AR TARGET SHEET

The following document was too large to scan as one unit; therefore, it has been broken down into sections.

DOCUMENT#	WA7890008967
TITLE	Dangerous Waste Portion of RCRA Permit for Treatment Storage and Disposal of Dangerous Waste (Part 1 of 2)
EDMC#	0054507
SECTION	3 of 4

APPENDIX 7A

BUILDING EMERGENCY PLAN FOR WRAP

This plan covers the following buildings and structures: 2336-W, 2620-W, 2740-W.

Approved:

Building Emergency Director	5/13/98 Date
Manager, Waste Receiving and Processing Facility	5/13/98 Date
Emergency Preparedness	5-13-98 Date
Hanford Fire Department	5/13/98 Date

This document will be reviewed annually and updated as required by the Building Emergency Director and modified pursuant to Washington Administrative Code (WAC) 173-303-830 and in accordance with the Hanford Facility RCRA Permit. This document will be approved by the manager of Emergency Preparedness (or delegate) and the Hanford Fire Department.

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1.0 GENERAL INFORMATION

The Waste Receiving and Processing Facility (WRAP) is located on the Hanford Site, a 560-square mile U.S. Department of Energy (DOE) operational site in southeastern Washington State. WRAP is located in the western portion of the 200 West Area. The Hanford Site Emergency Preparedness Program is based upon the incident command system which allows a graded approach for response to emergency events. This plan contains a description of unit-specific emergency planning and response. It is used in conjunction with DOE/RL-94-02, *Hanford Emergency Response Plan*. Response to events is performed using unit specific and/or Site level emergency procedures. The WRAP subordinate documents implement DOE/RL-94-02.

1.1 FACILITY NAME: U.S. Department of Energy Hanford Site
Waste Receiving and Processing Facility

1.2 FACILITY LOCATION: Benton County, Washington; within the 200 West Area.

The following structures covered by this plan are:

2336-W	Waste Receiving and Processing Facility
2620-W	Maintenance Support Building
2740-W	Administrative Support Building

1.3 OWNER:
U.S. Department of Energy
Richland Operations Office
825 Jadwin Avenue
Richland, Washington 99352

FACILITY MANAGER:
Waste Management Federal Services of Hanford, Inc.
P.O. Box 700
Richland, Washington 99352

1.4 DESCRIPTION OF THE FACILITY AND OPERATIONS

The WRAP accepts contact-handled waste packaged in 208- or 322-liter steel drums and steel or wooden boxes no larger than 2.7 meters long by 1.6 meters wide. Contact-handled waste is waste where the external surface dose rate does not exceed 200 millirems per hour. Remote-handled waste could be received on a case-by-case basis with special precautions. Remote-handled waste is waste where the external surface dose rate exceeds 200 millirems per hour. The maximum weight of containers received at WRAP is 454 kilograms for drums and 3,180 kilograms for boxes. However, heavier boxes could be received on a case-by-case basis.

The WRAP has a waste shipping and receiving area, a nondestructive examination (NDE) and nondestructive assay (NDA) area, and a processing area. The processing area contains process enclosures (referred to as gloveboxes) for opening, sorting, sampling, and treating the contents of the waste containers. The WRAP also includes a process support area, a sample management area, and an administrative area.

Waste containers are received in the shipping and receiving area. After processing, the low-level portion of the waste is transferred to an onsite treatment, storage, and/or disposal unit (TSD) or to an offsite TSD facility. The transuranic waste will be shipped to a TSD unit approved by appropriate agencies to accept transuranic waste.

The WRAP provides NDE/NDA of the contact-handled waste. The NDE is used to identify the physical contents of waste containers to support waste characterization and processing, confirmation, or certification. The assay results are used to determine radioactive content and distribution.

The WRAP process area gloveboxes are designed for opening, sorting, and sampling to characterize or confirm the contents of containers of transuranic, low-level, and mixed waste. Treatment of waste includes deactivation, solidification or absorption of liquids, neutralization of corrosives, amalgamation, microencapsulation, macroencapsulation, volume reduction of waste (e.g., supercompaction), reaction of reactive waste, and repackaging of waste.

Process support areas are provided with space for heating, ventilation, and air conditioning equipment, mechanical equipment, and electrical equipment used to support operations.

A sample management area is provided to manage the various samples that are taken from within the process area gloveboxes.

The administrative area contains a computer control room. A computer is used to monitor the process control system, NDE equipment, NDA equipment, and other process equipment.

Exterior storage space is provided for the receipt of empty containers and other materials.

Although a separate equipment decontamination area is not provided within WRAP, manual decontamination of equipment and waste containers is performed throughout the various areas when necessary.

1.5 BUILDING EVACUATION ROUTING (BUILDING LAYOUT)

Figures 1 and 2 provide identification of emergency evacuation routes from WRAP to the designated staging areas. When evacuating the WRAP processing area, personnel wearing Personal Protective Equipment (PPE) clothing shall segregate themselves from persons wearing normal clothing.

The Primary Staging Area for WRAP is located at the northwest corner of the parking lot; the Secondary Staging Area is located on the southeast side of WRAP.

2.0 PURPOSE

This building emergency plan describes both the hazards and the basic responses to upset and/or emergency conditions. "Emergency" as used in this document includes events meeting the Washington Administrative Code (WAC) 173-303 definition of emergency, as well as U.S. Department of Energy (DOE) Order 232.1 categories of Unusual Occurrence and Emergency. These events include spills or releases as a result of processing, fires and explosions, transportation activities, movement of materials, packaging, storage of hazardous materials and natural and security contingencies. When used in conjunction with the DOE/RL-94-02, *Hanford Emergency Response Plan*, this plan meets the requirements for contingency planning as required by WAC 173-303.

3.0 BUILDING EMERGENCY ORGANIZATION

The WRAP maintains a weekly on-call list for technical expert notification. Upon notification, the on-call person will notify the primary or alternate Building Emergency Director (BED) to respond to the scene in person as necessary. The on-call technical expert will maintain contact with the on-scene Incident Commander (IC) until arrival of WRAP personnel.

Building emergency organizations are discussed in the following sections.

3.1 BUILDING EMERGENCY DIRECTOR

Emergency response will be directed by the BED until the IC arrives. The incident command structure and staff with supporting on-call personnel fulfill the responsibilities of the Emergency Coordinator as discussed in WAC 173-303-360.

During events, WRAP personnel perform response duties under the direction of the BED. The Incident Command Post (ICP) is managed by either the senior Hanford Fire Department member present on the scene or senior Hanford Patrol member present on the scene (security events only). These individuals are designated as the IC and as such have the authority to request and obtain any resources necessary for protecting people and the environment. The BED becomes a member of the ICP and functions under the direction of the IC. In this role the BED continues to manage and direct WRAP operations.

A listing of the primary and alternate BEDs by title, work location and work telephone numbers is contained in a separate, internally controlled document. The BED is on the premises or is available through an 'on-call' list 24 hours a day. Emergency Preparedness maintains a listing of BED names and work and home telephone numbers at the Patrol Operations Center (POC) in accordance with *Hanford Facility RCRA Permit*, Dangerous Waste Portion, General Condition II.A.4.

3.2 OTHER MEMBERS

As a minimum, the BED appoints and ensures training is provided to individuals who perform as Personnel Accountability Aides and Staging Area Managers. The accountability aides are responsible for facilitating the implementation of protective actions (evacuation or take cover) and for facilitating the accountability of personnel after the protective actions have been implemented. Staging Area Managers are responsible for coordinating and/or conducting activities at the staging area.

In addition, the BED might identify additional support personnel (health physics, maintenance, engineering, hazardous material coordinators, etc.) to be part of the building emergency organization when the incident command system (ICS) is activated.

The building emergency organization listing for the WRAP is maintained in a separate location in a format determined appropriate by WRAP management. Copies are distributed to appropriate locations and to Emergency Preparedness.

4.0 IMPLEMENTATION OF THE PLAN

To meet the requirements of WAC, this plan will be considered to be implemented when the BED has determined that a release, fire, or explosion that could threaten human health or the environment (WAC 173-303 Emergency) has occurred at the WRAP. The incident classification process is described in DOE/RL-94-02, Section 4.2.

Under DOE guidance, this plan will be considered implemented whenever the BED determines that one of the incidents listed in Section 6.0 has or will occur and that the severity is or will be such that there is a potential to threaten human health or the environment (DOE Unusual Occurrence or Emergency). The BED implements this plan through DOE/RL-94-02, *Hanford Emergency Response Plan*, and WRAP and/or site-specific procedures (see Attachment A). DOE declared emergencies are assigned to three classifications, which are listed in order of increasing severity: alert emergency, site area emergency, and general emergency. The WRAP implements these DOE emergencies through identified criteria in DOE-0223, RLEP 1.1, Appendix 1-2.L; this plan; and other documents listed in Attachment A.

The BED must assess each incident to determine the response necessary to protect personnel, the WRAP, and the environment. If assistance from Hanford Patrol, Fire, or ambulance units is required, the Hanford Emergency Response Number 911 (373-3800 if using a cellular phone) must be used to contact the Patrol Operations Center and request the desired assistance. To request other resources or assistance from outside the WRAP, the Patrol Operations Center business number is used (373-3800). The Emergency Duty Officer (EDO) is requested when making the initial 911 call.

5.0 FACILITY HAZARDS

5.1 HAZARDOUS MATERIALS

Hazardous materials are stored at designated areas within WRAP for use in various activities such as sampling preservation, waste treatment, and equipment maintenance. The use, storage, and inventory of hazardous materials is controlled. Hazardous material inventories and material safety data sheets are maintained by Environmental Compliance in 2336-W, administrative bay area; 2620-W, tool crib; and 2740-W, room 133.

5.2 INDUSTRIAL HAZARDS

Standard operations involve the use of forklifts, overhead and jib cranes, drum movements, and material processing. Hazards associated with industrial accidents include the potential for injuries or death resulting from moving equipment, falls, failure of pressurized systems, or radiological and/or chemical exposure from spilled waste or chemicals.

5.3 DANGEROUS, RADIOACTIVE AND/OR MIXED WASTE

The WRAP is designated as a TSD unit and is capable of managing dangerous, mixed, and radioactive (LLW and TRU) wastes received from site waste generators, offsite waste generators, or generated from WRAP operations. WRAP generated waste includes maintenance waste, repackaged waste, chemical waste from sampling and treatment activities, and step-off pad waste. These wastes are managed in waste areas throughout WRAP (e.g., shipping, receiving, stacker retriever, NDE/NDA, process gloveboxes).

5.4 RADIOACTIVE MATERIALS

Radioactive materials/wastes are stored and processed in several areas of WRAP. The shipping and receiving area provides the main storage location. Limited storage capabilities are provided in the NDE/NDA area and the process area. Radioactive sources are also maintained in the WRAP to perform testing and calibration of equipment.

5.5 CRITICALITY

WRAP, excluding the process glovebox area, is classified as a limited control unit. This is defined as a unit that may contain more than one third of a minimum critical mass (MCM) of fissionable material; however, the form and distribution of the material preclude the occurrence of a criticality accident. The criticality specification for WRAP limits the amount of fissionable material to 200 grams per drum and 350 grams per box. The inventories for each container are reviewed at the time of waste receipt to ensure that the quantity of fissile material does not exceed the specified limit. A specific plan must be developed and approved for handling each drum or box exceeding these limits. The process glovebox area is classified as up to three isolated facilities. An isolated unit contains less than 1/3 of an MCM. Strict inventory control in this area precludes a criticality event.

6.0 POTENTIAL EMERGENCY CONDITIONS

Potential emergency conditions may fall into one of three basic categories: operations (process upsets, fires and explosions, loss of utilities, spills, and releases), natural phenomena (e.g., earthquakes), and security contingencies (bomb threat, hostage situation, etc.). The following are conditions that may lead to an emergency situation (WAC 173-303-350 and 360 or DOE 232.1) at WRAP and require the implementation of this plan.

6.1 FACILITY OPERATIONS EMERGENCIES

6.1.1 Loss of Utilities

The loss of utilities (e.g., electricity) could result in loss of air balance contamination control in the process areas, compressed air systems, and limited control of WRAP operations. An uninterruptible power system (UPS) supplies backup power to computer and alarm systems. However, the loss of utilities would not necessarily result in an emergency classified as a WAC or DOE defined emergency.

6.1.2 Major Process Disruption/Loss of Plant Control

Process disruption/loss of plant control would not result in an emergency classified as a WAC or DOE defined emergency.

6.1.3 Pressure Release

Pressure hazards, which could cause objects to be propelled through the air, could result from damage to the facility service air system (125 PSIG maximum).

Compressed gas cylinders (e.g., P-10 gas, propane, air cylinders, and fire extinguishers) are bulk stored in a building located at the southeast corner of the 2620-W material staging area. In addition, compressed gas cylinders are routinely used in the process area, maintenance shops, and various locations around WRAP. Examples of the gasses placed at WRAP include argon, nitrogen, acetylene, and P-10 gas. Gas cylinders may pose a potential projectile, inhalation, or fire hazard in the immediate area where these are stored and/or used.

6.1.4 Fire and/or Explosion

A fire or explosion in WRAP could result in the release of hazardous and/or radioactive constituents to the air or ground due to failure of storage container integrity and damage to process gloveboxes. Fire associated with flammable materials could cause damage to electronic devices, containment controls, and HEPA Filters. Fire could also result in the loss of life.

6.1.5 Hazardous Material Spill

Hazardous materials are stored in the WRAP. Spills or releases of hazardous materials could result in the following conditions:

- Spill of Hazardous Material. Hazards associated with a spill include potential exposure to dangerous constituents as well as potential environmental damage. Releases likely would be confined within the WRAP.

- Toxic Fumes Hazards. Hazardous materials stored at the WRAP is a potential airborne contamination hazard. Volatile materials such as concentrated caustics and solvents might generate toxic fumes.

- Fires or Explosions Involving Hazardous Material. A fire or chemical reaction in the WRAP could result in the release of dangerous constituents to the air or soil.

- Reactive Chemical/Corrosive Material Hazards. Misrepresented shipments and/or transfers of incompatible hazardous materials stored at the WRAP could potentially cause chemical reactions resulting in fire, explosion, and dangerous waste releases. Acidic and basic solutions are corrosive and could cause chemical burns.

- Thermal Reactions/Hazards. Thermal reactions could cause burns, chemical burns, and toxic fumes, and cause pressure hazards in sealed containers.

- Flammable Material/Liquids Hazards. Hazards associated with flammable materials and liquids include fire, explosion, and release of dangerous waste.

- Asbestos Release. The WRAP structure does not contain asbestos, but dangerous waste containing asbestos could be stored inside containers stored within the structure. Release of friable asbestos waste could result in an inhalation hazard.

- Explosive Materials/Munitions Hazards - N/A.

6.1.6 Dangerous and Mixed Waste Spill

A dangerous, mixed, and/or radioactive waste spill could result in potential personnel contamination through skin contact or via airborne contamination. Environmental impact could include contaminated water or soil.

- Spill of Dangerous and Mixed Waste. Hazards associated with a spill include potential exposure to dangerous, mixed, and/or radioactive constituents as well as potential environmental damage. Releases likely would be confined to a local area because container contents routinely are not in a liquid or powder form.

- Toxic Fumes Hazards. Dangerous, mixed, and radioactive waste stored at the WRAP is a potential airborne radioactive contamination hazard. Volatile materials such as concentrated caustics and solvents might generate toxic fumes. Plutonium, an alpha emitter, is known to generate hydrogen (H_2) gas when hydrogenous materials are present in the waste; however, catalytic recombiners, or vents, are used to maintain H_2 gas concentrations below 1 percent in waste containers and are replaced whenever the waste is repackaged. The recombiners used onsite are projected to maintain the oxygen (O_2) concentration below 0.5 percent, and the H_2 concentration below 1 percent.

  NOTE: Container damage resulting in material upset without the H_2 + O_2 recombiner could lead to a hydrogen explosion and subsequent release to onsite populations and the environment.

Waste acceptance criteria require that the offsite generators and onsite generating units document waste with gas-generating potential and that the requirement for gas recombiners be specified on the waste tracking forms.

- Fires or Explosions Involving Dangerous and Mixed Waste. A fire or chemical reaction in the WRAP could result in the release of dangerous and/or radioactive constituents to the air or soil.

- Reactive Chemical/Corrosive Hazards. Misrepresented shipments and/or transfers of incompatible dangerous or mixed waste managed at the WRAP could potentially cause chemical reactions resulting in fire, explosion, and dangerous, mixed, and/or radioactive waste releases. Acidic and basic solutions are corrosive and could cause chemical burns.

- Thermal Reactions/Hazards - Thermal reactions could cause burns, chemical burns, and toxic fumes, and cause pressure hazards in sealed containers.

