating Unit Group will be packaged in containers as dictated  
12 by the size, shape, or form of waste [[WAC 173-303-630\(4\)](#)]. Storage areas for containers of waste that do  
13 not contain free liquids, do not exhibit characteristics of ignitability or reactivity [[WAC 173-303-090\(5\)](#)  
14 or (7)], and the waste that does not designate as F020 through F023, F026, and F027 can be stored  
15 without a containment system if either of the following is provided:

- 16 • Storage area is sloped to drain and remove liquids resulting from precipitation.
- 17 • Containers are elevated or otherwise protected from accumulating liquids.

### 18 **C.2.1 Container Management**

19 Container management is discussed in the following sections.

#### 20 **C.2.1.1 Description of Containers**

21 Waste stored in the WRAP Operating Unit Group will be packaged in a variety of containers, some of  
22 which are galvanized or aluminized steel containers or other containers overpacked, as necessary, to meet  
23 [WAC 173-303-630\(4\)](#). The size of containers varies greatly from small drums, uniquely configured  
24 containers, to large boxes.

25 Containers received in the WRAP Operating Unit Group are either in good condition or over-packed to  
26 maintain integrity during storage. Waste containers stored at WRAP Operating Unit Group will have at  
27 least two layers of containment (the outer container and the inner bags or rigid liners, both of which must  
28 be compatible with the waste in the container), or will be lined with materials, which will not react with,  
29 and are otherwise compatible with the wastes to be stored, as required by [WAC 173-303-630\(4\)](#).

30 Containers of waste stored in the WRAP Operating Unit Group may contain some liquids. The quantity  
31 of liquids is limited based upon Atomic Energy Act safety requirements such that bulk liquids are not  
32 accepted for storage. Some waste containers with liquids in smaller inside containers will meet the  
33 labpack requirements in [WAC 173-303-161](#), while other containers will not meet labpack requirements.  
34 For a container of waste to be considered as not having free liquids for secondary containment  
35 determinations, see [Section C.2.2](#).

36 Gas generation in containers occurs due to the presence of Atomic Energy Act regulated materials and  
37 containers can be vented. Venting activities are identified in the permit for information only.

#### 38 **C.2.1.2 Container Management Practices**

##### 39 **C.2.1.2.12336 W Building**

40 Before receipt at the WRAP Operating Unit Group, all containers will be closed by the generator to meet  
41 applicable packaging and shipping requirements. Upon receipt, in accordance with Addendum B, all  
42 containers in each shipment or transfer will be subject to a container receipt inspection. During the  
43 container receipt inspection, any discrepancies that have been noted will be resolved in accordance with  
44 Addendum B, Waste Analysis Plan.

45 Containers will be moved within the WRAP dangerous waste management units. Each container may be  
46 handled individually or as a group on pallets if the containers can be grouped. If handled individually, a

1 hand-truck dolly, a fork-lift truck with barrel grabber, or a crane with a barrel tong may be used. Mixed  
2 waste containers will be processed within gloveboxes and can be opened in the gloveboxes or the capture  
3 hood. The gloveboxes provide the primary level of containment when the containers are opened. The  
4 sealed stainless steel gloveboxes are designed to contain the waste during examination, sorting, sampling,  
5 repackaging, and/or treatment.

6 Waste containers will be stored on the floor, in the AS/RS, on conveyors, or carousels. The container  
7 storage capacity is shown in Table C.1. Figures C.2 through C.6 in this addendum show the various  
8 storage areas for the containers within WRAP dangerous waste management units.

9 Aisle space requirements are provided in Addendum F, Preparedness and Prevention. Container  
10 handling processes are designed to maintain containment of the waste and limit human exposure to  
11 dangerous waste and hazardous materials.

12 When required, the containers will be placed in the AS/RS on containment pallets designed to collect  
13 liquids. The containment pallets have a raised grating or rack to keep the containers above the bottom of  
14 the pallet so as not to contact liquids.

#### 15 **C.2.1.2.22404WA, 2404WB and 2404WC Buildings**

16 Containers received at the 2402WA, 2404WB and 2404WC Buildings may be handled individually or as  
17 a group on pallets if the containers are 208-liter or 322-liter drums. A maximum of four 208-liter or 322-  
18 liter containers are stored on each pallet. The stacking of the pallets allows for a maximum of  
19 12 containers per stack, and a maximum of three containers in height. Aisle space requirements are  
20 provided in Addendum F, Preparedness and Prevention.

#### 21 **C.2.1.3 Container Labeling**

22 All waste containers must be labeled, per [WAC 173-303-630](#)(3). Labels will not be obscured and must be  
23 readable during the course of inspections.

#### 24 **C.2.2 Containment Requirements for Storing Containers**

25 The following sections describe secondary containment systems for the WRAP. Secondary containment  
26 is for dangerous waste displaying the properties described in Section C.2 [[WAC 173-303-630](#)(7)(c)].

27 Liquids in containers are not considered “free liquids” under the following scenarios:

- 28 • Containers meeting the lab pack requirements of [WAC 173-303-161](#)
- 29 • Containers meeting the combination packaging requirements in Addendum B Section B.2.5 (i.e.,  
30 a packaging configuration providing 2-layers of containment for liquids) such that providing  
31 additional containment would be considered tertiary containment.
- 32 • Containers with liquids packaged with a sufficient quantity of sorbent to completely sorb all of  
33 the liquid contents.

#### 34 **C.2.2.1 Secondary Containment System Design and Operation**

35 With the exception of Room 152, the WRAP 2336W building floors and curbing serve as the secondary  
36 containment for any spills that occur within the building. To provide for secondary containment, the  
37 Shipping and Receiving Area, the NDE and NDA Area, and the Process Area have a floor that is a  
38 concrete slab on grade with a 15 cm (6 in.) high curb. Floors in areas where dangerous waste is being  
39 managed are coated with an epoxy resin floor surfacing system that is compatible with the stored waste.  
40 Containers may be elevated (e.g., pallets, skids) to protect the containers from contacting accumulated  
41 liquids. Room 152 is provided with bare concrete and no curbs. Spill pallets will be provided for any  
42 containers of dangerous waste requiring secondary containment in Room 152.

