ADDENDUM C
PROCESS INFORMATION
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ADDENDUM C
Waste Receiving and Processing Facility

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C PROCESS INFORMATION

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

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

C.1 Process and Facility Description

WRAP Operating Unit Group is located in the 200 West Area. WRAP consists of the following dangerous waste management units:
- 2336W Building Process Area (Storage, and Treatment within gloveboxes)
- 2336W Building NDA/NDE Area (Storage)
- 2336W Building Shipping and Receiving Area (Storage)
- 2336W Building Room 152 (Storage)
- 2404WA, Waste Storage Building (Storage and Treatment)
- 2404WB, Waste Storage Building (Storage and Treatment)
- 2404WC, Waste Storage Building (Storage and Treatment)

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

The WRAP dangerous waste management units provide structures, confinement equipment, and support functions. Within the 2336W Process Area gloveboxes the following waste management activities will occur:
- Visually examining waste, separating, and sorting waste.
- Treating or managing prohibited waste components.
- Repackaging waste to meet shipping and/or waste acceptance criteria for the receiving TSD unit or offsite facility.

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

Waste treatment activities within the 2336W Building Process Area and the 2404WC Building include:
- Deactivation.
- Solidification or absorption of liquids.
- Neutralization of corrosives.
- Microencapsulation.
- Macro-encapsulation.
Waste treatment activities within the 2404WA and 2404WB Buildings include:

- Absorption of free liquids.
- Absorption to accomplish deactivation.
- Neutralization of corrosive materials.

C.1.1 2336W Building

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

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

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

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

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

C.1.1.1 Shipping and Receiving Area

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

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

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

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

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

C.1.1.2 NDE and NDA Area

The NDE and NDA Area provides approximately 700 m² (7,535 ft²) for equipment and container storage (Figures C.3 and C.5).

The NDA equipment will be used to determine the Atomic Energy ACT (AEA) regulated material content of each waste container. The NDE will be used to identify waste items to indicate the physical
appearance of the waste, identify if liquids are present, and/or identify if other suspect nonconformance waste forms are present to support waste characterization and processing.

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

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

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

C.1.1.3 Process Area

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

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

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

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

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

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

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

C.1.1.4 Room 152

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

Containment requirements are discussed in Section C.2.2. Management of incompatible wastes is discussed in Section C.3.
No treatment is performed in Room 152.

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

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

The 2404W-series buildings are pre-engineered metal buildings (Figure C.6). The dimensions of each 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 3.7 m (12 ft) overhead rollup door at each end of the building.

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

The 2404W Waste Storage Buildings (2404WA, 2404WB and 2404WC) provide a total area of 6,020.1 m² (64,800 ft²) of storage space for waste containers. The maximum storage volume capacity for waste storage in each of the storage buildings is identified in Table C.1.

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

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

- Processing waste containers through NDA and NDE units
- Loading and unloading of waste containers for shipments;
- Performing surveys of containers;
- Transferring containers from one storage location to another storage location;
- Relocating a container from storage for treatment;
- Performing TSD unit, inspections and repairs (such as building, roof, or floor repair);
- Relocating containers to meet safety requirements;
- Overpacking containers
- Palletizing and banding containers
- “Mining” for a container, which entails pulling containers out of a storage area to retrieve a certain container. This practice keeps the containers out of the direct path of ongoing forklift activities and minimizes the potential for a drum handling accident while “mining” containers.

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

- Containers are actively controlled by WRAP operations
- Containers are in good condition and identified in accordance with WAC 173-303-630(2) and (3).
- Containers will always be closed, [WAC 173-303-630(5)(a)].
- Containers will not be handled in a manner which may rupture the container or cause a leak [WAC 173-303-630(5)(b)].
- There will be a minimum 30-inch separation between aisles of containers, and containers can be 2 wide to form an aisle [WAC 173-303-630(5)(c)].
• Containers will be elevated or otherwise protected from contact with accumulated liquids and any run-on [WAC 173-303-630(7)(c)], except when operations finds it necessary to place containers directly on the asphalt or concrete to facilitate processing.

• If placement occurs beyond 24 hours. Ecology will be notified as to why the placement must exceed the 24 hour period and when the container is expected to be moved into a storage location. Ecology will be notified by phone and / or email to the project manager.

• If any leakage/spill is noted, spill response actions will be performed and the area cleaned up to meet clean closure standards. This clean up activity will be maintained in the Hanford Facility Operating Record, WRAP file.

C.2 Containers

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

• Storage area is sloped to drain and remove liquids resulting from precipitation.

• Containers are elevated or otherwise protected from accumulating liquids.

C.2.1 Container Management

Container management is discussed in the following sections.