- Flammable Material/Liquids Hazards. Fire involving flammable materials/liquids could cause damage to containers resulting in potential dangerous, mixed, and or radioactive waste releases. Liquid waste stored at the WRAP could include containers with lab packs (e.g., vials of liquids packed with absorbent solids) or containers containing solvent-soaked rags that are packed with absorbent material. Except for lab packs, containers with free liquid cannot have greater than 10 percent unabsorbed liquid. If a fire occurs involving these items, a 'worst case' (e.g., assume entire container is liquid) will be assumed until the containers can be opened and inspected.

- Asbestos Release. Asbestos materials are potential components of waste stored at the WRAP. Damage to these containers could result in an unplanned release of friable asbestos to the environment, creating an inhalation health hazard.

- Explosive Materials/Munitions Hazards - N/A.

6.1.7 Transportation and/or Packaging Incidents

Radioactive, hazardous, and mixed wastes are shipped from and received at WRAP in various Department of Transportation approved shipping containers. Shipping containers that are damaged during transportation or packaging could result in chemical and/or radiological releases to the environment and exposure to WRAP personnel. The WRAP could receive offsite shipments of mixed waste as defined by WAC 173-303.

6.1.8 Radiological Material Release

Hazards associated with stack releases include personnel and environmental exposure to radioactive contamination, and downwind contamination by surface deposition.

Hazards associated with liquid releases from process upsets or spills can expose personnel and the environment to hazardous materials, radioactive materials and mixed wastes.

Significant contamination spread/release due to failure of primary and secondary containment systems could result in inhalation hazards involving exposure to radioactive, toxic, corrosive, or flammable materials, depending upon the nature of the release. In addition, this event could result in the chemical and/or radiological contamination of soil, water, or air.

6.1.9 Criticality

A criticality safety evaluation of WRAP indicates that the occurrence of a criticality would not be a credible event. Criticality safety is accomplished by controlling the form, amount, and distribution of fissile material bearing wastes that are being evaluated and processed.

6.2 NATURAL PHENOMENA

Natural phenomena are discussed in the following sections.

6.2.1 Seismic Event

Depending on the magnitude of the event, severe structural damage could occur resulting in serious injuries or fatalities and the release of hazardous materials. Damaged electrical circuits and wiring could result in the initiation of multiple fires and personnel injuries.

6.2.2 Volcanic Eruption/Ashfall

Ashfall could cause shorts in electrical equipment and plug ventilation system filters.

6.2.3 High Winds/Tornados

High winds or tornados may cause structural damage to systems containing hazardous materials, resulting in a release to the environment.

6.2.4 Flood

The result of three worst-case flood scenarios identified as part of the facility final safety analysis report concluded that WRAP is situated above all possible flood levels.

6.2.5 Range Fire

The hazards associated with a range fire include those associated with a building fire plus potential site access restrictions and travel hazards such as poor visibility.

6.2.6 Aircraft Crash

In addition to the potential for serious injuries or fatalities, an aircraft crash could result in the direct release of hazardous materials or cause a fire that could lead to such a release.

6.3 SECURITY CONTINGENCIES

Security contingencies are discussed in the following sections.

6.3.1 Bomb Threat

A bomb threat may be received by anyone who answers the telephone or receives mail. The major effect on the WRAP will be the evacuation of personnel. If a bomb explodes, the effects are the same as those discussed in Section 6.1.4, Fire and/or Explosion.

6.3.2 Hostage Situation

A hostage situation can pose an emergency situation if there is the potential to adversely impact the WRAP. This can be as a result of losing WRAP control (operators removed from their stations) or when the situation results in the coercion of personnel to perform an act of sabotage.

6.3.3 Suspicious Object

The major effect on the WRAP is ceased operations and the evacuation of personnel.

7.0 INCIDENT RESPONSE

The initial response to any emergency will be to immediately protect the health and safety of persons in the affected area. Identification of released material is essential to determine appropriate protective actions. Containment, treatment, and disposal assessment will be the secondary responses.

The following sections describe the process for implementing basic protective actions and outline response actions for the events listed in subsection 6.0. DOE/RL-94-02, Section 1.3, provides concept of operations for emergency response on the Hanford Site.

7.1 PROTECTIVE ACTIONS RESPONSES

Protective action responses are discussed in the following sections.

7.1.1 Evacuation

If an evacuation is ordered or the evacuation siren sounds in the area of WRAP, personnel shall proceed to the appropriate staging area (see Figure 1).

The BED or staging area manager directs the evacuation; however, to ensure that evacuations are conducted promptly and safety, all personnel must be familiar with the correct evacuation procedure. During an evacuation, all personnel must report to the nearest staging area (upwind) for a head count.

If it becomes necessary to evacuate the primary staging areas, the staging area manager or the BED will instruct personnel to proceed to the alternate staging area or an alternate destination, depending on the nature of the emergency.

If an area evacuation is called for, all personnel shall be familiar with the evacuation procedure that follows. The order to evacuate normally will be passed via the Site Crash Alarm Telephone system.

Area evacuations are either rapid or controlled, as pointed out in the following steps. When possible, the following steps need to be conducted concurrently.

AREA EVACUATION PROCEDURE
Direct the activation of the WRAP evacuation siren (STEADY BUZZER).
Use whatever means are available (PA system, bullhorns, runners, etc.) to pass the evacuation information to personnel.
Halt any operations or work and place the building in a safe condition if safe to do so. Use emergency shutdown procedures for rapid evacuation.

Evacuate personnel to the staging area; group personnel as follows: potentially contaminated protective clothing, keys immediately available for vehicles, those needing rides.
Conduct personnel accountability. Report personnel accountability results to the RL-Emergency Operations Center (RL-EOC) (373-3876, 373-1786, 376-8612, 376-4712).
Inform IC of any potentially affected personnel (i.e., injured, contaminated, exposed, etc.) once the IC arrives at the ICP.
Barricade main roadways into WRAP, if necessary, to limit traffic to emergency vehicles only.
Relay pertinent evacuation information (routes, destination etc.) to drivers.
Dispatch vehicles as soon as the vehicles are loaded.
Report status to the RL-EOC, request additional transportation, if required, and report if any people remain who are performing late shutdown duties.

7.1.2 Take Cover

When the Take Cover Alarm is activated, personnel shall take cover in the nearest building or trailer. A message followed by the Take Cover siren will be transmitted over the area emergency sirens. The following actions must be taken or considered:

- Shut doors and windows and wait for further instructions
- Secure ventilation system
- Follow normal exit procedures from radiological areas
- Lock up classified documents and prepare for a possible evacuation
- Report your location to the Accountability Aid or the BED
- Accountability Aides will provide accountability status to the Staging Area Manager for facility personnel during an event.

7.2 RESPONSE TO FACILITY OPERATIONS EMERGENCIES

Depending on the severity of the event, the BED reviews site-wide procedures, the WRAP specific emergency response guide, specific sections of this plan, and/or plant operating procedures (POPs) and classifies the event and initiates area protective actions (activate sirens, notifications, etc.) and site emergency response organization activation. Attachment A provides a list of procedures and emergency response guides.

7.2.1 Loss of Utilities

Loss of electricity, compressed air, or process ventilation could result in an emergency condition due to the possibility of a contamination spread from the process gloveboxes. Loss of all or part of these utilities could make it necessary to evacuate the affected areas. The electrical power system includes battery operated emergency lighting throughout the WRAP, which will maintain lighting for a minimum of 90 minutes. The electrical power system also includes an uninterruptible power supply (UPS) which will provide battery power for a minimum of 55 minutes to the electrical, compressed air and process ventilation monitoring systems, which annunciate in the Control Room. The Control Room Operator notifies the Duty Operations Supervisor who, along with the BED, will decide if evacuation is necessary. Evacuation can be directed using the PAX system and the evacuation alarm, both of which are powered by the UPS.

7.2.2 Major Process Disruption/Loss of Plant Control

The results of a major process disruption in WRAP are inclusive of the specific hazards discussed in the other sections (i.e. spills, fire/explosion, etc.).

7.2.3 Pressure Release

A pressure release can occur due to damage or failure of a pressurized system. A release can cause damage to WRAP equipment or injury and death to personnel. In the event of a release of a pressurized system, exit the area immediately and notify management. No personnel shall perform manipulation of equipment to mitigate an event unless qualified to do so.

7.2.4 Fire and/or Explosion

In the event of a fire, the discoverer activates a fire alarm, calls 911 (373-3800 if using a cellular phone), and evacuates. Automatic initiation of a fire alarm (through the smoke detectors and sprinkler systems) also is possible.

- On actuation of the fire alarm, personnel shut down equipment and secure waste ONLY if time permits. The alarm automatically signals the Hanford Fire Department.
- Personnel leave the area/building by the nearest safe exit and proceed to the designated staging area for accountability.
- The BED proceeds directly to the primary or secondary ICP, as appropriate, and sets up the ICP. The BED will obtain all necessary information pertaining to the incident and will meet with, or send a representative to meet with, the Hanford Fire Department.

- Depending on the severity of the event, the BED reviews site-wide procedures, the WRAP specific emergency response guide, specific sections of this plan, and/or POPs and classifies the event and initiates area protective actions (activate sirens, notifications, etc.) and site emergency response organization activation. Attachment A provides a list of procedures and emergency response guides.

- The BED informs the site emergency organization as to the extent of the emergency (including estimates of hazardous material quantities released to the environment).

- The BED informs the IC of any potentially affected personnel (i.e., injured, contaminated, exposed, etc.) when the IC arrives at the ICP.

- If operations are stopped in response to a fire, the BED ensures that systems are monitored for leaks, pressure buildup, gas generation, and ruptures.

- Hanford Fire Department firefighters extinguish the fire.

- The BED ensures that all emergency equipment is cleaned and fit for its intended use following completion of cleanup procedures.

7.2.5 Hazardous Material, Mixed and/or Radioactive Waste Spill

Spills can result from many sources including process leaks, container spills or leaks, damaged packages or shipments, or personnel error. Spills of mixed waste are complicated by the need to deal with the extra hazard posed by the presence of radioactive materials. The response to a spill and/or release is as follows:

- Notify WRAP personnel (including BED) of discovery of spill or release.

- Initiate notifications to the Hanford Fire Department (HazMat Team) by calling 911 (373-3800 if using a cellular phone), and provide all known information, or verify that the BED has called 911 or determined that emergency response assistance is not required.

- Ensure that any personnel that have been exposed to a spilled chemical and/or have suffered an injury receive proper first aid, immediate medical attention and that the PHMC health advocate is contacted by the EDO. In case of contact with a chemical, promptly remove contaminated clothing and shoes. Immediately contact supervision and the Patrol Operations Center at 911 (373-3800 if using cellular phone) to report injuries or exposure and obtain Hanford Fire Department medical response.

- Classify the spill as one that can be cleaned up by personnel in the immediate vicinity at the time of the incident, or as a spill that requires the notification of the BED and assistance from additional, trained personnel (i.e., HFD HazMat Team). The classification will be made as follows.

  - SWITS information, as well as other resources (ERPGs, Emergency Response Guidebook, MSDSs, etc.) will be used to determine spill constituents, including toxicity and other hazards.

  - If there is not a good understanding of spill hazards, or the risks are not understood clearly, the spill shall be handled by the HazMat Team.

  - Classification is not necessarily based on the quantity of the spill, but by the toxicity of the chemical present.

  - The HFD can be requested to evaluate the spill to determine if immediate response by the HFD HazMat Team is warranted.

If any of the previous conditions are not met or if there is any doubt, evacuate the area and remain outside, upwind of the spill. The discoverer will remain available for consultation with the BED, Hanford Fire Department, or other emergency response personnel and restricts access to the area until the arrival of the BED.

The BED performs or arranges for the following:

- Establishes a command post at a safe location, and coordinates further spill mitigation activities

- Obtains all available information pertaining to the incident and determines if the incident requires implementation of the contingency plan

- Reviews site-wide procedures, the WRAP specific emergency response guide, specific sections of this plan, and/or POPs and classifies the event and initiates area protective actions (facility and area sirens, notifications, etc.) and activates the site emergency response organization. Attachment A provides a list of procedures and emergency response guides

- Informs the IC of any potentially affected personnel (i.e., injured, contaminated, exposed, etc.) when the IC arrives at the ICP

- Arranges for care of any injured persons

- Maintains access control at the incident site by keeping unauthorized personnel and vehicles away from the area. Security personnel can be used to assist in site control if control of the boundary is difficult (e.g., repeated incursions). In determining controlled access areas, considers environmental factors such as wind velocity and direction

- Arranges for proper remediation of the incident after evaluation
- Remains available for fire, patrol, and other authorities on the scene, and provides all required information
- Enlists the assistance of alternate BED(s), if response activities are projected to be long term
- Ensures the use of proper protective equipment, remedial techniques, transfer procedures [including ignition source control (e.g., nonsparking tools, grounding containers, isolation of ignition sources, use of explosion-proof electrical equipment, etc.) for flammable or reactive spills], and decontamination procedures by all involved personnel, if remediation is performed by WRAP personnel
- Remains at the ICP to oversee activities and to provide information, if remediation is performed by the Hanford Fire Department Hazardous Materials Response Team or other response teams
- Ensures proper containerization, packaging, and labeling of recovered spill materials and overpacked containers

  NOTE: All containers of spill debris, recovered product, etc., are managed in the same manner as waste containers. Overpacks in use are marked with information pertaining to their contents and noted as to whether the container inside the overpack is leaking or is in good condition.
- If operations are stopped in response to the release, ensures that systems are maintained in a safe condition
- Ensures decontamination (or restocking) and restoration of emergency equipment used in the spill remediation before resuming operations
- Provides required reports after the incident, in accordance with the DOE/RL-94-02, *Hanford Emergency Response Plan*.

7.2.5.1 Damaged or Unacceptable Shipments

In accordance with WAC 173-303-370, when a damaged shipment or transfer of hazardous material or dangerous waste arrives at WRAP and the shipment/transfer is unacceptable for receipt, the damaged shipment/transfer shall not be moved.

If a damaged shipment or transfer results in a spill, the following actions are performed.

- Notify the BED, the Hanford Fire Department, and the appropriate personnel to advise of the situation. The BED responds and assists in the evaluation of, and response to, the incident. The BED informs the IC of conditions upon arrival.

- The BED informs the IC of any potentially affected personnel (i.e., injured, contaminated, exposed, etc.) when the IC arrives at the ICP.

- Notify the offsite generator or onsite generating unit of the damaged shipment/transfer, and request any information necessary to assist in responding to the spill.

- Proceed with remedial action, including overpacking damaged containers, cleanup of spilled material, or other necessary actions to contain the spill. Refer to Section 7.2.5 for remedial actions.

7.2.5.2 Transportation Incidents

In accordance with WAC 173-303-145, the discoverer or BED will take the following actions for leaks or spills resulting from a hazardous materials transportation incident if the actions can be performed without jeopardizing personnel safety, as appropriate:

- Determines the nature of incident
  - Personnel injuries
  - Hazardous material spill with fire
  - Hazardous material spill without fire

- Assists injured personnel

- Initiates notifications to the appropriate personnel by any means available (telephone, radio, passing motorist, etc.) to request assistance from the Hanford Fire Department (Emergency Coordinator/Incident Commander for these type of events), Hanford Patrol, and medical personnel

- Remains in a safe location and attempts to isolate the area to prevent inadvertent personnel access

- The BED informs the IC of any potentially affected personnel (i.e., injured, contaminated, exposed, etc.) when the IC arrives at the ICP.

7.2.6 Radiological Material Release

Radioactive and mixed wastes are stored and processed throughout WRAP. Spills or releases could result in significant levels of contamination. Consideration must be given to radiological risks during events involving ventilation loss, electrical loss, and all spills, including the use of clean liquids on contaminated systems or areas.

7.2.6.1 Radioactive Gaseous Effluent Discharge - Stack Alarm

All potentially contaminated gaseous effluent discharges are continuously sampled to determine radioactivity.

If a continuously monitored stream from the 2336-W exhaust stack exceeds release limits, alarms are activated and sounded locally at the stack monitoring cabinet, the control room, and remotely at an annunciator panel in Room 120 of the WRAP administrative area. The stack alarms are characterized by an audible bell and a flashing red beacon.

7.2.6.2 Significant Contamination Spread

Significant contamination spreads are typically indicated by a continuous air monitor (CAM) alarm, or identified during routine operations and/or radiological surveillance. There are two types of CAM alarms in WRAP: local CAMs, which are characterized by an audible contamination bell and a flashing red beacon, and remote CAMs, which have an audible bell and a flashing amber beacon.