43 Each of the 2404WA, 2404WB and 2404WC storage buildings is designed with 15 centimeter (6 in.)  
44 curbing that slopes to a liquid sump. Each building is divided into two separate containment systems by  
45 the high point in the center of the building. Floors in areas where dangerous waste is being managed are  
46 coated with an epoxy resin floor surfacing system that is compatible with the stored waste. Containers

1 may be elevated (e.g., pallets, skids) to protect the containers from contacting accumulated liquids.  
2 In buildings/structures storing waste requiring secondary containment, when inspections identify floor  
3 areas where the sealant has been compromised (e.g., concrete is exposed), this area(s) will be noted on the  
4 inspection checklist and Hanford Facility Operating Record, WRAP file. Repairs will be made in a  
5 manner to protect human health and the environment and documented in the Hanford Facility Operating  
6 Record, WRAP file.

#### 7 **C.2.2.2 System Design**

8 The 2336W building foundation is constructed of reinforced concrete with all process and waste storage  
9 areas located within the building. All floors have an epoxy coating applied in accordance with  
10 construction specifications and material manufacturer's instructions to facilitate cleanup of any spills.

11 Sorting tables located within the process gloveboxes are designed to collect and retain liquids that might  
12 spill during the opening and sorting of the waste packages. The waste compactor is designed to collect  
13 any liquids that are squeezed out of the waste during the compaction process. All liquid collected from  
14 the gloveboxes or in the base of the compactor is managed according to Addendum B, Waste Analysis  
15 Plan, (WRAP) generated waste. The hydraulic systems used to operate the compactors are located in the  
16 process area. The floor in this area is bermed approximately 15 centimeters to retain any fluid that leaks  
17 or spills if the system is breached. Any leaks or spills are cleaned up appropriately, and documented in  
18 accordance with Permit Condition II.I.

19 The base floor is located above the ground level; therefore, run-on should not occur. In addition, all  
20 Process Areas, the Shipping and Receiving area, and the NDE/NDA area in which container storage is  
21 authorized have 15 centimeter curbing around the respective areas. There are no floor drains within the  
22 bermed areas. Other areas that have curbing include the process heating, ventilation, and air conditioning  
23 room. Containment pallets are used in the AS/RS located in the Shipping and Receiving Area and could  
24 be used in other storage areas to further localize any leaks from the containers and to minimize cleanup.  
25 Because of these provisions, any spills are contained locally and readily cleaned up.

26 The 2404WA, 2404WB, and 2404WC Buildings floors are constructed from reinforced concrete that was  
27 sealed. When cured, an epoxy coating was applied. Concrete is essentially an inert material with respect  
28 to caustic, oxidizing, combustible, and flammable materials. The epoxy resin is chemically resistant and  
29 inert with respect to acids, bases, oxidizers, combustibles, and flammables. Piping penetrations and  
30 construction joints on or part of the floor curbing are grouted or caulked and sealed, including where the  
31 floor interfaces the curb.

#### 32 **C.2.2.3 Structural Integrity of Base**

33 The foundation and floor areas of 2336W, 2404WA, 2404WB, and 2404WC buildings are constructed of  
34 reinforced concrete. Any waste or liquid spills are contained within the bermed flooring and will be  
35 cleaned up appropriately.

36 After pouring and setting, the foundation concrete was inspected to detect any gaps or cracks. Any gaps  
37 or cracks identified were filled and sealed. Sealants used will be compatible with and resistant to acids,  
38 bases, and organic materials provided that residency times are not extensive. The Contingency Plan,  
39 Addendum J, describes the actions to be taken in the event of a spill or leak.

40 The design of curbing, water stops, and the slope of the floors at points near the exits and outer walls of  
41 the buildings contain liquid within the buildings.

#### 42 **C.2.2.4 Containment System Capacity**

43 The size of the floor for 2336W was determined based on storage requirements, the size of the gloveboxes  
44 needed for waste processing, working space, and shipping and receiving space requirements. Each area  
45 contained by the 15 centimeter curbing is of sufficient volume to retain 10 percent of the volume of the  
46 total containers within the respective areas, as well as the largest container that may be managed within  
47 each. The floor capacities, total volume of containers, and calculations for each storage area are shown in

1 Table C.2. The volume displaced by other structures is not sufficient to effect the 10 percent/largest  
2 container containment requirement. The containment pallets that are used in the AS/RS are designed to  
3 hold a maximum volume of 56.8 liters of liquid.

4 The 2404WA, 2404WB and 2404WC storage buildings floors are designed to contain over 10 percent of  
5 the total volume of liquid in all containers that can be stored or 100 percent of the largest container,  
6 whichever is greater. Table C.2 lists the total containment and maximum container storage volumes for  
7 each storage building.

#### 8 **C.2.2.5 Control of Run-On**

9 The only major run-on or run-off foreseen at WRAP dangerous waste management units would be an  
10 event such as a fire sprinkler activation or pipe breakage. In the 2336W Building, the estimated amount  
11 of water discharged by the fire suppression system during a twenty (20) minute discharge is 13,758  
12 gallons for the Shipping and Receiving Area; 8,626 gallons for the NDE/NDA area; and 8,412 gallons for  
13 the Process Area. No floods are predicted to impact WRAP.

14 The 2336W, 2404WA, 2404WB, and 2404WC Buildings are roofed structures; therefore, run-on is  
15 prevented. The containment systems within the buildings are capable of holding various amounts of  
16 liquid. Collected or contained liquid will be removed. All waste stored in these buildings are in closed  
17 containers, which limits the detrimental impact of a run-on or run-off situation. Sprinkler discharge was  
18 considered when determining the height of the containment berms within the process and storage areas of  
19 the 2336W Building.

20 In the event that contaminated water is released from these buildings resulting from flooding of a  
21 containment system by fire sprinkler activation or a pipe breakage, the liquids will be removed according  
22 to the provisions in [Section C.2.3](#) and the incident will be documented in the Hanford Facility Operating  
23 Record, WRAP file.

24 Actions to be taken in response to a spill or discharge are detailed in Addendum J, Contingency Plan.

#### 25 **C.2.3 Removal of Liquids from Containment System**

26 Liquids can be found in containment systems from rain water, fire system water, or spills and releases  
27 from containerized waste. Liquids in containment systems without evidence of a spill or release from  
28 containerized waste, is handled under normal operating procedures. Spill or releases of containerized  
29 waste to containment systems is addressed under the contingency plan requirements in Addendum J.