C.2.1.1 Description of Containers

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

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

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

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

C.2.1.2 Container Management Practices

C.2.1.2.12336 W Building

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

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

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

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

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

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

C.2.1.2 22404WA, 2404WB and 2404WC Buildings

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

C.2.1.3 Container Labeling

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

C.2.2 Containment Requirements for Storing Containers

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

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

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

C.2.2.1 Secondary Containment System Design and Operation

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

Each of the 2404WA, 2404WB and 2404WC storage buildings is designed with 15 centimeter (6 in.) curbing that slopes to a liquid sump. Each building is divided into two separate containment systems by the high point in the center of the building. Floors in areas where dangerous waste is being managed are coated with an epoxy resin floor surfacing system that is compatible with the stored waste. Containers
may be elevated (e.g., pallets, skids) to protect the containers from contacting accumulated liquids.

In buildings/structures storing waste requiring secondary containment, when inspections identify floor areas where the sealant has been compromised (e.g., concrete is exposed), this area(s) will be noted on the inspection checklist and Hanford Facility Operating Record, WRAP file. Repairs will be made in a manner to protect human health and the environment and documented in the Hanford Facility Operating Record, WRAP file.

C.2.2.2 System Design

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

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

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

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

C.2.2.3 Structural Integrity of Base

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

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

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

C.2.2.4 Containment System Capacity

The size of the floor for 2336W was determined based on storage requirements, the size of the gloveboxes needed for waste processing, working space, and shipping and receiving space requirements. Each area contained by the 15 centimeter curbing is of sufficient volume to retain 10 percent of the volume of the total containers within the respective areas, as well as the largest container that may be managed within each. The floor capacities, total volume of containers, and calculations for each storage area are shown in
Table C.2. The volume displaced by other structures is not sufficient to effect the 10 percent/largest container containment requirement. The containment pallets that are used in the AS/RS are designed to hold a maximum volume of 56.8 liters of liquid.

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

C.2.2.5 Control of Run-On

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

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

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

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

C.2.3 Removal of Liquids from Containment System

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

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

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

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

When pH results are outside of the acceptable range, the water accumulated in the building sump will be removed and containerized and placed into storage pending treatment and disposal. Containerized waste will be considered WRAP Generated Waste and will be designated in accordance with WAC 173-303-070 through -100. Actions to be taken in response to a spill or discharge of containerized waste are detailed in Addendum J, Contingency Plan.
Records of all spills and releases and removal of liquids from sumps, including documentation of response actions and cleanup verification, will be maintained in accordance with Permit Condition II.I.

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

Administrative controls will be employed to segregate waste throughout WRAP as per [WAC 173-303-630](https://example.com)(9)(c). Ignitable, reactive, and incompatible waste stored in containers will be packaged and managed similar to containers with free liquids.

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

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

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

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

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

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

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

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

Packages containing incompatible waste will not be permitted in the same outer container except for transfer drums in the 2336W Process Area. Incompatible waste will be stored in separate containment systems such as a spill pallet, separate storage modules, combination packages defined in Addendum B, transfer drums, or by a berm, wall, dike, or other Ecology approved device. A transfer drum is a special container where individual compartments within the transfer drum provide separate containment.

Incompatible waste (defined in [WAC 173-303-040](https://example.com)) includes those that are unsuitable for mixing with another waste or material because the mixture might produce:

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

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

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

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

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

C.4 Air Emissions Control
This section addresses the WRAP Operating Unit Group requirements of Air Emission Standards under WAC 173-303-692 which incorporates by reference, 40 CFR 264, Subpart CC.

C.4.1 Applicability of Air Emission Requirements for Equipment Leaks
The air emission standards of WAC 173-303-691, apply to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10 parts per million by weight.

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

C.4.2 Applicability of Air Emissions Standards for Tanks, Surface Impoundments and Containers
Containers that will be used solely for managing mixed waste at WRAP Operating Unit Group are exempt from the air emission standards of WAC 173-303-692, which apply to tanks, surface impoundments, and container storage areas. Containers managing non mixed waste (dangerous waste) will be managed with level 1 air emission controls (208- liter drums and over-pack drums) or level 2 controls (standard waste boxes) as documented in Section C.4.3.

C.4.3 Demonstrating Compliance with Air Emission Standards for Containers
Level 1 and Level 2 container standards will be met for containers managed in the dangerous waste management units by managing all dangerous waste in U.S. Department of Transportation containers [40 CFR 264.1086(f)]. Level 1 controls are required for containers that have a design capacity of more than 0.1 cubic meter and less than or equal to 0.46 cubic meter. Level 1 controls are required for containers that have a design capacity of greater than 0.46 cubic meters that is not in "light material service". Level 2 controls are required for containers that have a design capacity of more than 0.46 cubic meter of waste that is in 'light material service'. Light material service is defined where a waste in the container has one or more organic constituents with a vapor pressure greater than 0.3 kilopascal at 20° C, and the total concentration of such constituents is greater than or equal to 20 percent by weight.