Local CAMs draw air from the immediate air space in which they are stationed, and are located in the shipping receiving area, NDE/NDA area, HVAC Room, and throughout the Process Area. Remote CAM alarms indicate airborne contamination in an adjacent space.

Personnel must be acutely aware of the CAM alarms located in their work areas and know the appropriate emergency responses listed below.

- Stop work activities and immediately exit the area
- Notify the immediate manager and the BED
- Contact Radiological Control (RC) and stand by for survey and contamination status. If the room is found to be contaminated, RC will post the room as an airborne radioactivity area.

The following steps shall be conducted when responding to a remote CAM:

- Notify the immediate manager and the BED
- Contact RC and remain available to provide pertinent information.

7.2.7 Criticality

A WRAP criticality safety evaluation indicates that the occurrence of a criticality is not a credible event. Criticality safety is accomplished by controlling the form, amount, and distribution of fissile material bearing wastes that are being evaluated and processed.

7.3 PREVENTION OF RECURRENCE OR SPREAD OF FIRES, EXPLOSIONS, OR RELEASES

The BED, as part of the incident command system, takes the steps necessary to ensure that a secondary release, fire, or explosion does not occur. The following actions are taken as necessary:

- Isolates the area of the initial incident by shutting off power, shutting off or closing ventilation systems, etc., to minimize the spread of a release and/or the potential for a fire or explosion
- Inspects containment for leaks, cracks, or other damage
- Inspects for toxic vapor generation
- Removes released material and waste as soon as possible
- Contains and isolates residual waste material using dikes and absorbents
- Reactivates operations in affected areas only after cleanup of residual waste materials is achieved.

7.4 RESPONSE TO NATURAL PHENOMENA

Depending on the severity of the event, the BED reviews site-wide procedures, the WRAP specific emergency response guide, specific sections of this plan, and/or POPs and classifies the event and initiates area protective actions (activates sirens, notifications, etc.) and site emergency response organization activation. Attachment A provides a list of procedures and emergency response guides.

Response to natural phenomena are discussed in the following sections.

7.4.1 Seismic Event

The emergency response organization's primary role in a seismic event is coordinating initial response to injuries, fires, and fire hazards and acting to contain or control radioactive, dangerous, or mixed waste releases.

Individuals must remain calm and stay away from windows, electrical lines, and hazardous material storage locations. Once the shaking has subsided, individuals must evacuate carefully and assist those needing help. The location of any trapped individuals is reported to the BED or to 911 (373-3800 if using a cellular phone).

The following steps shall be conducted by the BED when responding to a seismic event, as necessary:

- Conduct accountability
- Coordinate searches for personnel and potential hazardous conditions (fires, spills, etc.)
- Secure utilities and operations
- Arrange rescue efforts, and notify 911 (373-3800 if using a cellular phone) for assistance

- Assemble damage assessment teams
- Determine if hazardous materials were released
- Determine current local meteorological conditions
- Warn other units and implement protective actions if release of hazardous materials poses a danger
- Provide personnel and resource assistance to other units if required and possible.

7.4.2 Volcanic Eruption/Ashfall

When notified of an impending ashfall, the BED will implement measures to minimize the impact of the ashfall, such as:

- Installing filter media over building ventilation intakes
- Installing filter media or protective coverings on outdoor equipment that may be adversely affected by the ash (diesel generators, equipment rooms etc.)
- Shutting down some or all operations and processes
- Sealing secondary use exterior doors
- Releasing all non-essential personnel to go home.

If as a result of the ashfall other emergency conditions arise (e.g., fires due to electrical shorts or lightning), response is as described in the applicable section of this plan.

7.4.3 High Winds/Tornados

Upon notification of impending high winds, the BED takes steps necessary to secure all outdoor waste, hazardous material containers, and storage locations. All doors and windows are closed, and personnel are warned to use extreme caution when entering or exiting the building.

7.4.4 Flood

Not Applicable (refer to section 6.2.4, "Flood," of this plan).

7.4.5 Range Fire

Responses to range fires are handled by preventive measures (i.e., keeping hazardous material and waste accumulation areas free of combustible materials such as weeds and brush). If a range fire breaches the WRAP boundary, the response is as described in section 7.2.4, "Fire and/or Explosion."

7.4.6 Aircraft Crash

The response to an aircraft crash is the same as that for responding to a fire and/or explosion.

7.5 SECURITY CONTINGENCIES

Depending on the severity of the event, the BED reviews site-wide procedures, the WRAP specific emergency response guide, specific sections of this plan, and/or POPs and classifies the event and initiates area protective actions (activates sirens, notifications, etc.) and site emergency response organization activation. Attachment A provides a list of procedures and emergency response guides.

Security contingencies are discussed in the following sections.

7.5.1 Bomb Threat

7.5.1.1 Telephone Threat

Individuals receiving telephoned threats try to gain as much information as possible from the caller (using the Bomb Threat Checklist if available). Upon conclusion of the call, notify the BED and Security via 911 (373-3800 if using a cellular phone).

The BED evacuates the building to the secondary staging area, away from all parked vehicles, and queries personnel at the staging area regarding any suspicious objects in or near the WRAP.

When Security personnel arrive, follow their instructions.

7.5.1.2 Written Threat

Receivers of written threats handle the letter as little as possible. Notify the BED and Security. Depending on the content of the letter, the WRAP may or may not be evacuated. The letter is turned over to Security personnel, and their instructions are then followed.

7.5.2 Hostage Situation/Armed Intruder

The discoverer of a hostage situation or armed intruder reports it to 911 (373-3800 if using a cellular phone) and to the BED, if possible. The BED, after conferring with Security personnel, may covertly evacuate areas of the WRAP not observable by the hostage taker(s)/intruder. No alarms will be sounded.

Security will determine the remaining response actions and will activate the hostage negotiating team, if necessary.

7.5.3 Suspicious Object

The discoverer of a suspicious object reports it to the BED and to 911 (373-3800 if using a cellular phone), if possible, and ensures that the object is not disturbed.

The BED will evacuate the affected WRAP and (based on the description provided by the discoverer) attempt to determine the identity or owner of the object by questioning WRAP personnel at the staging area.

If the identity/ownership of the object cannot be determined, then Security will assume command of the incident. The canine unit will be used to determine if the package contains explosives. If there is a positive indication of explosives or it cannot be assured that there are no explosives, then the Richland Police Department's Explosive Ordnance Disposal Team will be dispatched to the WRAP to properly dispose of the device.

8.0 TERMINATION OF EVENT, INCIDENT RECOVERY, AND RESTART OF OPERATIONS

DOE/RL-94-02, Section 8.0, describes these considerations. The extent by which these actions are employed is based upon the incident classification of each event. In addition, DOE/RL-94-02 also contains considerations for the management of incompatible wastes, which may apply.

8.1 TERMINATION OF EVENT

For events where the RL-EOC is activated, only the RL Emergency Manager has the authority to declare event termination. This decision is based on input from the BED, IC, and other emergency response organization members. For events where the RL-EOC is not activated, the incident command structure and staff will declare event termination.

8.2 INCIDENT RECOVERY AND RESTART OF OPERATIONS

A recovery plan is developed when necessary. A recovery plan is needed following an event where further risk could be introduced to personnel, the WRAP, or the environment through recovery action and/or to maximize the preservation of evidence. Depending on the magnitude of the event and the effort required to recover from it, recovery planning may involve personnel from RL and other contractors. If a recovery plan is required, it is reviewed by appropriate personnel and approved by a Recovery Manager before restart. Restart of operations is performed in accordance with the approved plan.

If this plan was implemented for a WAC emergency (see Section 4.0), the Washington State Department of Ecology (Ecology) must be notified before operations can resume. DOE/RL-94-02, Section 6.1, discusses different reports to outside agencies. This notification is in addition to other required reports and must include information documenting the following conditions:

- There are no incompatibility issues with the waste and released materials from the incident.

- All the equipment has been clean and returned to service or replaced. The notification may be made via telephone conference. Additional information that Ecology requests regarding these restart conditions will be included in the required 15-day report identified in WAC 173-303-360(2)(k).

For emergencies not involving activation of the RL-EOC, the BED ensures that conditions are restored to normal before operations are resumed. If the RL-EOC was activated and the emergency phase is complete, a special recovery organization is appointed at the discretion of RL to restore conditions to normal. The makeup of this organization depends on the extent of the damage and its effects.

8.3 INCOMPATIBLE WASTE

After an event, the BED or the onsite recovery organization ensures that no waste that might be incompatible with the released material is treated, stored, and/or disposed of until cleanup is completed. Cleanup actions are taken by WRAP personnel or other assigned personnel. DOE/RL-94-02, Section 8.3, describes actions to be taken. These actions might include, but are not limited to, any of the following:

- Neutralization of corrosive spills
- Chemical treatment of reactive materials to reduce hazards
- Overpacking or transfer of contents from leaking containers
- Use of sorbents to contain and/or absorb leaking liquids for containerization and storage and/or disposal
- Decontamination of solid surfaces impacted by released material, e.g., intact containers, equipment, floors, containment systems, etc.
- Disposal of contaminated porous materials that cannot be decontaminated and any contaminated soil
- Containerizing and sampling of recovered materials for classification and determination for proper management
- Followup sampling of decontaminated surfaces to determine adequacy of cleanup techniques as appropriate.

Waste from cleanup activities is designated and managed as newly generated waste. A field check for compatibility before storage is performed, as necessary. Incompatible wastes are not placed in the same container. Containers of waste are placed in storage areas appropriate for their compatibility class.

If incompatibility of waste was a factor in the incident, the BED or the onsite recovery organization ensures that the cause is corrected. Examples include modification of an incompatibility chart or increased scrutiny of waste from a generating unit when incorrectly designated waste caused or contributed to an incident.

8.4 POST EMERGENCY EQUIPMENT MAINTENANCE AND DECONTAMINATION

All equipment used during an incident is decontaminated (if practicable) or disposed as spill debris. Decontaminated equipment is checked for proper operation before storage for subsequent use. Consumables and disposed materials are restocked. Fire extinguishers are recharged or replaced.

The BED ensures that all equipment is cleaned and fit for its intended use before operations are resumed. Depleted stocks of neutralizing and absorbing materials are replenished, self-contained breathing apparatus are cleaned and refilled, protective clothing is cleaned or disposed of and restocked, etc.

Factors to consider when establishing an equipment and personnel decontamination station are as follows:

- Water supplies
- Containment/catch basins and/or systems
- Personnel necessary to accomplish proper decontamination
- Protective clothing
- Decontamination supplies (buckets, brushes, soap, chemicals as needed)
- Risk to personnel
- Weather conditions [i.e., severe heat, cold (current and forecasted)]
- Toxicity of material
- Porosity of equipment to be decontaminated
- Disposal requirements of decontamination rinse
- Use of controlled zones to maintain contamination control.

9.0 EMERGENCY EQUIPMENT

Hanford Site emergency resources and equipment are described and listed in DOE/RL-94-02, Appendix C.

9.1 FIXED EMERGENCY EQUIPMENT AT WRAP

Fixed Emergency Equipment		
Type	Location	Capability
Local Fire/Smoke Detectors	2336-W	Provides notification of a fire
Fire Alarm Pull Boxes	2336-W	Activates the building fire alarm systems
Wet/Dry Pipe Fixed Sprinkler Systems	2336-W	Assists in fire suppression
Dry Chemical Fire Suppression Systems	2336-W Process Gloveboxes	Assists in fire suppression in the process gloveboxes
Emergency Lighting	2336-W	Low-level lighting during power outages
Decontamination Shower	2336-W Room 111	Flushing radiological/ chemical material from eyes, clothes, and body
First Aid Kits	2336-W	Provide materials for immediate first aid response
Eye Wash Stations and bottles	2336-W	Flushing chemical/ radiological material from eyes

9.2 PORTABLE EMERGENCY EQUIPMENT

Portable Emergency Equipment		
Type	Location	Capability
Fire Extinguishers	2336-W	Assist in fire control
Emergency Monitoring Kit (Silver Suitcase)	Incident Command Post in the conference room at WRAP and the conference room of Building 2740-W	Emergencies use: radiation detection equipment, PPE clothing, respiratory protection equipment

9.3 COMMUNICATIONS EQUIPMENT/WARNING SYSTEMS

Communications Equipment		
Type	Location	Capability
Public Address (PA) System	Throughout the 2336-W facility areas	Notification of WRAP personnel
Crash Alarm Telephone System	2336-W, Room 125	Site notifications and communications
Telephone System	2336-W	Communication with onsite and offsite personnel and organizations
Radios	2336-W	Job Specific communications within WRAP

Evacuation Siren (Steady Buzzer) - Manually activated alarm that alerts WRAP personnel of an evacuation condition.

Take Cover Siren (Wavering Buzzer) - Manually activated alarm that alerts WRAP Complex personnel of a take cover condition.

CAM Unit - Continuous Air Monitor Unit. Has a steady ringing bell and flashing red beacon when used for monitoring local air spaces. CAM units used for monitoring non-local, or remote, air spaces have steady ringing bells and flashing amber beacons.

Fire Alarm (Hi Pitched Beep and Flashing Strobe) - There is an emergency fire signal system in the 2336-W Building. Activation of this alarm by either smoke/heat detectors or manual pull stations alerts personnel in the affected facility to perform an evacuation.

Plant Control System Alarms (PCS) - Monitored system parameters associated with the 2336-W facility operations (ventilation, electrical, air, exhaust emissions, radiation levels, etc.) will provide alarm conditions in the 2336-W Control Room, Local Alarm Panels, and selected alarm indications on the remote alarm panel located in room 120.

9.4 PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment		
Type	Location	Capability
Personal Protective Clothing (PPE)	2336-W Change room Areas and Clean STP Storage Area (Room 132)	Protect personnel from skin exposure to particulate contaminants
Acid Suit, Aprons, Face shields, Gloves	2336-W Material Preparations Area (Room 152)	Protect personnel when working with acids and caustics

9.5 SPILL CONTROL AND CONTAINMENT SUPPLIES

Spill Kits and Spill Control Equipment		
Type	Location	Capability
Portable Spill Response Carts (Absorbents, pillows, spill pigs, Non-sparking cleanup tools, protective clothing, etc.)	2336-W Shipping/Receiving Area	Provide immediate access to required materials necessary to stabilize hazardous material spills in the facility
Spill Response Locker (Absorbents, pillows, spill pigs, containers, Non-sparking cleanup tools, protective clothing, etc.)	2336-W Material Preparation Area (Room 152) and process area	Provide immediate access to required materials necessary to stabilize hazardous material spills in the Material Preparation Area

9.6 INCIDENT COMMAND POST

The primary ICP for WRAP is the conference room of Building 2336-W. The secondary ICP location is the conference room of Building 2740-W. At such a time that either the primary or secondary ICP locations cannot be established/maintained due to unsafe conditions, then the BED will identify an alternate location or request the utilization of the mobile command vehicle.

10.0 COORDINATION AGREEMENTS

The RL has established a number of coordination agreements, or memoranda of understanding (MOU) with various agencies to ensure proper response resource availability for incidents involving the Hanford Site. A description of the agreements is contained in DOE/RL-94-02, Table 3-1.

11.0 REQUIRED REPORTS

Post-incident written reports are required for certain incidents on the Hanford Site. The reports are described in DOE/RL-94-02, Section 6.1.

12.0 PLAN LOCATION

Copies of this plan are maintained at the following locations:

- Operations Management Offices
- WRAP Managers Office
- ICP equipment bag
- RL-EOC
- Hanford Local Area Network (HLAN).

13.0 BUILDING EMERGENCY ORGANIZATION

The complete building emergency organization listing of positions, names, work locations and telephone numbers for the WRAP is maintained in a separate, internally controlled, WRAP document. Copies are distributed, at a minimum, to appropriate WRAP locations and to Hanford Site Emergency Preparedness. In addition, names, work and home telephone numbers of the BEDs and alternates are available from the Patrol Operations Center (373-3800), in accordance with the *Hanford Facility RCRA Permit*, Dangerous Waste Portion, General Condition II.A.4.

14.0 REFERENCES

DOE/RL-94-02, *Hanford Emergency Response Plan*, as amended.

DOE Order 232.1, "Occurrence Reporting and Processing of Operations Information," U.S. Department of Energy, Washington D.C.

NIOSH, 1996, *Pocket Guide to Chemical Hazards*, National Institute of Occupational Safety and Health, U.S. Department of Health and Human Resources, Public Health Service, Centers for Disease Control, Washington, D.C., updated periodically.

WAC 173-303, "Washington State Dangerous Waste Regulations," *Washington Administrative Code*, Washington State Department of Ecology, Olympia, Washington, as amended.

Hanford Facility RCRA Permit, Dangerous Waste Portion, Washington State Department of Ecology, Olympia, Washington, as amended.