30 All spills and releases will be cleaned up in accordance with the clean debris standards found in  
31 Addendum H, Closure Plan. Verification that these cleanup standards have been met will be documented  
32 in accordance with Permit Condition II.I.

33 If water from an unknown source (e.g., rainwater or snowmelt) accumulates in a building sump the  
34 following will be performed:

- 35 • Liquid will be inspected visually for signs of contamination (e.g., signs of oil sheen,  
36 discoloration, solids, or abnormal indications, etc.).
- 37 • If no evidence of contamination is noted, the water can be removed from the system and  
38 discharged to the environment.
- 39 • If visual indicators from inspection of liquid are present, perform field analysis of pH.
- 40 • When field analysis confirms pH is greater than or equal to 4.5 and less than or equal to 7.5 the  
41 water can be removed from the system and discharged to the environment or containerized and  
42 managed as non-dangerous water.

43 When pH results are outside of the acceptable range, the water accumulated in the building sump will be  
44 removed and containerized and placed into storage pending treatment and disposal. Containerized waste  
45 will be considered WRAP Generated Waste and will be designated in accordance with [WAC 173-303-](#)  
46 [070](#) through -100. Actions to be taken in response to a spill or discharge of containerized waste are  
47 detailed in Addendum J, Contingency Plan.

1 Records of all spills and releases and removal of liquids from sumps, including documentation of  
2 response actions and cleanup verification, will be maintained in accordance with Permit Condition II.I.

### 3 **C.3 Prevention of Reaction of Ignitable, Reactive, and Incompatible Waste in** 4 **Containers**

5 Administrative controls will be employed to segregate waste throughout WRAP as per [WAC 173-303-](#)  
6 [630\(9\)\(c\)](#). Ignitable, reactive, and incompatible waste stored in containers will be packaged and managed  
7 similar to containers with free liquids.

8 Waste requiring more extensive treatment than the dangerous waste management units is authorized to  
9 perform, will be stored or transferred to another onsite TSD unit or offsite TSD facility to perform the  
10 required treatment.

#### 11 **C.3.1 Management of Reactive Waste in Containers**

12 The WRAP dangerous waste management units store and treat waste exhibiting the characteristics of  
13 reactivity as specified in [WAC 173-303-090](#) (Addendum B, Waste Analysis Plan). Proper precautions  
14 will be taken to lessen the potential impact of emergencies within the WRAP dangerous waste  
15 management units.

#### 16 **C.3.2 Management of Ignitable Waste in Containers**

17 WRAP 2336W Building dangerous waste management units are designed and constructed to meet  
18 International Fire Code requirements and are equipped with fire, heat, and smoke detectors along with a  
19 fire suppression system.

20 It is possible for WRAP Process Area dangerous waste management unit gloveboxes to receive ignitable  
21 waste for confirmation or processing. Ignitable waste will be stored in WRAP dangerous waste  
22 management units provided that the incompatible waste requirements of [Section C.3.3](#) are met.

23 The 2404W series buildings are equipped with a dry-pipe sprinkler system and manual fire extinguishers.  
24 The WRAP Operating Unit Group is not authorized to receive shock sensitive or Class 4 oxidizer  
25 (international fire code) waste. Nevertheless, should this type of waste be identified through the sorting  
26 or characterization process, the Hanford Fire Department will be notified. The management of this type  
27 of waste will be conducted under the direction of the Hanford Fire Department.

#### 28 **C.3.3 Design of Areas to Manage Incompatible Wastes**

29 Packages containing incompatible waste will not be permitted in the same outer container except for  
30 transfer drums in the 2336W Process Area. Incompatible waste will be stored in separate containment  
31 systems such as a spill pallet, separate storage modules, combination packages defined in Addendum B,  
32 transfer drums, or by a berm, wall, dike, or other Ecology approved device. A transfer drum is a special  
33 container where individual compartments within the transfer drum provide separate containment.  
34 Incompatible waste (defined in [WAC 173-303-040](#)) includes those that are unsuitable for mixing with  
35 another waste or material because the mixture might produce:

- 36 • extreme heat or pressure, fire or explosion, violent reaction,
- 37 • uncontrolled toxic dusts, fumes, mists, or gases, in sufficient quantities to threaten human health  
38 or the environment, or
- 39 • uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion.

40 Also, waste will not be placed in an unwashed container that previously held an incompatible waste or  
41 material.

42 The generating locations will be responsible for determining the proper designation of the waste prior to  
43 the receipt and acceptance at the WRAP Operating Unit Group, for determining the appropriate  
44 compatibility of the waste (Addendum B, Waste Analysis Plan). For any waste stored in WRAP, a  
45 storage category will be assigned to the waste as part of the waste acceptance process described in  
46 Addendum B, Waste Analysis Plan. All containers will be subject to a container receipt inspection at the

1 WRAP Operating Unit Group as described in Addendum B, Waste Analysis Plan. Containers will be  
2 stored in locations based on the storage category.

3 As a result of processing operations in the 2336W building, Process Area, incompatible waste (once  
4 identified) will be segregated inside gloveboxes and placed in properly labeled containers to await further  
5 processing or treatment. Compatible waste, which does not require further treatment, will be repackaged  
6 inside new containers. If required to meet the receiving TSD unit or offsite TSD facility requirements,  
7 containerized liquids will be removed from waste packages and treated or transferred to the appropriate  
8 glovebox.

9 At the WRAP Process Area dangerous waste management unit gloveboxes, suspect incompatible  
10 materials will be evaluated in the gloveboxes to determine the characteristics and incompatibilities of the  
11 materials. Incompatible materials will be segregated from each other and repackaged to ensure that no  
12 incompatible materials are together.

#### 13 **C.4 Air Emissions Control**

14 This section addresses the WRAP Operating Unit Group requirements of Air Emission Standards under  
15 [WAC 173-303-692](#) which incorporates by reference, [40 CFR 264](#), Subpart CC.

##### 16 **C.4.1 Applicability of Air Emission Requirements for Equipment Leaks**

17 The air emission standards of [WAC 173-303-691](#), apply to equipment that contains or contacts hazardous  
18 wastes with organic concentrations of at least 10 parts per million by weight.