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
Adequate room for forklifts to maneuver within the structure; and

Accounted for unusable space within structure (i.e., fire extinguisher locations, utility rooms, etc.).

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

<table>
<thead>
<tr>
<th>Structure</th>
<th>Maximum total volume (liters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2336W Building - Shipping and Receiving Area</td>
<td>129,000</td>
</tr>
<tr>
<td>2336W Building NDE/NDA</td>
<td>84,000</td>
</tr>
<tr>
<td>2336W Building Process Area</td>
<td>16,000</td>
</tr>
<tr>
<td>2336W Building Room 152</td>
<td>1,300</td>
</tr>
<tr>
<td>2404-WA</td>
<td>1,600,000</td>
</tr>
<tr>
<td>2404-WB</td>
<td>1,600,000</td>
</tr>
<tr>
<td>2404-WC</td>
<td>1,600,000</td>
</tr>
</tbody>
</table>

WRAP Operating Unit Group Maximum Total Volume 5,030,300

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

Table C.1 WRAP Dangerous Waste Management Units with Secondary Containment and Maximum Liquid Waste Storage Capacity

<table>
<thead>
<tr>
<th>Location</th>
<th>Floor area (m²)</th>
<th>Liquid volume capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cubic meters b</td>
<td>Liters</td>
</tr>
<tr>
<td>2336 W Building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipping/Receiving</td>
<td>665.19</td>
<td>101.4</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDE/NDA Area</td>
<td>653.85</td>
<td>99.6</td>
</tr>
<tr>
<td>Process Area</td>
<td>634.06</td>
<td>96.6</td>
</tr>
<tr>
<td>2404-WA</td>
<td>2009.34</td>
<td>306.2</td>
</tr>
<tr>
<td>2404-WB</td>
<td>2009.34</td>
<td>306.2</td>
</tr>
<tr>
<td>2404-WC</td>
<td>2009.34</td>
<td>306.2</td>
</tr>
</tbody>
</table>

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
C.5.2 Treatment Design Capacity

The Part A form (Addendum A) for WRAP Operating Unit Group specifies a treatment (T04) process design capacity of 14,508 liters per day. To calculate this maximum treatment capacity, calculations were performed that conservatively estimated the maximum volume of waste expected to be treated using the volume of drums and containers expected to be managed at the WRAP Operating Unit Group in a day.
**Figure C.1 2336W Building**
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)
Figure C.3 2336 W Shipping and Receiving Area
Figure C.4 2336W Nondestructive Examination and Nondestructive Assay Area
Figure C.5 2336W Process Area

AGV = Automated guided vehicle
HVC = Heating, ventilation, and air conditioning
RWM = Restricted waste management
NDA = Nondestructive assay area
NDE = Nondestructive examination area
300 Series Glovebox
100 Series Glovebox
400 Series Glovebox
200 Series Glovebox
Outside Storage Area (Asphalt Pad)

Part III, Operating Unit Group 7-C.18
**Typical Waste Storage Building for 2404WA, 2404WB and 2404WC**

**Floor Plan**

- **Concrete Pad (Typ.)**
- **Collection Box (Typ.)**
- **Overhead Coiling Door Beyond (Typ.)**
- **Collection Box with Grating Cover, (2)- Min. (Slope Floor to Drain)**
- **Mech/Elec/Telecom Room (Clear Height 8 ft-0 in. Min.-Typ.)**
  (Bldg. No. 2404-WA and 2404-WB)
- **Service Entrance Panelboard (Typ.)**
- **Service Entrance Meter (Typ.)**
- **Mech/Elec/Tele (Bldg. No. 2404)**
- **Public Telephc Wall Outlet w/f (Typ. 2 Places)**
- **Coiling Overhead Door w/ Pipe Bollards (Typ., (12 ft W x 14 ft H)**
- **Concrete Apron (Typ.)**
  (24 ft W x 16 ft D Min.)
- **Slope Away from Bldg. at 3% Max.**
- **Lighting/Receptacle Panelboard (Typ.)**
- **Dry Type Transformer (Typ.)**
- **Ramp Down (Typ.)**

**A Section**

**Estimated Eave Height**
- El. 20 ft-0 In. ±
- 6 in. High Curb (Min.) (Typ.)
- Finish Floor El. 0 ft-0 In.

**Note:** To convert feet to meters, multiply by 0.3048.
To convert inches to centimeters, multiply by 2.54.

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