FIGURE 1. EVACUATION ROUTES - 2336-W

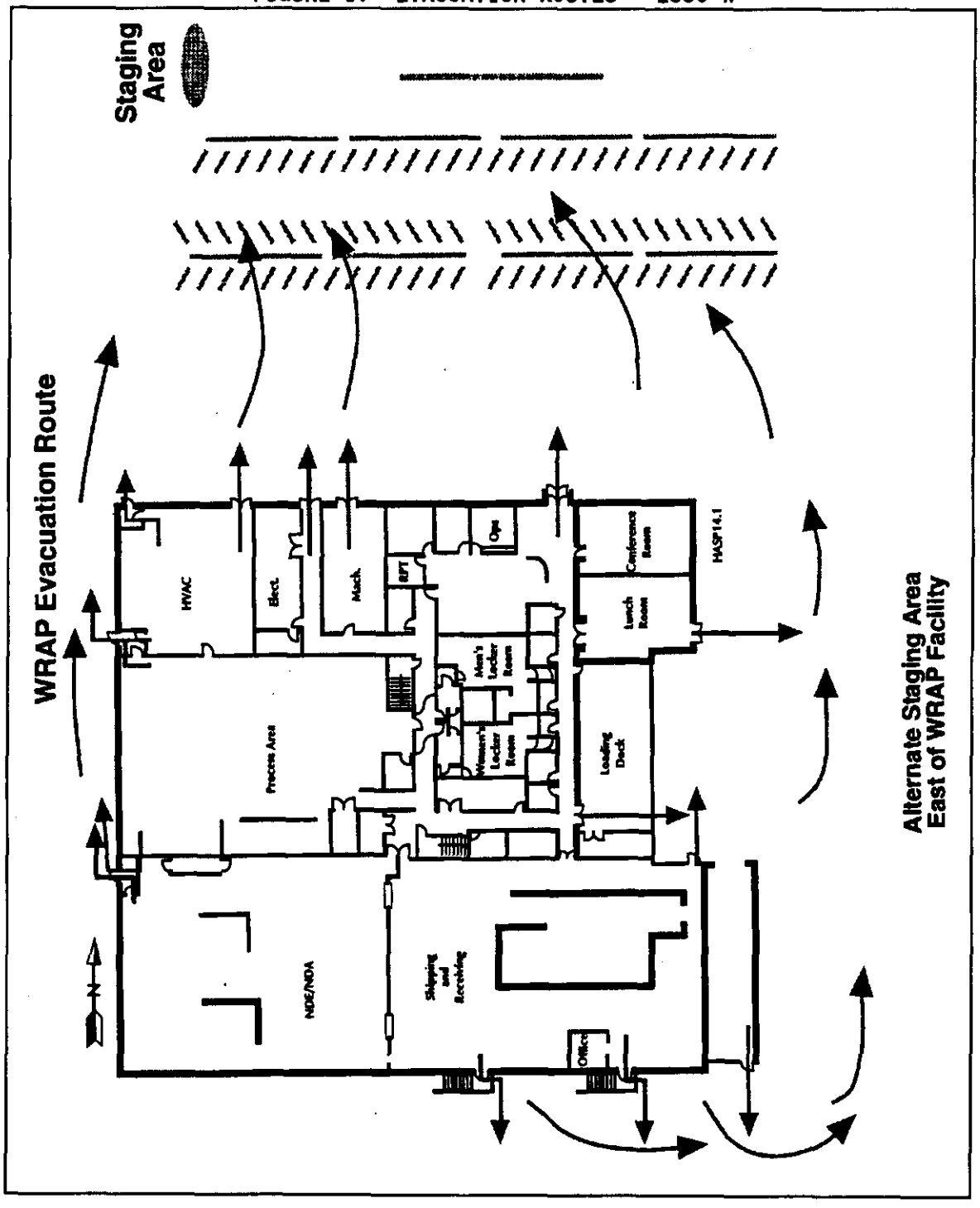
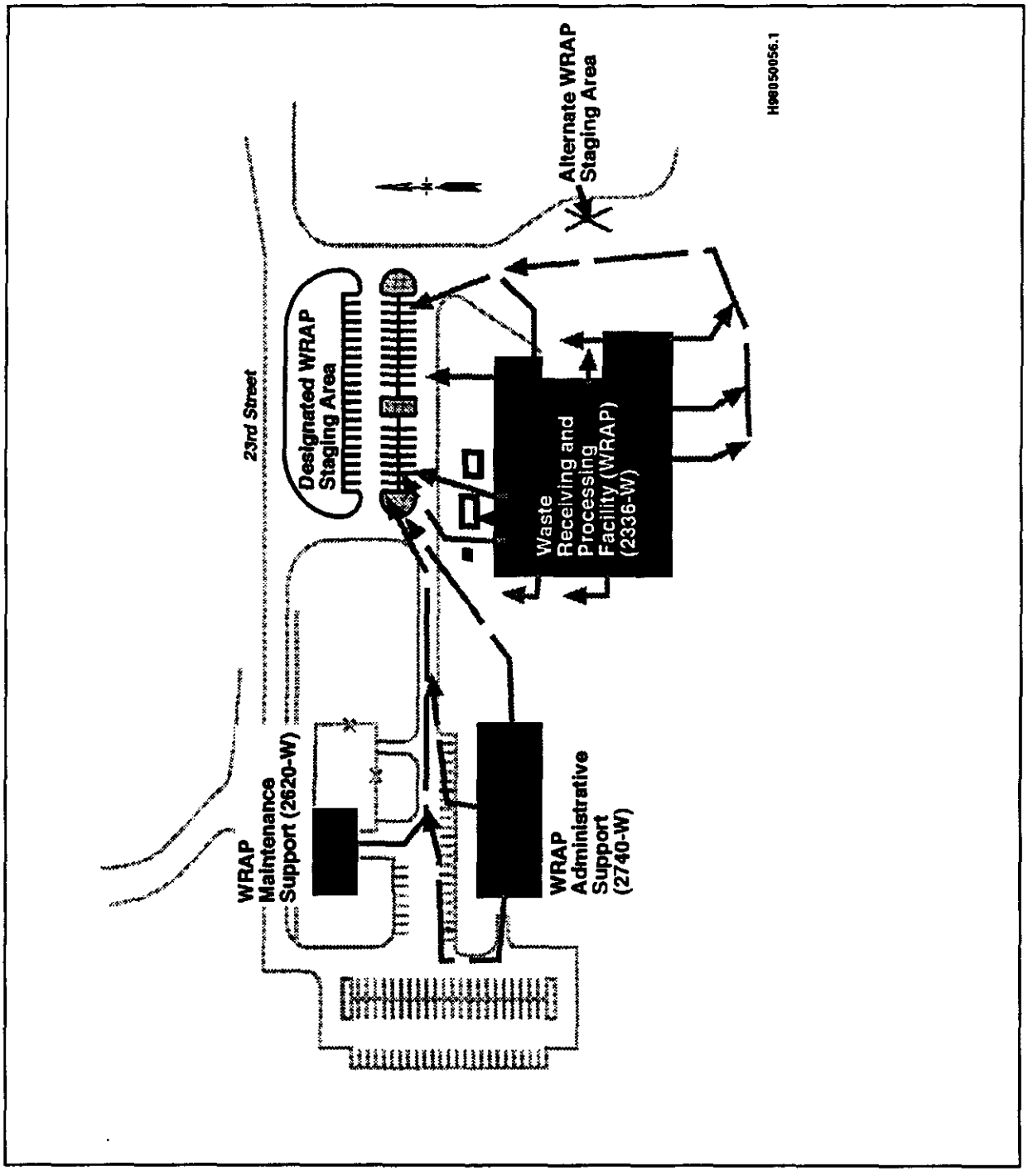


FIGURE 2. OVERVIEW OF THE WRAP COMPLEX



ATTACHMENT A

Listing of Procedures and Guides

Site-Wide Procedures

DOE-0223, *Emergency Plan Implementing Procedures*, RLEP-3.4, "Emergency Termination, Reentry, and Recovery"

DOE-0223, *Emergency Plan Implementing Procedures*, RLEP-1.1, "Hanford Incident Command System and Event Recognition and Classification"

Facility Specific Emergency Response Guide

HNF-IP-1262, *Building Emergency Guide for WRAP*

NOTE: The *WRAP Emergency Response Guide* provides more detailed response direction for all emergencies identified in Chapter 7.0 of this Building Emergency Plan.

APPENDIX 8A

TRAINING

R. W. Reddinger, Manager
Training

5/21/99
Date

L. W. Roberts, Manager
Waste Receiving and Processing Facility

6/4/99
Date

H. C. Boynton, Environmental Compliance Officer
Waste Receiving and Processing Facility

6/4/99
Date

CONTENTS

1.0 PURPOSE

This document outlines the Dangerous Waste Training Program (DWTP) for the Waste Receiving and Processing Facility (WRAP) organization. WRAP is a treatment, storage, and/or disposal (TSD) unit on the Hanford Facility. The DWTP implements the requirements of Washington Administrative Code (WAC) 173-303-330 and Title 40 Code of Federal Regulations (CFR) 264.16 for the development of a written dangerous waste training plan.

2.0 SCOPE

This DWTP applies to personnel who perform work at, or in support of WRAP. The DWTP requirements are based on an assessment of duties and responsibilities of personnel responsible for dangerous waste management (e.g., handling, treatment, storage, and/or disposal of dangerous and/or mixed waste. In addition, this training program ensures that personnel are familiar with emergency equipment and/or systems and emergency procedures to safely operate and maintain WRAP.

Processing within WRAP consists of a series of operations. Most of these operations occur manually within the gloveboxes. Some of the operations are automatic once initiated by the operator. Shutdown procedures for the automatic operations are included in each of the individual training courses.

3.0 DEFINITIONS

None.

4.0 RESPONSIBILITIES

Personnel responsibilities are described in the following sections.

4.1 Facility Manager

The Facility Manager has the overall responsibility to meet all training requirements of WAC 173-303-330 and Condition II.C of the Hanford Facility RCRA Permit (Ecology 1994). To meet the requirements in WAC 173-303-330(1)(a), the training director position is described in the *Hanford Facility Dangerous Waste Permit Application, General Information Portion* (DOE/RL-91-28, Chapter 8.0). Because the Facility Manager has overall responsibility in the assignment of training for personnel, the Facility Manager is involved in directing training at WRAP.

4.2 Training Manager

The training manager has overall responsibility for establishing, conducting, and administering the training program for WRAP to ensure personnel are trained to meet their assigned jobs.

4.3 Facility Management

All managers, under the direction of the Facility Manager, are responsible for the following:

- Determining required training for all personnel assigned to the WRAP, as required by job assignment.

- Ensuring that personnel assigned to WRAP receive required initial training, continuing training, and retraining as needed to be qualified to perform their assigned duties in dangerous waste management.

- Maintaining up-to-date personnel training records for assigned personnel.

4.4 Training Personnel

Training personnel are responsible for the following:

- Reviewing training requirements whenever regulations change or annually, at a minimum, for adherence to regulations and to ensure the requirements reflect the current systems, procedures, and policies applicable to each position.

- Developing and conducting training on new and existing systems or equipment.

4.5 Waste Receiving and Processing Personnel

WRAP and WRAP support personnel are responsible for the following:

- Working with their managers to define applicable training
- Completing necessary training to gain/maintain qualifications.

5.0 TRAINING PROGRAM

The WRAP DWTP is implemented based on training requirements related to job responsibilities.

5.1 Training Requirements

Training requirements for individual personnel are tracked in the Training Matrix (TMX).

The responsible manager reviews training requirements when personnel change positions or assume new job responsibilities, when changes are identified to this training plan (other than editorial changes), or annually, as a minimum. Updates to the training requirements are made as necessary.

Personnel must meet the training requirements within 6 months of the date of hire, within 6 months of assignment to the WRAP, or within 6 months of assignment to a new position within the WRAP. Personnel in-training will not make decisions that could affect facility safety. Personnel independently can perform specific jobs or tasks for which they are qualified. Personnel performing work who do not meet all training requirements must be supervised by a qualified person.

As new requirements are identified and indicated in this training plan, WRAP personnel will comply with the new requirements within 6 months of the effective date of the requirement.

5.2 Job Titles and Descriptions

Personnel are assigned a job title and a job description. The job description includes requisite skills, work experience, education, and other qualifications, and a brief list of duties and/or responsibilities. This information is maintained by the human resources department.

5.3 Dangerous Waste Worker Position

WRAP personnel are categorized into six worker positions: (1) All Employee, (2) General Worker, (3) Advanced General Worker, (4) General Manager, (5) General Shipper, and (6) Waste Designator.

Personnel are categorized into these positions based on duties and responsibilities as determined by a job analysis or management assessment. In the event personnel duties and responsibilities fall into more than one position, personnel will complete the training requirements for each position.

The duties and responsibilities described for the positions in this section, coupled with the information described in Section 5.4, provide the necessary information to determine the training for appropriate personnel. The categories are based on duties and responsibilities of personnel associated with dangerous waste management at WRAP and are provided in the following sections.

5.3.1 All Employee

Personnel included in this position are those who do not fall into one of the other five positions and have no duties or responsibilities directly associated with dangerous waste management. Typical job titles of personnel in this position include secretaries, clerks, and oversight personnel.

Most visitors, categorized as All Employee, generally tour, provide oversight, or are brought onsite for interviews. Other non-Hanford Facility personnel who gain access to the WRAP to complete work in controlled areas but do not become involved in the management of dangerous waste are categorized as All Employee.

5.3.2 General Worker

Personnel with limited dangerous waste management duties, such as activities associated with the generation of dangerous waste or facility maintenance or modification, are categorized as General Workers. Typical job titles of personnel in this position include maintenance personnel, health physics technicians, and transporters.

Personnel categorized as General Workers could be assigned duties and responsibilities for the following:

- Placing waste into pre-approved containers and filling out logsheets where applicable
- Completing radiological surveys of dangerous waste
- Moving containers or loading packaged containers onto trucks
- Responding to a spill or release of known contents where duties and responsibilities are limited to containing the spill/release, returning the container to an upright position, and/or placing the known spilled material or waste into a pre-approved container.
- Applying container markings or labels based on direction from an Advanced General Worker, General Manager, or General Shipper.

5.3.3 Advanced General Worker

Personnel whose duties exceed those of a General Worker for dangerous waste management are categorized as Advanced General Workers. A typical job title of personnel in this position is Nuclear Process Operator.

Responsibilities of an Advanced General Worker for management of dangerous waste in containers can include the following:

- Determining container markings and labels
- Preparing container logsheets
- Completing waste inventories
- Sampling of waste
- Packaging and transporting waste samples
- Responding to spills and releases of waste in accordance with approved procedures
- Performing inspections and surveillances
- Receiving transfers and/or shipments of waste.

5.3.4 General Manager

Personnel identified as General Managers coordinate, direct, and oversee the work of General or Advanced General Workers in the management of dangerous waste or in the operation and control of WRAP. Other duties could include responsibilities during emergency events requiring implementation of the building emergency plan. Personnel at the WRAP who could be categorized as General Managers include: the operations manager (OM), team leads (TLs), environmental compliance officer (ECO), cognizant engineers (Cog Engrs), persons in charge (PIC), hazardous material specialist (HMS), and building emergency director (BED). The TMX identifies personnel currently filling these positions.

5.3.4.1 Operations Manager

OM responsibilities include the following:

- Supervising, coordinating, and directing the activities of the TLs
- Maintaining control over WRAP operations in accordance with established operating procedures and policies, DOE Orders, and federal and state regulations
- Directing, controlling, and coordinating the storage and transfer of dangerous waste
- Complying with WRAP permits
- Providing guidance to TLs during abnormal or emergency conditions.

5.3.4.2 Team Leads

TLs responsibilities include the following:

- Supervising and coordinating WRAP operation and maintenance activities

- Maintaining control of WRAP operations in accordance with established policies and operating procedures, DOE Orders, and federal and state regulations
- Conducting pre-job safety meetings with personnel
- Maintaining operational records
- Reviewing and revising WRAP operations procedures
- Recognizing and responding to abnormal and/or emergency conditions
- Supervising the storage, handling, and transfer of dangerous waste
- Complying with WRAP permits.

5.3.4.3 Environmental Compliance Officer

ECO responsibilities include the following:

- Ensuring WRAP management is aware of environmental compliance requirements and issues
- Providing support to ensure compliance with applicable environmental rules and regulations
- Serving as WRAP liaison on environmental issues and permits
- Advising WRAP management of emerging environmental requirements and policies, and recommending implementation strategies to ensure compliance
- Ensuring compliance with WRAP permits.