19 The only equipment utilized at the WRAP Operating Unit Group that is subject to the provisions of [WAC](#)  
20 [173-303-691](#) is the carbon canister associated with the aerosol can venting equipment. This equipment  
21 qualifies as a control device subject to the provisions of [40 CFR 264.1060](#), incorporated by reference by  
22 [WAC 173-303-691](#). An exemption is provided in [40 CFR 264.1050\(f\)](#) for equipment that contains or  
23 contacts hazardous waste with organic concentrations of at least 10 percent by weight for a period of less  
24 than 300 hours per calendar year. Because this equipment will be managed in a manner that meets the  
25 requirements of this exemption, this equipment is exempt from the requirements of [40 CFR 264.1052](#)  
26 through [264.1060](#). As required by [40 CFR 264.1064\(g\)\(6\)](#), the aerosol can venting equipment is  
27 identified in a log that will be maintained as part of the Hanford Facility Operating Record, WRAP file.  
28 This equipment will be marked as required by [40 CFR 264.1050\(d\)](#).

##### 29 **C.4.2 Applicability of Air Emissions Standards for Tanks, Surface Impoundments and** 30 **Containers**

31 Containers that will be used solely for managing mixed waste at WRAP Operating Unit Group are exempt  
32 from the air emission standards of [WAC 173-303-692](#), which apply to tanks, surface impoundments, and  
33 container storage areas. Containers managing non mixed waste (dangerous waste) will be managed with  
34 level 1 air emission controls (208- liter drums and over-pack drums) or level 2 controls (standard waste  
35 boxes) as documented in [Section C.4.3](#).

##### 36 **C.4.3 Demonstrating Compliance with Air Emission Standards for Containers**

37 Level 1 and Level 2 container standards will be met for containers managed in the dangerous waste  
38 management units by managing all dangerous waste in U.S. Department of Transportation containers  
39 [[40 CFR 264.1086\(f\)](#)]. Level 1 controls are required for containers that have a design capacity of more  
40 than 0.1 cubic meter and less than or equal to 0.46 cubic meter. Level 1 controls are required for  
41 containers that have a design capacity of greater than 0.46 cubic meters that is not in "light material  
42 service". Level 2 controls are required for containers that have a design capacity of more than 0.46 cubic  
43 meter of waste that is in 'light material service'. Light material service is defined where a waste in the  
44 container has one or more organic constituents with a vapor pressure greater than 0.3 kilopascal at 20° C,  
45 and the total concentration of such constituents is greater than or equal to 20 percent by weight.

46 The monitoring requirements for containers with Level 1 and Level 2 controls include:

- a visual inspection when a container of dangerous waste is received at any of the authorized dangerous waste management units,
- a visual inspection when waste is initially placed in a container at the DWMU, and
- at least once every 12 months when stored onsite for 1 year or more.

When DOT compliant containers are not used at the WRAP Operating Unit Group, alternate container management practices will be used that comply with the Level 1 or Level 2 standards as applicable. Specifically, Level 1 standards allow for a "container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container...or may be an integral part of the container structural design..." [40 CFR 264.1086(c)(1)(ii)]. An organic-vapor-suppressing barrier, such as foam, also may be used [40 CFR 264.1086(c)(1)(iii)]. Section C.1 provides detail on container management practices at the WRAP Operating Unit Group.

Container Level 3 standards apply when a container with a design capacity of greater than 0.1 cubic meters is used for the "treatment of a hazardous waste by a waste stabilization process" [40 CFR 264.1086(2)]. Because treatment of dangerous waste in Level 3 containers is not provided at the WRAP Operating Unit Group, these standards do not apply.

## **C.5 Process Design Capability**

The following provides supplemental information on the process design capacities for storage and treatment at the WRAP Operating Unit Group.

### **C.5.1 Storage Design Capacity**

The Part A Form for WRAP Operating Unit Group 7 (Revision 6, dated October 1, 2007) specifies a storage (S01) process design volume capacity for the WRAP Operating Unit Group of 1,987,100 liters. A revision of the WRAP Operating Unit Group Part A form will be submitted to Ecology for approval to increase the storage (S01) process design capacity to a total of 5,058,000 liters. This volume includes the capacity increase resulting from the proposed transfer of the Waste Storage Building 2404WA from CWC Operating Unit Group to the WRAP Operating Unit Group, identification of outside storage areas and their respective capacities, and calculations that established the maximum storage volume capacity of buildings. A revision of the WRAP Operating Unit Group and the CWC Operating Unit Group Part A form will be submitted to Ecology for approval that proposes to remove Waste Storage Building 2404WA from the CWC Operating Unit Group and add it to the WRAP Operating Unit Group.

Table C.1 contains a tabulation of the dangerous waste management units within WRAP Operating Unit Group that may store dangerous and/or mixed waste. The maximum total volume (in liters) is shown within dangerous waste management unit, and the resulting total storage capacity of the WRAP Operating Unit Group. A diverse range of waste containers are managed within the WRAP dangerous waste management units including, but not limited to, 18.9-, 208.2-, 321.8, 378.5-, and 416.40-L (5-, 55-, 85-, 100-, and 110-gal) containers/drums, waste boxes, and transportation casks containing waste drums. To calculate the maximum capacity of waste containers stored at the WRAP Operating Unit Group, calculations were performed to conservatively compute the maximum volume of waste expected to be stored in each dangerous waste management unit. The capacity was calculated using 208.2 L (55-gal) or 321.8 L (85-gal) drums. However, it does not limit the ability to use other container sizes and types for storage of dangerous and/or mixed waste.

The number of containers specified for each structure was calculated based on the storage needs associated with the area and storage requirements and limitations such as:

- Assumed four containers per pallet
- Maximum of three stacked pallets
- 36-in.(0.9 m) aisle space between rows of pallets/containers

- 1 • Adequate room for forklifts to maneuver within the structure; and
- 2 • Accounted for unusable space within structure (i.e., fire extinguisher locations, utility rooms,
- 3 etc.).

**Table C.1 Storage Volume for Each WRAP Dangerous Waste Management Unit**

Structure	Maximum total volume (liters)
2336W Building - Shipping and Receiving Area	129,000
2336W Building NDE/NDA	84,000
2336W Building Process Area	16,000
2336W Building Room 152	1,300
2404-WA	1,600,000
2404-WB	1,600,000
2404-WC	1,600,000
<b>WRAP Operating Unit Group Maximum Total Volume</b>	<b>5,030,300</b>

4 Based on the design of the 2336W, 2404WA, 2404WB, and 2404WC, secondary containment is designed  
 5 into dangerous waste management units to facilitate the management of liquids. Table C.2 provides the  
 6 building areas and the maximum liquid storage volume capacity of each of the dangerous waste  
 7 management units, as applicable.