5.3.4.4 Cognizant Engineers

Cog Engrs responsibilities include the following:

- Ensuring emergency and monitoring equipment, process equipment, procedures, designs, etc., comply with DOE Orders, federal and state regulations, national standards, and applicable engineering procedures and management standards
- Issuing and maintaining operation documentation, operating procedures, flowsheets, specifications, process test plans and procedures, operational safety requirements, etc.
- Performing evaluations of WRAP process to ensure compliance with process control requirements and permits
- Preparing and approving engineering design documents and drawings in compliance with applicable policies, procedures, and instructions per national standards and codes
- Providing technical assistance for hazardous material and dangerous waste spill response.

5.3.4.5 Person In Charge

PIC responsibilities include providing in-field direction of tasks in progress.

5.3.4.6 Hazardous Material Specialist

HMS responsibilities include the following:

- Supervising and coordinating hazardous waste storage and transfer
- Providing approved storage containers and applicable markings
- Interfacing with other organizations to ensure proper and timely disposal of hazardous waste
- Preparing and maintaining applicable hazardous waste documentation in accordance with DOE Orders and federal and state regulations
- Ensuring nonregulated alternatives are used whenever possible
- Reviewing hazardous waste documentation and providing hazardous waste disposition instructions as required.

5.3.4.7 Building Emergency Director

BED responsibilities include the following:

- Acting as the emergency coordinator
- Assessing incidents to determine response necessary to protect the personnel, facility, and the environment
- Arranging for care of any injured personnel
- Remaining available for fire, patrol, and other authorities on the scene, and provides all required information
- Ensuring proper containerization, packaging, and labeling of recovered spill materials
- Assisting in preparing the necessary post-incident documentation.

5.3.5 General Shipper

Personnel who prepare and sign waste movement documentation for onsite transfers or offsite shipments of dangerous waste are categorized as General Shipper.

5.3.6 Waste Designator

Personnel who perform and/or complete waste designations are categorized as a Waste Designator.

5.4 Required Training

Attachment 1 is a matrix of required RCRA training courses. Training for emergency procedures, emergency equipment, and emergency systems to meet the requirements of WAC 173-330(1)(d) is included in these courses as specified in the course description. Attachment 2 provides required training for personnel by job category.

Personnel who have completed training offsite are required to provide a certificate or other suitable evidence of training course(s) that meet the requirements of WAC 173-303 and this DWTP.

5.5 Non-Hanford Facility Personnel

Non-Hanford Facility personnel who perform work at WRAP must complete the appropriate level of training determined by line management according to the tasks they will perform.

WRAP management is responsible for ensuring that non-Hanford Facility personnel training requirements are met before granting access. Some personnel are granted access without the required training because they are either escorted or supervised by qualified personnel within WRAP.

5.6 Conduct of Training

The training program uses a systematic approach to training. Training design, development, and implementation are based on learning objectives derived from the analysis of the specific job/task. Training is provided using classroom instruction, on-the-job training, required reading, computer-based training methods, individualized instruction, and/or by providing drills. Training is developed and provided by personnel knowledgeable in dangerous waste management policies and/or procedures.

5.7 Documentation of Training

Classroom training is documented on course completion rosters, which are signed by personnel. Written examinations are signed by personnel at the time of taking the examination and when reviewed with the instructor who grades the examination.

Training record files on WRAP personnel are stored in the TMX computer database, which is accessed by the facility records specialist. A report is generated from the database to inform WRAP management when training for personnel is within 90 days of expiration. A TMX report example is included as Attachment 3. Copies of completed TSD unit-specific training certifications/qualifications are available from the WMH training department. Additional information regarding training records can be accessed through the Human Resources Information System (HRIS). HRIS is managed by the Hanford Training Records organization.

Training records summaries for support organization personnel also are stored in the HRIS. Training records of former personnel are kept on the HRIS for 3 years from the date last worked at WRAP. Original signed and dated training records are maintained by the Hanford Training Records organization. These records are transferred quarterly to the Records Holding Facility in Richland, Washington. After approximately 1 year at the Records Holding Center, the original training records are archived.

5.7.1 Access of Training Records

When a training record is requested during an inspection, an electronic data storage record will be provided. If an electronic data storage record does not satisfy the inspection concerns, a hard copy training record will be provided. Training records on former personnel might not be readily available and could require a representative from the Hanford Training Records organization to access this information.

5.7.2 Determining Current Training Status

The electronic data storage training record, coupled with this DWTP, provides the training status of personnel in the field.

5.7.3 Personnel List

A list of personnel for Advanced General Workers, General Managers, General Shippers, and Waste Designators is maintained on TMX, including the direct link between these positions and the personnel filling the positions. The TMX is updated quarterly.

6.0 REFERENCES

DOE/RL, 1994, DOE-RL/U.S. Army Corps of Engineers to Ecology "State of Washington Department of Ecology Administrative Order No. DE94NM-063" dated April 14, 1994, items 3 and 4.

DOE/RL-91-28, *Hanford Facility Dangerous Waste Permit Application, General Information Portion*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, 1994, *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste*, Permit Number WA7890008967, Washington State Department of Ecology, Olympia, Washington, modified periodically.

7.0 ATTACHMENTS

ATTACHMENT 1. RCRA TRAINING PROGRAM COURSE DESCRIPTIONS

ATTACHMENT 2. REQUIRED TRAINING FOR WASTE RECEIVING AND PROCESSING FACILITY PERSONNEL

ATTACHMENT 3. EXAMPLE OF TMX DATABASE REPORT

ATTACHMENT 1. RCRA TRAINING PROGRAM COURSE DESCRIPTIONS

The following constitute the RCRA training program courses as determined by (1) WAC 173-303, (2) the Hanford Facility RCRA Permit, and (3) correspondence between DOE-RL and Ecology on dangerous waste training.

Title	**000001 Hanford General Employee Training**
Description	Course covers DOE Orders and applicable policies pertaining to employer and personnel rights and responsibilities, general radiation training, hazard communications, dangerous waste, fire prevention, personal protective equipment, safety requirements, emergency preparedness, accident reporting, and avenues for addressing safety concerns.
Mandating document(s)	Hanford Facility RCRA Permit, General Condition II.C.2 and II.C.4.
Target audience	All personnel working on the Hanford Facility.
Frequency	Annual.

Title	***02006G* Waste Management Awareness**
Description	Course introduces personnel to federal laws governing chemical safety in the work place. The course provides hazardous material/waste personnel with the basic fundamentals for safe use of hazardous materials and initial accumulation or storage of dangerous or mixed waste in containers. The concepts covered in this course instruct personnel on specific waste generation procedures and requirements, which include: (1) applicable waste management practices (i.e., waste stream identification, waste segregation practices, completing container logsheets, and housekeeping requirements), (2) proper responses to incidents pertaining to the waste in the accumulation containers, (3) proper responses to dealing with waste of unknown origins, and (4) proper responses to questions posed in the field concerning the above elements.
Mandating document(s)	WAC 173-303-330(1) Letter: DOE-RL/U.S. Army Corps of Engineers to Ecology "State of Washington Department of Ecology Administrative Order No. DE 94NM-063" dated April 14, 1994, items 3 and 4. Hanford Facility RCRA Permit, General Conditions II.C.1 and II.C.4.
Target audience	Hanford Facility personnel categorized as a General Worker, Advanced General Worker, and General Manager, and subcontractors categorized as General Workers. Other courses might provide equivalent training so that credit for this course is provided when the electronic data storage training record is generated.
Frequency	One-time only. (Annual refresher training is not required because training is adequately covered through 035110 and/or 03E306.)

Title	**020159 Advanced Course 2 - Hazardous Waste Shipper Certification**
Description	Course defines responsibilities and liabilities with regard to compliance to manifesting requirements and U.S. Department of Transportation regulations, including placarding, identifying proper shipping names, and loading requirements.
Mandating document(s)	WAC 173-303-330(1), -180, -190, and -370. Hanford Facility RCRA Permit, General Condition II.Q, as applicable
Target audience	General Shippers of dangerous or mixed waste on roadways anywhere on the Hanford Facility.
Frequency	Every 3 years.

Title	**02028B Building Emergency Director Training**
Description	Course provides an overview of the responsibilities of the Building Emergency Director, identifies the building emergency organizations and actions required during an event, discusses implementing the contingency plan, and discusses drill and exercise requirements.
Mandating document(s)	WAC 173-303-330(1), -340, -350, and -360.
Target audience	Hanford Facility personnel categorized as General Managers because they perform the responsibilities of a RCRA Emergency Coordinator through the title of Building Emergency Director or alternate (e.g., On-Call Manager).
Frequency	Initial (retrained annually by 037510 Building Emergency Director/Warden Requalification).

Title	**306500 WRAP Qualification Package TRU Glovebox Operator**
Description	Course provides training in TRU glovebox operations including packet NDE and NDA, waste handling, sampling, treatment, and loadout.
Mandating document(s)	WAC 173-303-330(1)
Target audience	Personnel who will be performing TRU glovebox operations.
Frequency	24 month(s)

Title	**306511 WRAP Operations Manager/Team Leader Qualification - Phase 2 - Initial**
Description	Individualized instruction of WRAP Phase 2 operation. A performance demonstration is conducted by the candidate to demonstrate the leadership ability to direct Phase 2 processing activities.
Mandating document(s)	WAC 173-303-330(1)
Target audience	Management personnel who will be supervising WRAP operations.

Frequency	Initial (requalification every 24 months by 306550)
Title	**306550 WRAP Operations Manager/Team Leader Qualification - Phase 2 - Requalification**
Description	Individualized instruction of WRAP Phase 2 operation. A performance demonstration is conducted by the candidate to demonstrate the leadership ability to direct Phase 2 processing activities.
Mandating document(s)	WAC 173-303-330(1)
Target audience	Management personnel who will be supervising WRAP operations.
Frequency	Every 24 months

Title	**306515 WRAP Qualification Package Shipping & Receiving Operator**
Description	Course provides training in receiving, storing, and shipping waste containers.
Mandating document(s)	WAC 173-303-330(1)
Target audience	Operators who will be performing S&R operations.
Frequency	24 month(s)

Title	**306520 WRAP Qualification Package NDA Operator**
Description	Course provides training in NDA requirements and activities for containers and boxes.
Mandating document(s)	WAC 173-303-330(1)
Target audience	Operators who will be performing NDA operations.
Frequency	24 month(s)

Title	**306525 WRAP Qualification Package Low-Level Waste Glovebox Operator**
Description	Course provides training in low-level glovebox operations including waste handling, packet NDE, sampling, and treatment.
Mandating document(s)	WAC 173-303-330(1)
Target audience	Operators who will be performing LLW glovebox operations.
Frequency	24 month(s)

Title	**306530 WRAP Qualification Package - Facility Operator**
Description	Develop proficiency in working with the plant control system, data management system, electrical distribution system, fire protection system, radiation monitoring system, communications system, HVAC, compressed air system, and environmental operations.
Mandating document(s)	WAC 173-303-330(1)
Target audience	Operators who will be performing WRAP surveillance.
Frequency	24 month(s)

Title	**306750 WRAP Facility Orientation**
Description	Course includes WRAP hazard communication and building emergency plan (facility emergency and hazards information checklist, building layout, operations, communications, alarms, evacuation routes, and staging areas).
Mandating document(s)	WAC 173-303-330(1)
Target audience	Personnel who have access to the WRAP.
Frequency	12 month(s)

Title	**03E306 Building Emergency Plan for WRAP (HNF-IP-0263)**
Description	Course consists of a review of specific chemical hazards associated with operating WRAP, as covered by the WRAP Building Emergency Plan. The training is completed by the supervisor, manager, or a designated individual using a checklist. Information reviewed includes hazards in the work area and emergency response requirements, including communication and alarm systems, and response to fires. The training is completed by the immediate manager or a designated individual using a checklist.
Mandating document(s)	WAC 173-303-330(1)(d), -340, -350, and -360.
Target audience	WRAP personnel who are General Workers, Advanced General Workers, and General Managers.
Frequency	Annual.

Title	**035010 Waste Designation**
Description	Course teaches dangerous waste designation according to WAC 173-303. Class content includes section-by-section lecture on the regulations, with examples following each section. Students complete examples using a waste designation flow chart. Examples addressed include: listed waste, characteristic waste, and Washington State criteria of toxicity and persistent.
Mandating document(s)	WAC 173-303-330(1), -070, and -080 through -100.
Target audience	General Shippers and Waste Designators.
Frequency	*One-time only. (Annual retrain is only required for those personnel who are* required to complete 035012.)

Title	**035012 Waste Designation Qualification**
Description	Course provides qualification to be a Waste Designator.
Mandating document(s)	WAC 173-303-330(1), -070, and -080 through -100.
Target audience	Waste Designators.
Frequency	Annual.

Title	**035020 Facility Waste Sampling and Analysis**
Description	Course presents waste sampling methodologies according to U.S. Environmental Protection Agency Protocols SW-846, "Test Methods *for Evaluating Solid Waste Physical/Chemical Methods". This course also* covers documentation requirements in a sampling plan and/or waste analysis plan, field and laboratory quality control/assurance, the data quality objectives process, and use of actual sampling equipment as specified by WAC 173-303-110. Finally, topics on listed waste management pertaining to sample management and available onsite sampling services are covered.
Mandating document(s)	WAC 173-303-330(1), -070, -110, and -300.
Target audience	General Managers and/or General Shippers because they perform responsibilities for sampling waste or effluent streams.
Frequency	One-time only.

Title	**035100 Container Waste Management - Initial**
Description	Course covers general training requirements pertaining to waste management of container in less-than-90-day accumulation areas and TSD units. The course incorporates WAC 173-303-200(1), -630, DOE Orders, and container management policy. Course includes practical exercises for hands-on experience with the packaging of dangerous or mixed waste, and preparation of packages for final destination. This course does not cover waste management aspects pertaining to other RCRA waste management units such as tank systems, surface impoundments, containment buildings, landfills, etc.
Mandating document(s)	WAC 173-303-330(1), -630, -200(1) and waste minimization.
Target audience	Advanced General Workers and General Managers, because they are immediate managers of or direct Advanced General Workers, who manage containers of dangerous or mixed waste.
Frequency	Initial (refresher annually by 035110 Container Waste Management Training).

Title	**035110 Container Waste Management - Refresher**
Description	Refresher Course for Container Waste Management - Initial.
Mandating document	WAC 173-303-330(1), -630, -200(1), and waste minimization.
Target audience	Advanced General Workers and General Managers, because they are immediate managers of or direct Advanced General Workers, who manage dangerous or mixed waste in containers.
Frequency	Annual.

Title	**035120 Waste Management Administration - Initial**
Description	Course is designed for personnel preparing to become shippers of dangerous and/or mixed waste. This course covers regulatory and onsite policies, forms, reports, forecasts, and plans. Topics also covered include: waste characterization, waste certification summaries, waste specification system, and solid waste storage/disposal records. In addition, personnel learn how these forms are used to complete shipping papers.
Mandating document(s)	WAC 173-303-330(1), -630, -200, -210, -220, -380, and -390.
Target audience	General Shippers because they direct Advanced General Workers in the management of containers of dangerous and mixed waste.
Frequency	Initial (refresher annually by 035130 - Waste Management Administration).

Title	**035130 Waste Management Administration - Refresher**
Description	Refresher course for Waste Management Administration - Initial.
Mandating document(s)	WAC 173-303-330(1), -630, -200, -210, -220, -380, and -390.
Target audience	General Shippers because they direct Advanced General Workers in the management of containers of dangerous and mixed waste.
Frequency	Annual.

Title	**037510 Building Emergency Director/Warden Requalification**
Description	Refresher for Building Emergency Director Training.
Mandating document(s)	WAC 173-303-330, -340, -350, and -360.
Target audience	General Managers because they have the responsibilities of the RCRA Emergency Coordinator in WAC 173-303-360.
Frequency	Annual.