**Table C.1 WRAP Dangerous Waste Management Units with Secondary Containment and Maximum Liquid Waste Storage Capacity<sup>a</sup>**

Location	Floor area (m <sup>2</sup> )	Liquid volume capacity	
		Cubic meters <sup>b</sup>	Liters
<b>2336 W Building</b>			
Shipping/Receiving Area	665.19	101.4	101,400
NDE/NDA Area	653.85	99.6	99,600
Process Area	634.06	96.6	99,600
2404-WA	2009.34	306.2	306,200
2404-WB	2009.34	306.2	306,200
2404-WC	2009.34	306.2	306,200

a. In accordance with [WAC 173-303-630\(7\)\(a\)\(iii\)](#), secondary containment must have a sufficient capacity to contain 10% of the volume of waste containing free liquids, or waste designated as F020, F021, F022, F023, F026, or F027. The maximum volume for these waste types listed above will not exceed 10 times the corresponding secondary containment capacity.

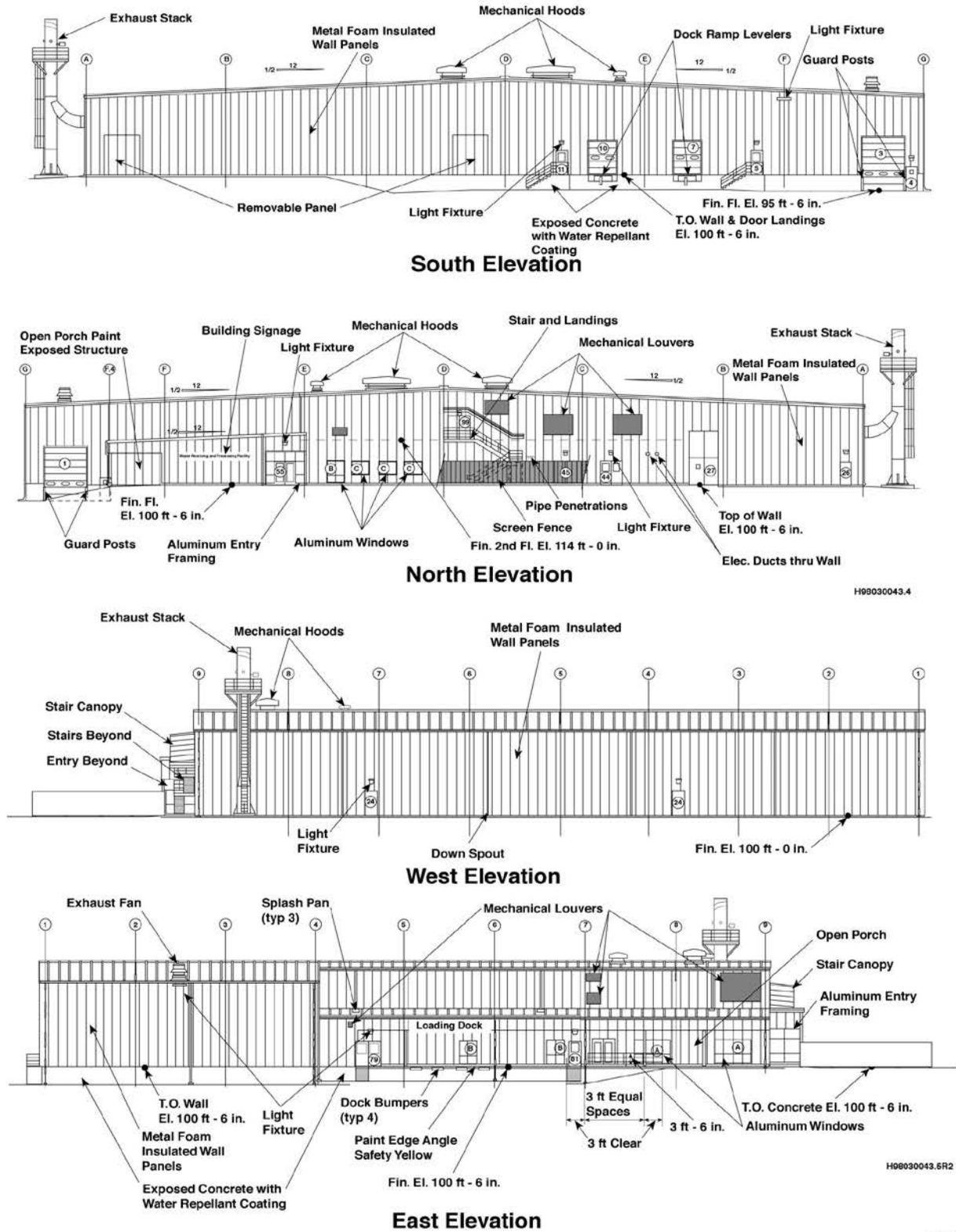
b. Floor area times 0.1524 m berm height

1 **C.5.2 Treatment Design Capacity**

2 The Part A form (Addendum A) for WRAP Operating Unit Group specifies a treatment (T04) process  
3 design capacity of 14,508 liters per day. To calculate this maximum treatment capacity, calculations were  
4 performed that conservatively estimated the maximum volume of waste expected to be treated using the  
5 volume of drums and containers expected to be managed at the WRAP Operating Unit Group in a day.