ATTACHMENT 2. REQUIRED TRAINING FOR WASTE RECEIVING AND PROCESSING FACILITY PERSONNEL

Position	Job Title	Required Training
All Employee	All other Job Titles not specifically listed.	000001, 306750, 03E306
General Worker	Radiological Control Technician, Maintenance Personnel (Electrician, Instrument Technician, Insulator, Millwright, Painter, Pipefitter, Power Operator, Process Crane Operator, Rigger, Sign Painter, Truck Driver, Welder), Maintenance Manager, Radiological Control Manager.	000001, 02006G, 03E306, 306750
Advanced General Worker	Nuclear Process Operator * Operations personnel must qualify in their assigned duties unless escorted by a qualified operator. Operators are not required to maintain all qualifications.	000001, 02006G, 035100/035110, 03E306, 306500* 306515*, 306520* 306525*, 306530* 306750
General Manager	Operations Manager/Team Leader * Operations personnel must qualify in their assigned duties unless escorted by a qualified operator. Operators are not required to maintain all qualifications.	000001, 02006G, 02028B, 037510, 035100/035110, 03E306, 306500*, 306511/306550, 306515*, 306520*, 306525*, 306530* 306750
	Environmental Manager/Team Leader	000001, 02006G, 035010, 035020, 035100/035110, 03E306, 306750
	Environmental Compliance Officer	000001, 02006G, 035010, 035020, 035100/035110, 03E306, 306750
	Environmental Engineer/Scientist Plant Engineer (Environmental)	000001, 02006G, 035010, 035020, 035100/035110, 03E306, 306750

Position	Job Title	Required Training
General Manager (cont)	Hazardous Material Specialist	000001, 02006G, 035010, 035020, 035100/035110, 03E306, 306750
	Building Emergency Director	000001, 02006G, 02028B, 037510, 035100/035110, 03E306, 306750
General Shipper	Shipper	000001, 02006G, 020159, 035010, 035100/035110, 035120/035130, 03E306, 306750
Waste Designator	Waste Designator	000001, 035010, 035012, 03E306, 306750

ATTACHMENT 3. EXAMPLE OF TMX DATABASE REPORT

POSITION TRAINING REPORT

Tracking Code: Matrix Last Modified on 05/03/99 05/05/99 Position 1
Manager: 30 Days Delinquent Forecast 15:04:38 Sheet 1 of 1
Organization: SOLID WASTE MANAGEMENT
Position: Safety Engineer (AE)

	Course No.	Title	Retrain Course	Individual #1	Individual #2
M	000001	HGET	000001	02/04/99	04/20/99
M	003034	LOCK & TAG - AUTH WRKR I	003037	02/25/99	03/05/99
M	003035	LOCK & TAG: CO INITIAL	003036	02/25/99	03/05/99
M	020001	RAD WORKER II INITIAL	020003	12/16/00	01/20/01
M	020041	RESPIRATORY PROTECTION I	02R041	07/14/99	09/15/99
M	031110	24 HR RCRA TSD HAZ WASTE	032020	01/14/99	08/28/99
M	03E306	WRAP FACILITY EMERG & CH	03E306	10/14/99	12/15/99
M	300900	SW PROJECTS FACILITY ORI	---------	08/21/99	02/02/00
M	301100	SW PROJECT EMER/HAZ INFO	301100	08/21/99	02/02/99
M	306750	WRAP1 FAC ORIENT	306750	10/14/98	02/10/99
M	020130	CONFND SPC ENTRY (CSE)	---------	OK	OK
M	020140	FALL PROTECTION TRAINING	---------	OK	OK
M	020044	QUANTITATIVE MASK FIT	020044	12/15/99	02/20/00
M	02006G	WASTE MANAGEMENT AWARENE	---------	OK	OK
M	038100	HANFORD INCIDENT COMMAND	038100	7/16/99	9/15/99
M	020900	ALARA TRNG TECH SUPPORT	---------	OK	OK
M	120196	COMPUTER SECURITY TRAINI	120195	12/25/99	02/02/00
M	170500	BASIC MEDIC FIRST AID	170535	12/25/99	03/11/01
M	172701	ISMS & WORK PLANNING TEA	---------	OK	OK
M	172702	USING THE AJHA TOOL	---------	OK	OK
M	020702	RAD WORKER REFRESHER TRA	020702	03/21/00	02/02/01

Legend:

Upper case (M/R)	= Course needed by all	Date	= Course retrain date
Lower case (m/r)	= Course needed by some	OK	= Course taken; no retrain date required
<< >>	= Course delinquent	Blank	= Course not needed (lower case) and not taken
/ /	= Course needed (upper case) but not taken	****	= Course taken; retrain requirement not maintained

Enclosure 7
CWC Part A and B
(Attachment 44)

HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION, CENTRAL WASTE COMPLEX

FOREWORD

The Hanford Facility Dangerous Waste Permit Application is considered to be a single application organized into a General Information Portion (document number DOE/RL-91-28) and a Unit-Specific Portion. The scope of the Unit-Specific Portion is limited to Part B permit application documentation submitted for individual, 'operating' treatment, storage, and/or disposal units, such as the Central Waste Complex (this document, DOE/RL-91-17).

Both the General Information and Unit-Specific portions of the Hanford Facility Dangerous Waste Permit Application address the content of the Part B permit application guidance prepared by the Washington State Department of Ecology (Ecology 1996) and the U.S. Environmental Protection Agency (40 Code of Federal Regulations 270), with additional information needs defined by the Hazardous and Solid Waste Amendments and revisions of Washington Administrative Code 173-303. For ease of reference, the Washington State Department of Ecology alpha-numeric section identifiers from the permit application guidance documentation (Ecology 1996) follow, in brackets, the chapter headings and subheadings. A checklist indicating where information is contained in the Central Waste Complex permit application documentation, in relation to the Washington State Department of Ecology guidance, is located in the Contents Section.

Documentation contained in the General Information Portion is broader in nature and could be used by multiple treatment, storage, and/or disposal units (e.g., the glossary provided in the General Information Portion). Wherever appropriate, the Central Waste Complex permit application documentation makes cross-reference to the General Information Portion, rather than duplicating text.

Information provided in this Central Waste Complex permit application documentation is current as of May 1998.

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DOCUMENT CONTENTS

APPENDICES

APPENDICES (CONT)

METRIC CONVERSION CHART

Into metric units			Out of metric units		
If you know	Multiply by	To get	If you know	Multiply by	To get
Length			**Length**		
inches	25.40	millimeters	millimeters	0.0393	inches
inches	2.54	centimeters	centimeters	0.393	inches
feet	0.3048	meters	meters	3.2808	feet
yards	0.914	meters	meters	1.09	yards
miles	1.609	kilometers	kilometers	0.62	miles
Area			**Area**		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092	square meters	square meters	10.7639	square feet
square yards	0.836	square meters	square meters	1.20	square yards
square miles	2.59	square kilometers	square kilometers	0.39	square miles
acres	0.404	hectares	hectares	2.471	acres
Mass (weight)			**Mass (weight)**		
ounces	28.35	grams	grams	0.0352	ounces
pounds	0.453	kilograms	kilograms	2.2046	pounds
short ton	0.907	metric ton	metric ton	1.10	short ton
Volume			**Volume**		
fluid ounces	29.57	milliliters	milliliters	0.03	fluid ounces
quarts	0.95	liters	liters	1.057	quarts
gallons	3.79	liters	liters	0.26	gallons
cubic feet	0.03	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.76456	cubic meters	cubic meters	1.308	cubic yards
Temperature			**Temperature**		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit
Force			**Force**		
pounds per square inch	6.895	kilopascals	kilopascals	1.4504×10^{-4}	pounds per square inch

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

Application Checklist

Complete this checklist by providing the facility name and indicating where the listed material has been placed in the application. This is particularly important when the application does not closely follow the outline of the checklist and guidance.

Include the completed checklist with the Dangerous Waste Permit application.

Facility name Central Waste Complex

Date Application Received _____

State of Washington
Part B Permit Application Review Checklist for
Treatment and Storage in Tanks and Containers

		Technically Adequate?	Location in Application
A.	Part A Form		Chapter 1.0
B.	Facility Description and General Provisions		2.0
B-1	General Description		2.1
B-1(a)	Facility Description		2.1
B-1(b)	Construction Schedule		2.1.10
B-2	Topographic Map		2.2
B-2a	General Requirements		2.2
B-2b	Additional Requirements for Land Disposal Facilities	Not Applicable	Not Applicable
B-3	Seismic Consideration		N/A
B-4	Traffic Information		2.3
C.	Waste Analysis		3.0
C-1	Chemical, Biological and Physical Analyses		3.1
C-1a C-1b C-1c	Waste In Piles Landfilled Wastes Wastes Incinerated and Wastes Used in Performance Tests	Not Applicable	Not Applicable
C-2	Waste Analysis Plan		3.2 and Appendix 3A
C-2a	Detailed Chemical, Physical, and/or Biological Analysis		Appendix 3A
C-2a(1)	Parameters and Rationale		Appendix 3A
C-2a(2)	Analytical Methods		Appendix 3A
C-2a(3)	Generator-Supplied Analyses		Appendix 3A
C-2b	Additional Requirements for Wastes Generated Off-site		Appendix 3A
C-2b(1)	Parameters and Rationale to Confirm Identity of Off-site Waste		Appendix 3A
C-2b(2)	Analytical Methods to Confirm Identity of Off-site Waste		Appendix 3A
C-2b(3)	Representative Sampling of Incoming Off-site Wastes		Appendix 3A
C-2c	Methods for Collecting Samples for Detailed and Confirming Analyses		Appendix 3A
C-2d	Frequency of Analyses		Appendix 3A
C-3	Manifest System		Appendix 3A
C-3a	Procedures for Receiving Shipments		Appendix 3A

		Technically Adequate?	Location in Application
C-3b	Response to Significant Discrepancies		Appendix 3A
C-3c	Provisions for Non-acceptance of Shipment		Appendix 3A
C-3c(1)	Non-acceptance of Undamaged Shipment		Appendix 3A
C-3c(2)	Activation of Contingency Plan for Damaged Shipment		Appendix 3A
C-4	Tracking System		Appendix 3A
D.	Process Information		4.0
D-1	Containers		4.1
D-1a	Description of Containers		4.1.1.1
D-1b	Container Management Practices		4.1.1.2
D-1c	Container Labelling		4.1.1.3
D-1d	Containment Requirements for Storing Containers		4.1.2
D-1d(1)	Secondary Containment System Design		4.1.2.1
D-1d(1)(a)	System Design		4.1.2.1
D-1d(1)(b)	Structural Integrity of Base		4.1.2.1
D-1d(1)(c)	Containment System Capacity		4.1.2.2
D-1d(1)(d)	Control of Run-on		4.1.2.3
D-1d(2)	Removal of Liquids from Containment System		4.1.3
D-1e	Demonstration that Containment Is Not Required Because Containers Do Not Contain Free Liquids, Wastes That Exhibit Ignitability or Reactivity, or Wastes Designated F020 - 023, F026, or F027		4.2
D-1f	Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes in Containers		4.3
D-1f(1)	Management of Certain Reactive Wastes in Containers		4.3.1
D-1f(2)	Management of Ignitable and Certain Other Reactive Wastes in Containers		4.3.2
D-1f(3)	Design of Areas to Manage Incompatible Wastes		4.3.3
D-2	Tank Systems		N/A
D-2a	Design, Installation and Assessment of Tanks Systems		N/A
D-2a(1)	Design Requirements		N/A
D-2a(2)	Integrity Assessments		N/A
D-2a(3)	Additional Requirements for Existing Tanks		N/A
D-2a(4)	Additional Requirements for New Tanks		N/A
D-2a(5)	Additional Requirements for New On-ground or Underground Tanks		N/A
N/A D-2b	Secondary Containment and Release Detection for Tank Systems		N/A

		Technically Adequate?	Location in Application
N/A D-2b(1)	Requirements for All Tank Systems		N/A
D-2b(2)	Additional Requirements for Specific Types of Systems		N/A
D-2b(2)(a)	Vault Systems		N/A
D-2b(2)(b)	Double-walled Tanks		N/A
D-2b(2)(c)	Ancillary Equipment		N/A
D-2c	Variances from Secondary Containment Requirements		N/A
D-2d	Tank Management Practices		N/A
D-2e	Labels or Signs		N/A
D-2f	Air Emissions		N/A
D-2g	Management of Ignitable or Reactive Wastes in Tank Systems		N/A
D-2h	Management of Incompatible Wastes in Tank Systems		N/A
D-3 D-4 D-5 D-6 D-7	Waste Piles Surface Impoundments Incinerators Landfills Land Treatment	Not Applicable	Not Applicable
D-8	Air Emissions Control		4.4
D-8a	Process Vents		N/A
D-8a(1)	Applicability of Subpart AA Standards		N/A
D-8a(1)(a)	Process Vents Subject to Subpart AA Standards		N/A
D-8a(1)(b)	Process Vents Not Subject to Subpart AA Standards		N/A
D-8a(1)(c)	Re-evaluating Applicability of Subpart AA Standards		N/A
D-8a(2)	Process Vents - Demonstrating Compliance		N/A
D-8a(2)(a)	The Basis for Meeting Limits/Reductions		N/A
D-8a(2)(b)	Demonstrating Compliance via Selected Method		N/A
D-8a(2)(c)	Design Information and Operating Parameters for Closed Vent Systems and Control Devices		N/A
D-8a(2)(d)	Re-evaluating Compliance with Subpart AA Standards		N/A
D-8b	Equipment Leaks		N/A
D-8b(1)	Applicability of Subpart BB Standards		N/A
D-8b(1)(a)	Equipment Subject to Subpart BB		N/A
D-8b(1)(b)	Re-evaluating Applicability of Subpart BB Standards		N/A
D-8b(2)	Equipment Leaks - Demonstrating Compliance		N/A

		Technically Adequate?	Location in Application
D-8b(2)(a)	Procedures for Identifying Equipment Location and Method of Compliance, Marking Equipment, and Ensuring Records are Up-to-date		N/A
D-8b(2)(b)	Demonstrating Compliance with D-8b(1)(a) and (2)(a) Procedures		N/A
D-8b(2)(c)	Closed Vent Systems or Control Devices: Showing Compliance with Emission Reduction Standards		N/A
D-8c	Tanks and Containers		4.4
D-8c(1)	Applicability of Subpart CC Standards		4.4.1
D-8c(2)	Tank Systems and Container Areas - Demonstrating Compliance		4.4.2
D-9	Waste Minimization		10.0
D-10	Groundwater Monitoring for Land-based Units	Not Applicable	Not Applicable
E.	Releases from Solid Waste Management Units		2.4
E-1	Solid Waste Management Units and Known and Suspected Releases of Dangerous Wastes or Constituents		2.4
E-1a	Solid Waste Management Units		2.4
E-1b	Releases		2.4
E-2	Corrective Actions Implemented		2.4
F.	Procedures to Prevent Hazards		6.0
F-1	Security		6.1
F-1a	Security Procedures and Equipment		6.1.1
F-1b	Waiver		6.1.2
F-2	Inspection Plan		6.2
F-2a	General Inspection Requirements		6.2.1
F-2b	Inspection Log		6.2.1
F-2c	Schedule for Remedial Action for Problems Revealed		6.2.2
F-2d	Specific Process or Waste Type Inspection Requirements		6.2.3
F-2d(1)	Container Inspections		6.2.3.1
F-2d(2)	Tank System Inspections and Corrective Actions		N/A
F-2d(2)(a)	Tank System Inspections		N/A
F-2d(2)(b)	Tank Systems - Corrective Actions		N/A
F-2d(3)	Storage of Ignitable or Reactive Wastes		N/A
F-2d(4)	Air Emissions Control and Detection - Inspections, Monitoring, and Corrective Actions		N/A
F-2d(4)(a)	Process Vents		N/A
F-2d(4)(b)	Equipment Leaks		N/A
F-2d(4)(c)	Tanks and Containers		N/A

		Technically Adequate?	Location in Application
F-2d(5) F-2d(6) F-2d(7) F-2d(8) F-2d(9)	Waste Pile Inspection Surface Impoundment Inspection Incinerator Inspection Landfill Inspection Land Treatment Facility Inspection	Not Applicable	Not Applicable
F-3	Preparedness and Prevention Requirements		6.3
F-3a	Equipment Requirements		6.3.1
F-3b	Aisle Space Requirement		6.3.2
F-4	Preventive Procedures, Structures, and Equipment		6.4
F-5	Prevention of Reaction of Ignitable, Reactive, and/or Incompatible Wastes		6.5
F-5a	Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste		6.5.1
F-5b	Precautions for Handling Ignitable or Reactive Waste and Mixing Incompatible Wastes		6.5.2
F-5b(1)	Ignitable or Reactive Wastes In Tanks		N/A
F-5b(2)	Incompatible Wastes In Containers or Tanks		N/A
G.	Contingency Plan		7.0
G-1	General Information		Appendix 7A
G-2	Emergency Coordinators		Appendix 7A
G-3	Circumstances Prompting Implementation		Appendix 7A
G-4	Emergency Response Procedures		Appendix 7A
G-4a	Notification		Appendix 7A
G-4b	Identification of Dangerous Materials		Appendix 7A
G-4c	Hazard Assessment and Report		Appendix 7A
G-4d	Prevention of Recurrence or Spread of Fires, Explosions, or Releases		Appendix 7A
G-4f	Post-Emergency Actions		Appendix 7A
G-5	Emergency Equipment		Appendix 7A
G-6	Coordination Agreements		Appendix 7A
G-7	Evacuation Plan		Appendix 7A
G-8	Required Reports, Recordkeeping, and Certifications		Appendix 7A
G-8a	General Requirements		Appendix 7A
G-8a	Requirements for Tank Systems		N/A
H.	Personnel Training		8.0
H-1	Job Title/Job Description		Appendix 8A
H-2	Outline of Training Program		Appendix 8A
H-3	Implementation of Training Program		Appendix 8A
I.	Closure and Financial Assurance		11.0
I-1	Closure Plan/Financial Assurance for Closure		11.1
I-1a	Closure Performance Standard		11.1.1

		Technically Adequate?	Location in Application
I-1b	Closure Activities		11.1.2
I-1b(1)	Maximum Extent of Operation		11.1.3
I-1b(2)	Removing Dangerous Wastes		11.1.4
I-1b(3)	Decontaminating Structures, Equipment, and Soil		11.1.4
I-1b(4)	Sampling and Analysis to Identify Extent of Decontamination/ Removal and to Verify Achievement of Closure Standard		11.1.4
I-1b(4)(a)	Sampling to Confirm Decontamination of Structures and Soils		11.1.4
I-1b(5)	Other Activities		N/A
I-1c	Maximum Waste Inventory		11.1.3
I-1d I-1e	Closure of Waste Piles, Surface Impoundments, Incinerators, Land Treatment, and Miscellaneous Units Closure of Landfill Units	Not Applicable	Not Applicable
I-1f	Schedule for Closure		11.2
I-1g	Extension for Closure Time		N/A
I-1h	Closure Cost Estimate		N/A
I-1i	Financial Assurance Mechanism for Closure		N/A
I-2	Notice in Deed of Already Closed Disposal Units		N/A
I-3	Post-Closure Plan		N/A
I-4	Liability Requirements		N/A
I-4a	Coverage for Sudden Accidental Occurrences		N/A
I-4b	Coverage for Nonsudden Accidental Occurrences		N/A
I-4c	Request for Variance		N/A
J.	Other Federal and State Laws		13.0
K.	Part B Certification		14.0

CONTENTS

1.0 PART A [A]

The Part A, Form 3, covers the Central Waste Complex (CWC). The original Part A, Form 3, (Revision 0) was submitted May 19, 1988 and included the Radioactive Mixed Waste Storage Facility and Waste Receiving and Processing Facility.