6

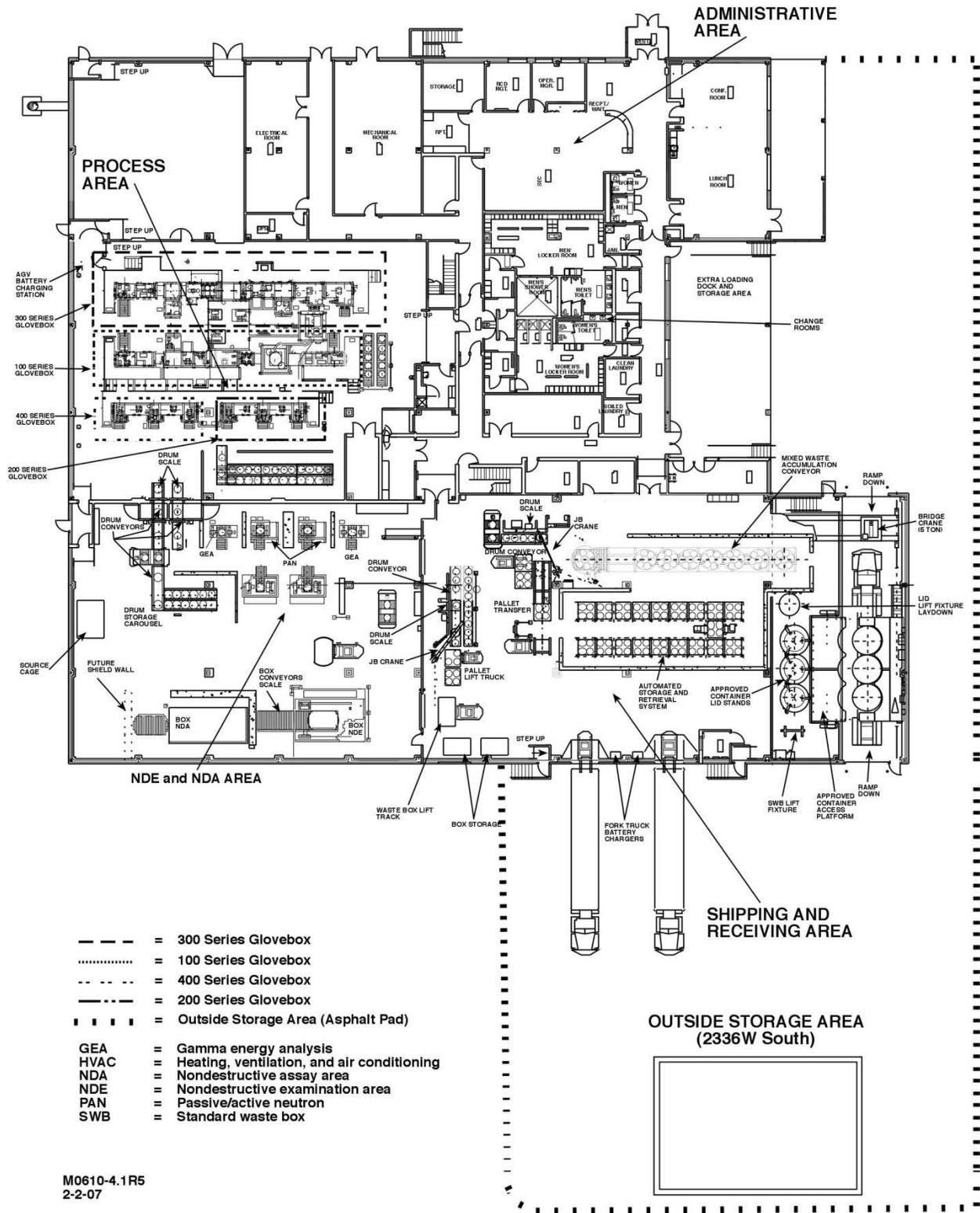
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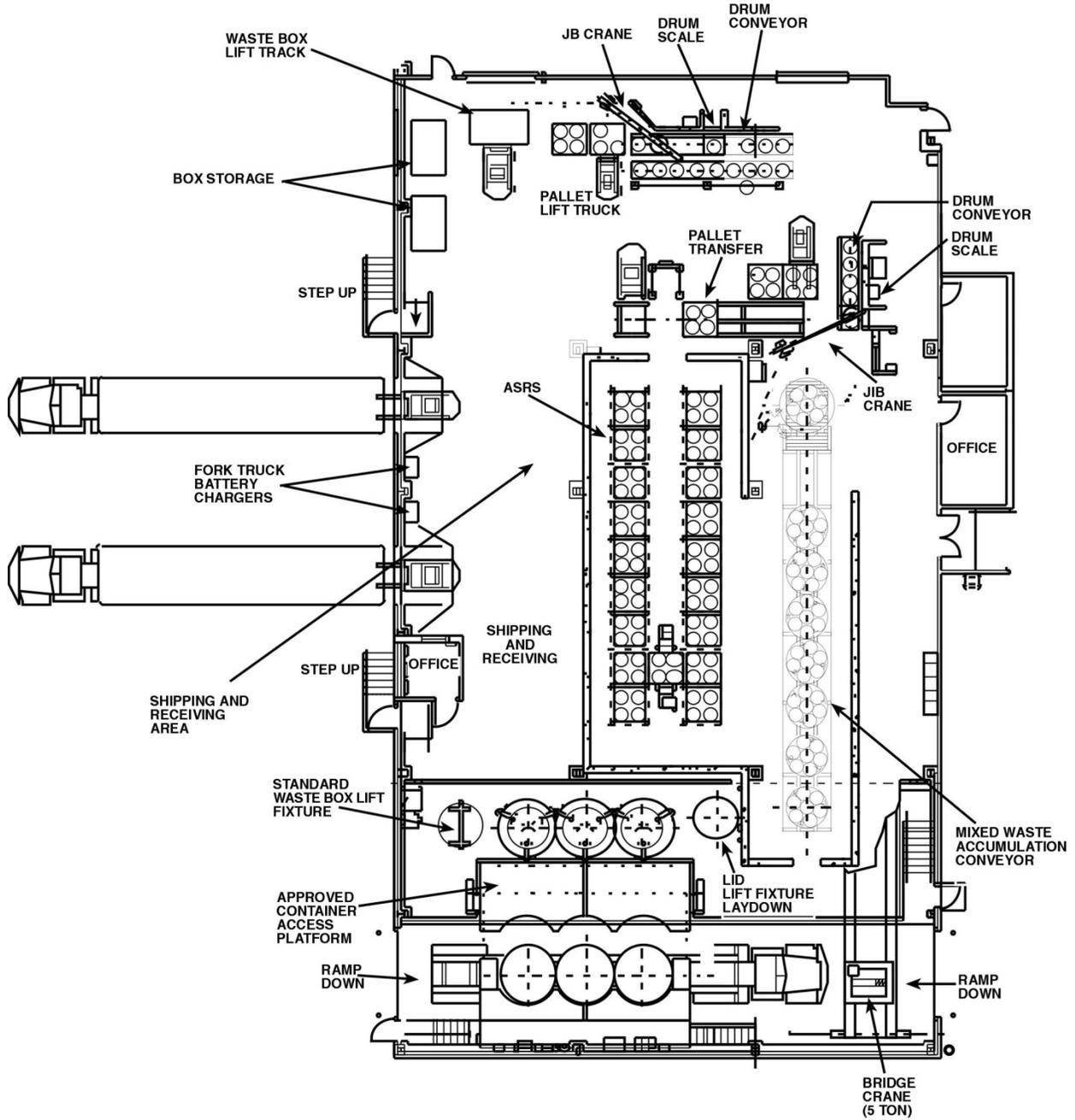
Figure C.1 2336W Building