Revision 1, submitted October 22, 1990, was prepared to ensure agreement between annual waste quantities as identified in the Part A, Form 3 (Revision 0), and the Hanford Site annual dangerous waste report submitted in March 1990 to the Washington State Department of Ecology. Two dangerous waste numbers (D012 and D016) and 26 new dangerous waste numbers, based on the U.S. Environmental Protection Agency *Final Rule Change*, "Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Toxicity Characteristics Revisions" (55 FR 61), were added.

Revision 2, submitted October 7, 1994, added dangerous waste numbers (F039, P057, U248, U249, U328, U353, and U359) and removed dangerous waste numbers (U230, WC01, P052, and U013). Revision 3, submitted January 25, 1995, was revised to separate the CWC and the Waste Receiving and Processing Facility Part A, Form 3s from the former Hanford CWC Part A, Form 3.

Revision 3 also added 23 dangerous waste numbers to existing Process Codes S01 (container-storage) and T04 (treatment-other).

Revision 4, submitted October 1, 1996, identified a new co-operator of CWC.

Revision 5, submitted June 1, 1998, was revised to clarify the treatment process and redefine the treatment, storage, and/or disposal (TSD) unit boundary. Revision 5 also removed three dangerous waste numbers and added 61 dangerous waste numbers per the revised federal and state regulations. Revision 5 also was revised to clarify the names of various storage buildings/modules.

Revision 6, submitted for inclusion into Modification E of the *Hanford Facility Resource Conservation and Recovery Act Permit*, was revised to update the CWC Site Plan. Revision 6 also added seven dangerous waste numbers.

FORM **3**

DANGEROUS WASTE PERMIT APPLICATION

1. EPA/STATE I.D. NUMBER: W A 7 8 9 0 0 0 8 9 6 7

OFFICIAL USE ONLY

LICATION PROVED	DATE RECEIVED (mo., day, & yr.)	COMMENTS
X	0 6 2 8 9 9	Approved 2/28/01 To be used in conjunction with Sitewide Permit Rev. 7

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA/STATE I.D. Number, or if this is a revised application, enter your facility's EPA/STATE I.D. Number in Section I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

☐ 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

MO.	DAY	YR.
03	22	43

* FOR EXISTING FACILITIES, PROVIDE THE DATE *(mo., day, & yr.)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*
* The date construction of the Hanford Facility commenced.

☐ 2. NEW FACILITY *(Complete item below.)*

MO.	DAY	YR.

FOR NEW FACILITIES, PROVIDE THE DATE, *(mo., day, & yr.)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *(place an "X" below and complete Section I above)*

☒ 1. FACILITY HAS AN INTERIM STATUS PERMIT

☒ 2. FACILITY HAS A FINAL PERMIT

III. PROCESSES – CODES AND CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the codes(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the *(Section III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.

2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D80	GALLONS OR LITERS
LANDFILL	D81	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D82	*ACRES OR HECTARES*
OCEAN DISPOSAL	*D83*	*GALLONS PER DAY OR* LITERS PER DAY
SURFACE IMPOUNDMENT	D84	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided: Section III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECATRES	Q

EXAMPLE FOR COMPLETING SECTION III *(shown in line numberS X-1 and X-2 below): A facility has two storage tanks; one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.*

LINE NUMBER	A. PROCESS CODE *(from list above)*	B. PROCESS DESIGN CAPACITY 1. AMOUNT *(specify)*	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE *(enter code)*	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE *(from list above)*	B. PROCESS DESIGN CAPACITY 1. AMOUNT *(specify)*	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE *(enter code)*	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S01	22,710,000	L		7				
2	T04	45,420	V		8				
					9				
4					10				

Continued from the front.

III. PROCESSES (continued)

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESS (code "T04"). FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

The Central Waste Complex (CWC) began waste management operations in August of 1988.

T04 (Treatment-Other)

Treatment available at the CWC includes the absorption and solidification of free liquids, neutralization of corrosive materials, and stabilization and encapsulation of solid waste matrices. The maximum treatment design capacity at the CWC is 45,420 liters (11,999 gallons) per day.

IV. DESCRIPTION OF DANGEROUS WASTES

A. DANGEROUS WASTE NUMBER – Enter the four digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle. If you handle dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous wastes.

B. ESTIMATED ANNUAL QUANTITY - For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE - For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density / specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed dangerous waste: For each listed dangerous waste entered in column A select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed dangerous wastes: For each characteristic or toxic contaminant entered in Column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed dangerous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: DANGEROUS WASTES DESCRIBED BY MORE THAN ONE DANGEROUS WASTE NUMBER - Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

1. Select one of the Dangerous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.

2. In column A of the next line enter the other Dangerous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.

3. Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

EXAMPLE FOR COMPLETING SECTION IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*	D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2			T 0 3 D 8 0	*included with above*

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I. D. NUMBER *(entered from page 1)*

W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE E	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*				D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
1	D001	4,600	K	S01	T04			Storage - Container/Treatment - Other
2	D002	1,000						
3	D003	↓						
4	D004	300						
5	through	↓						
6	D007	↓						
7	D008	45,400						
8	D009	300						
9	through	↓						
10	D043	↓						
11	WSC2	↓						
	WT01	363,200						
13	WT02	36,000						
14	WP01	3,700						
15	through	↓						
16	WP03	↓						
17	W001	10,000						
18	F001	3,700						
19	through	↓						
20	F012	↓						
21	F019	↓						
22	F020	↓						
23	F021	300						
24	through	↓						
-	F023	↓	↓	↓	↓			↓

(enter "A," "B," "C," etc., behind the "3" to identify photo copied pages)

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I. D. NUMBER *(entered from page 1)*

W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*				D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
1	F026	300	K	S01	T04			Storage - Container/Treatment - Other
2	through							
3	F028							
4	F039							
5	U001							
6	through							
7	U012							
8	U014							
9	through							
10	U039							
11	U041							
12	through							
13	U053							
14	U055							
15	through							
16	U064							
17	U066							
18	through							
19	U099							
20	U101							
21	through							
22	U103							
23	U105							
24	through							
25	U138							
26								

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I. D. NUMBER *(entered from page 1)*

W	A	7	8	9	0	0	0	8	9	6	7

DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*				D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
1	U140	300	K	S01	T04			Storage - Container/Treatment - Other
2	through							
3	U174							
4	U176							
5	through							
6	U194							
7	U196							
8	U197							
9	U200							
10	through							
11	U223							
	U225							
13	through							
14	U228							
15	U230							
16	through							
17	U240							
18	U242							
19	through							
20	U244							
21	U246							
22	through							
23	U249							
24	U271							

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I. D. NUMBER *(entered from page 1)*

W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*	D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
1	U277	300	K	S01 T04	Storage - Container/Treatment - Other
2	through				
3	U280				
4	U328				
5	U353				
6	U359				
7	U364				
8	through				
9	U367				
10	U372				
11	U373				
12	U375				
13	through				
14	U379				
15	U381				
16	through				
17	U387				
18	U389				
19	through				
20	U396				
21	U400				
22	through				
23	U404				
24	U407	↓	↓	↓ ↓	↓
25					
26					

CONTINUE ON REVERSE

(enter "A," "B," "C," etc., behind the "3" to identify photo copied pages)

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I. D. NUMBER *(entered from page 1)*

W	A	7	8	9	0	0	0	8	9	6	7

DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*				D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
1	U409	300	K	S01	T04			Storage - Container/Treatment - Other
2	through							
3	U411							
4	P001							
5	through							
6	P018							
7	P020							
8	through							
9	P024							
10	P026							
11	through							
12	P031							
13	P033							
14	P034							
15	P036							
16	through							
17	P051							
18	P054							
19	P056							
20	through							
21	P060							
22	P062							
23	through							
24	P078							
25	P081							
26	P082							

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I. D. NUMBER *(entered from page 1)*

W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*				D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
1	P084	300	K	S01	T04			Storage - Container/Treatment - Other
2	P085							
3	P087							
4	through							
5	P089							
6	P092							
7	through							
8	P099							
9	P101							
10	through							
11	P116							
12	P118							
13	through							
14	P123							
15	P127							
16	P128							
17	P185							
18	P188							
19	through							
20	P192							
21	P194							
22	P196							
23	through							
24	P199							
25								
26								

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

I. D. NUMBER *(entered from page 1)*

W	A	7	8	9	0	0	0	8	9	6	7

DESCRIPTION OF DANGEROUS WASTES (continued)

LINE NO.	A. DANGEROUS WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*				D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
1	P201	300	K	S01	T04			Storage - Container/Treatment - Other
2	through							
3	P205							Included With Above.
4								
5								
6								
7								
8								
9								
10								
11								
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Continued from the front.

IV. DESCRIPTION OF DANGEROUS WASTE (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM SECTION D(1) ON PAGE 3.

V. FACILITY DRAWING Refer to attached drawing(s).

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS Refer to attached photograph(s).

All existing facilities must include photographs *(aerial or ground-level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION This information is provided on the attached drawings and photos.

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*

VIII. FACILITY OWNER

☒ A. If the facility owner is also the facility operator as listed in Section VII on Form 1, "General Information," place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME *(print or type)*	SIGNATURE	DATE SIGNED
Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office		6/25/99

X. OPERATOR CERTIFICATION

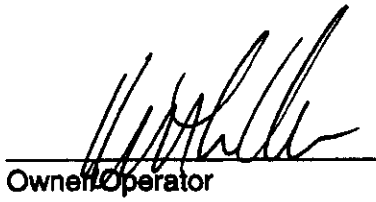
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individu immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting fals information, including the possibility of fine and imprisonment.

NAME *(print or type)*	SIGNATURE	DATE SIGNED

 CONTINUE ON PAGE 5

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



6/25/99

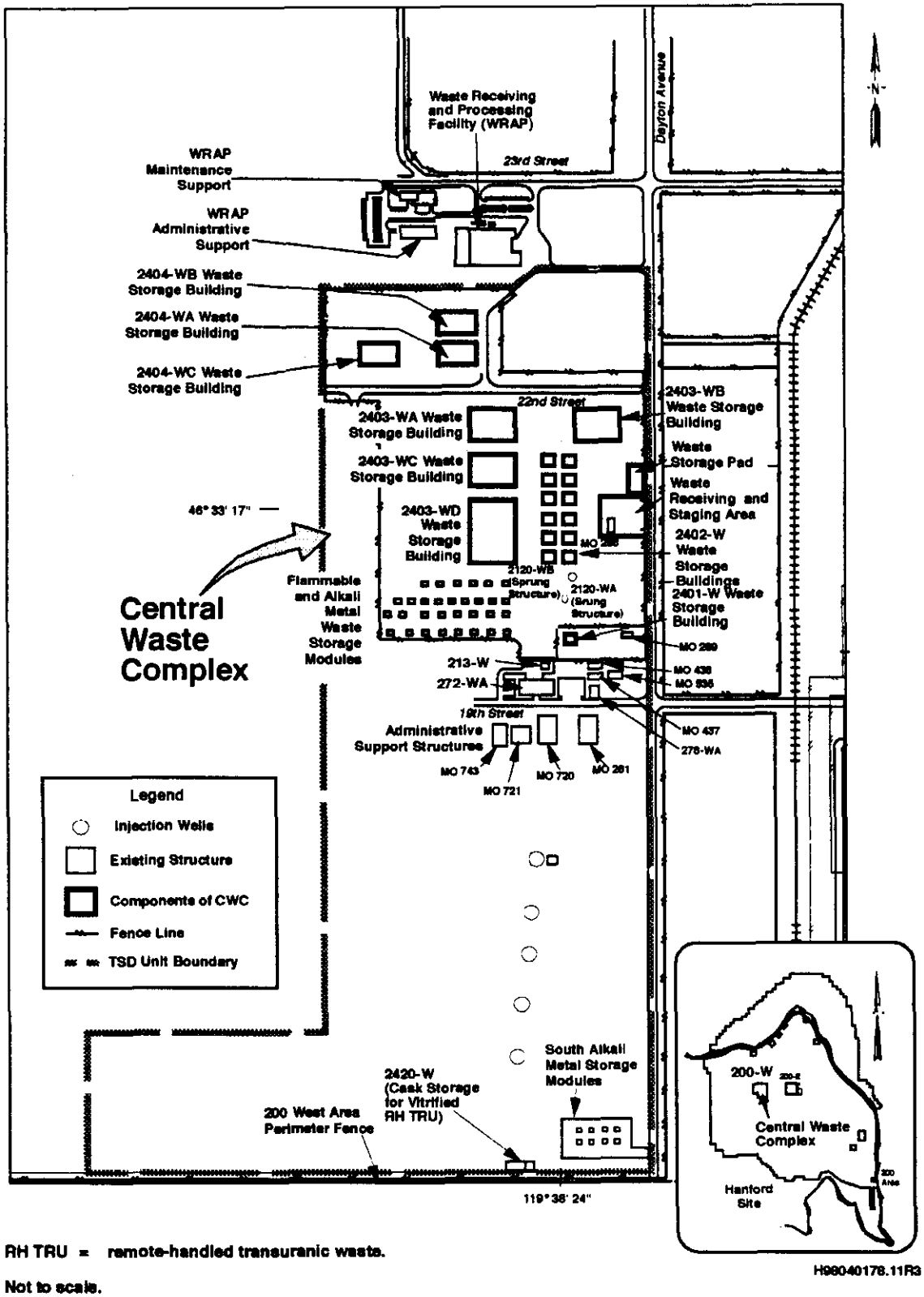
Owner/Operator
Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office

Date

6/21/99

R. D. Hanson,
President and Chief Executive Officer
Fluor Daniel Hanford, Inc.
Co-operator

Date



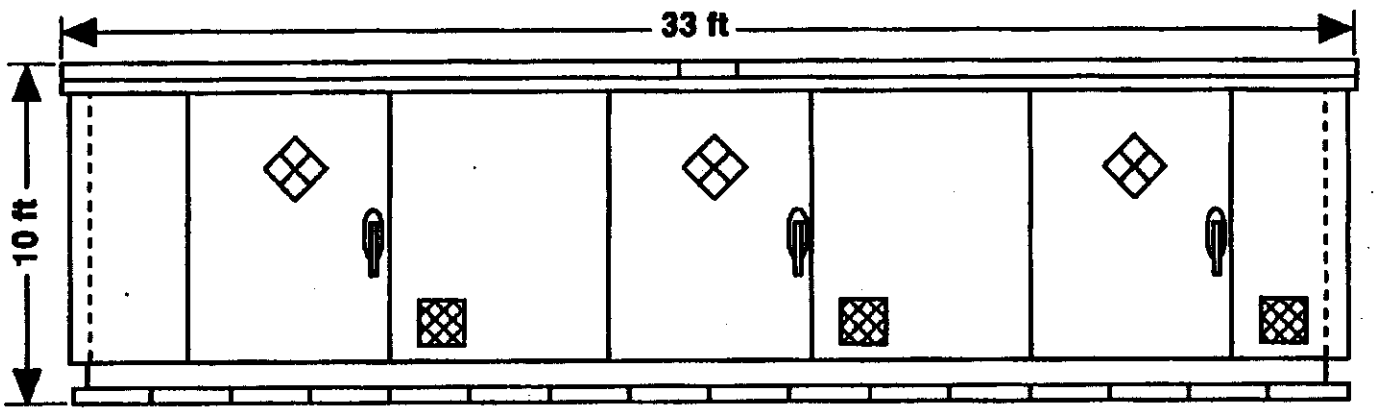
H99040178.11R3

RH TRU = remote-handled transuranic waste.