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**Figure C.2 Layout for the 2336W Building.**

(NOTE: the outside storage area shown on the figure is not authorized for waste storage and treatment)

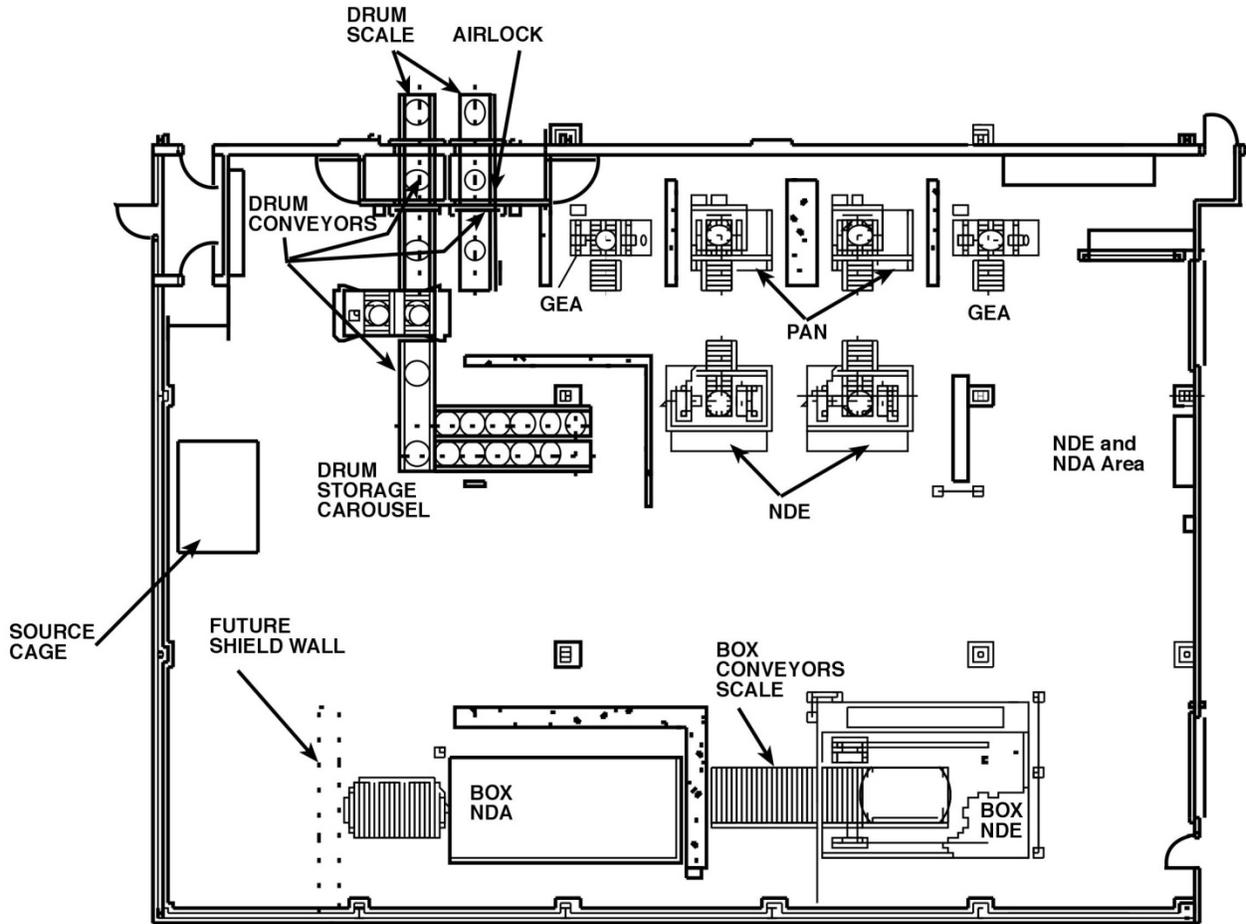


ASRS = Automated Storage and Retrieval System

MO608-1-1R2  
 02-02-07

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**Figure C.3 2336 W Shipping and Receiving Area**



- GEA = Gamma energy analysis
- HVAC = Heating, ventilation, and air conditioning
- NDA = Nondestructive assay area
- NDE = Nondestructive examination area
- PAN = Passive/active neutron

M0608-1.2  
 8-16-06

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**Figure C.4 2336W Nondestructive Examination and Nondestructive Assay Area**

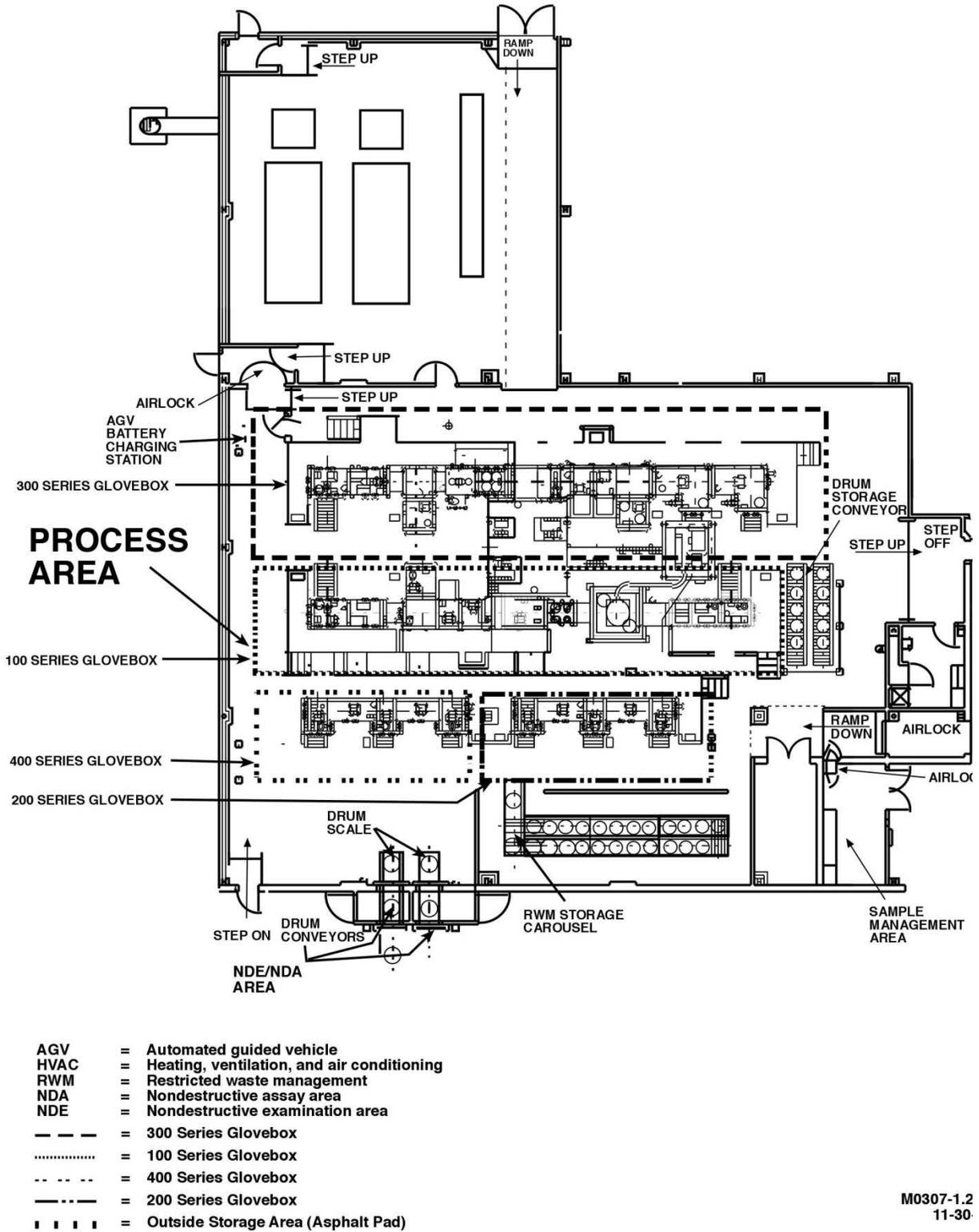
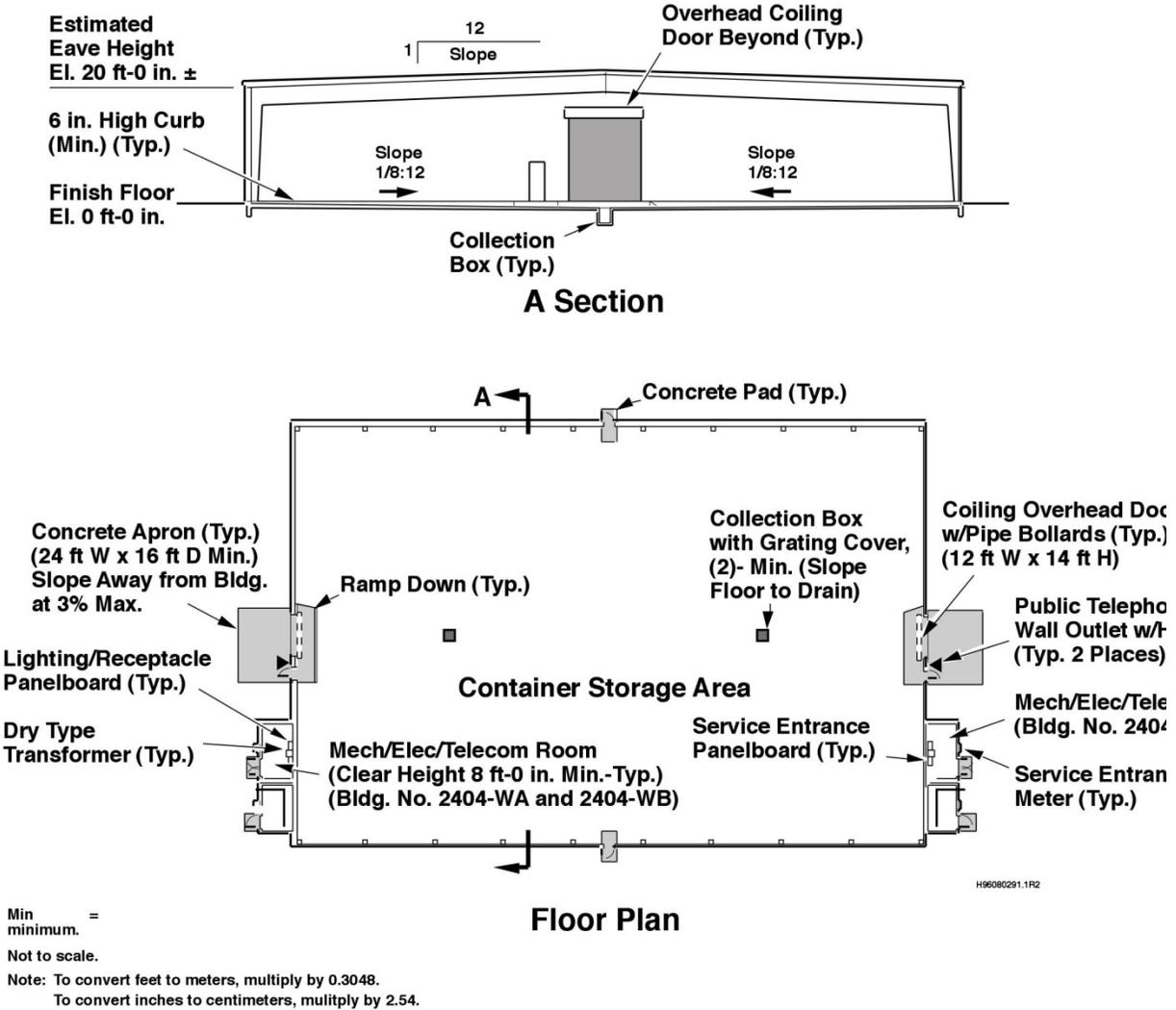


Figure C.5 2336W Process Area

**Typical Waste Storage Building for 2404WA, 2404WB and 2404WC**



**Figure C.6 Layout of 2404WA, 2404WB and 2404WC Storage Buildings**

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