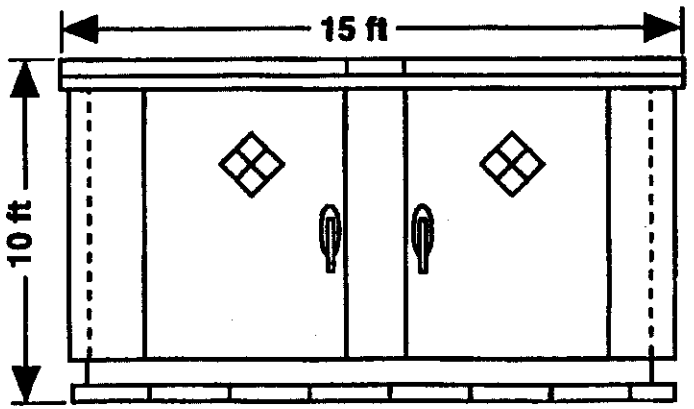
Not to scale.

Refer to topographic map (H-13-000003) for detail.

Typical Large Waste Storage Module
Front View



Typical Small Waste Storage Module
Front View

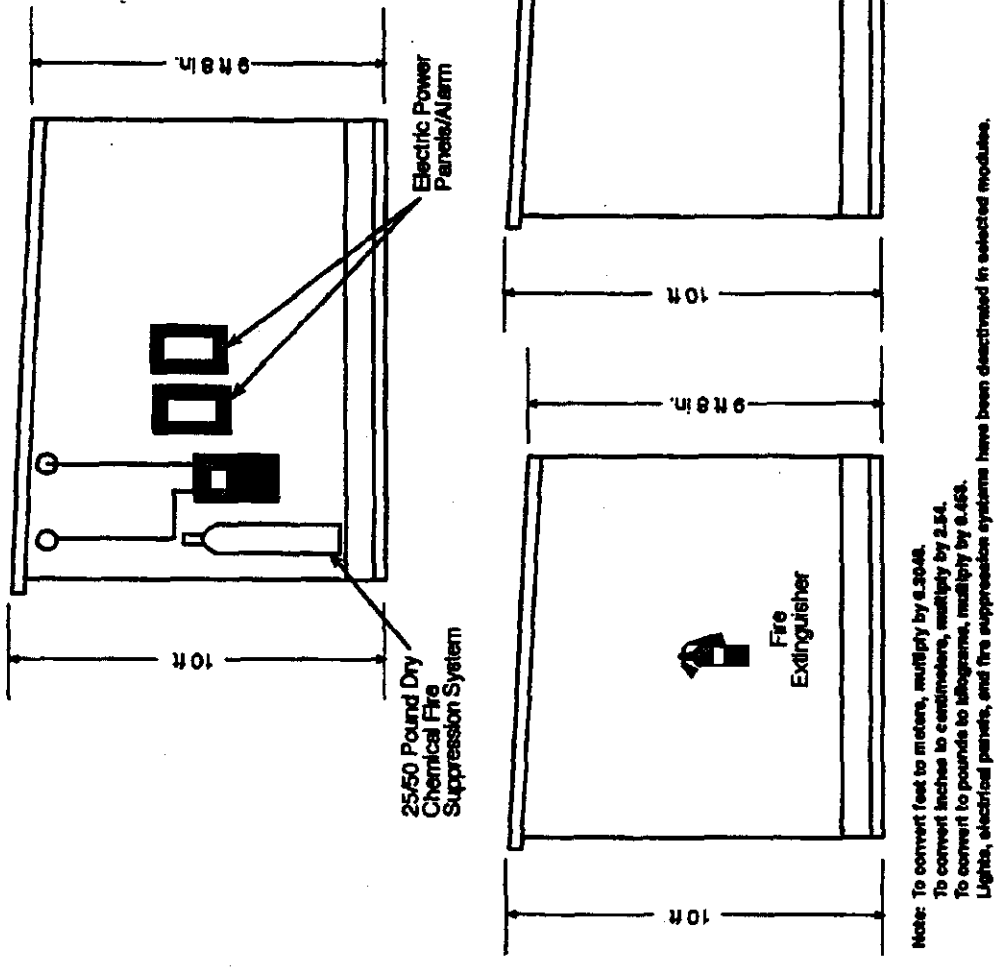


Note: To convert feet to meters, multiply by 0.3048.

H98040178.7

Flammable and Alkali Metal Waste Storage Module

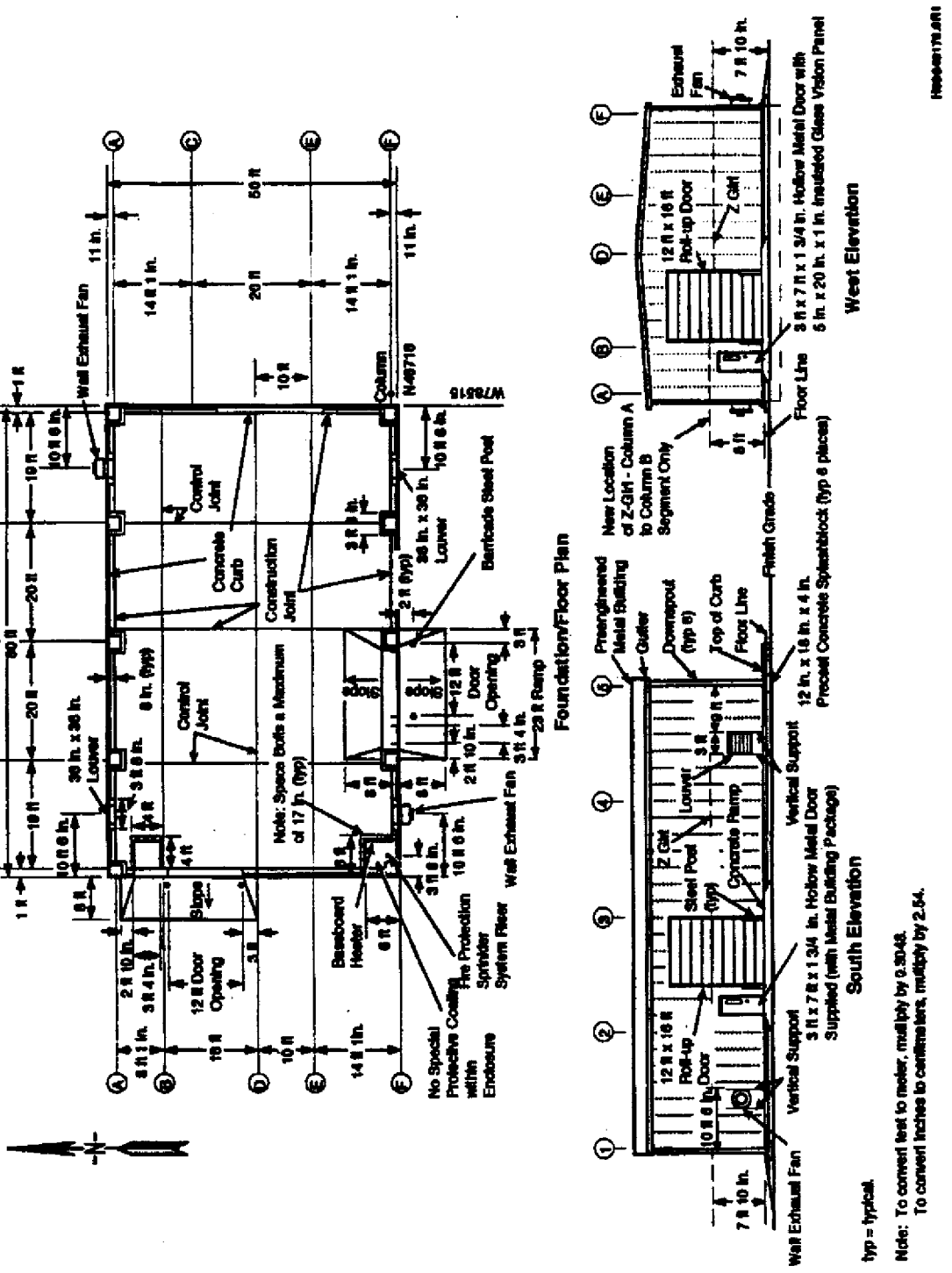
Side View



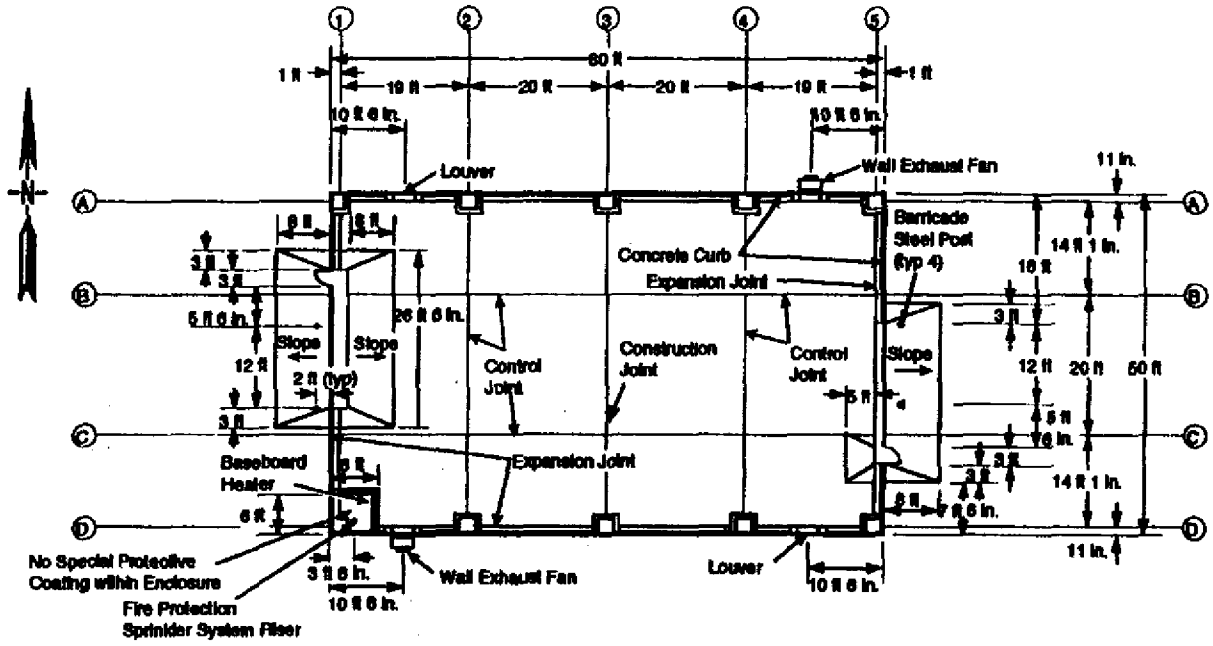
Note: To convert feet to meters, multiply by 0.3048.
To convert inches to centimeters, multiply by 2.54.
To convert to pounds to kilograms, multiply by 0.453.
Lights, electrical panels, and fire suppression systems have been deactivated in selected modules.

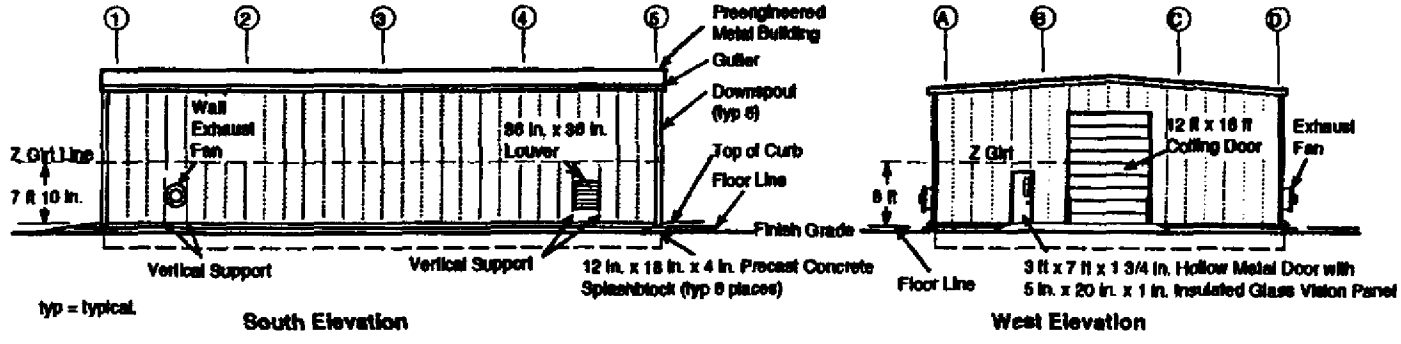
2401-W Waste Storage Building

Plan and Elevations



Typical Waste Storage Buildings (2402-W and 2402-WB through 2402-WL)
Plan and Elevations



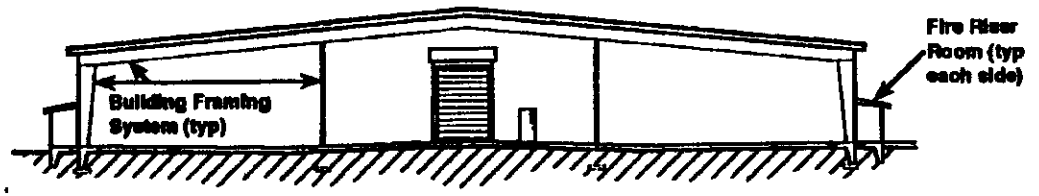


Note: To convert feet to meters, multiply by 0.3048.
To convert inches to centimeters, multiply by 2.54.

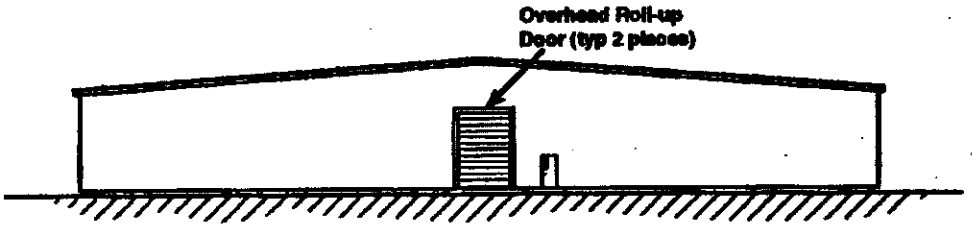
H9904019178.8a

Typical Waste Storage Building (2403-WA through WC)

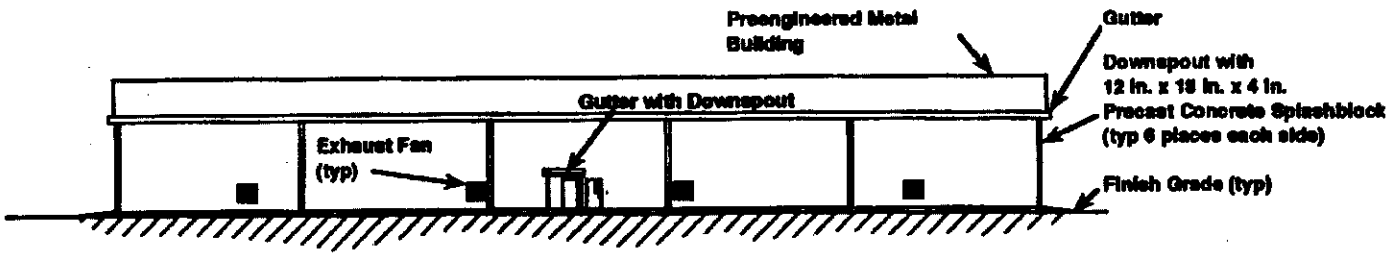
Elevations



Section



East Elevation (West Elevation Similar)



North Elevation (South Elevation Similar)

typ = typical.

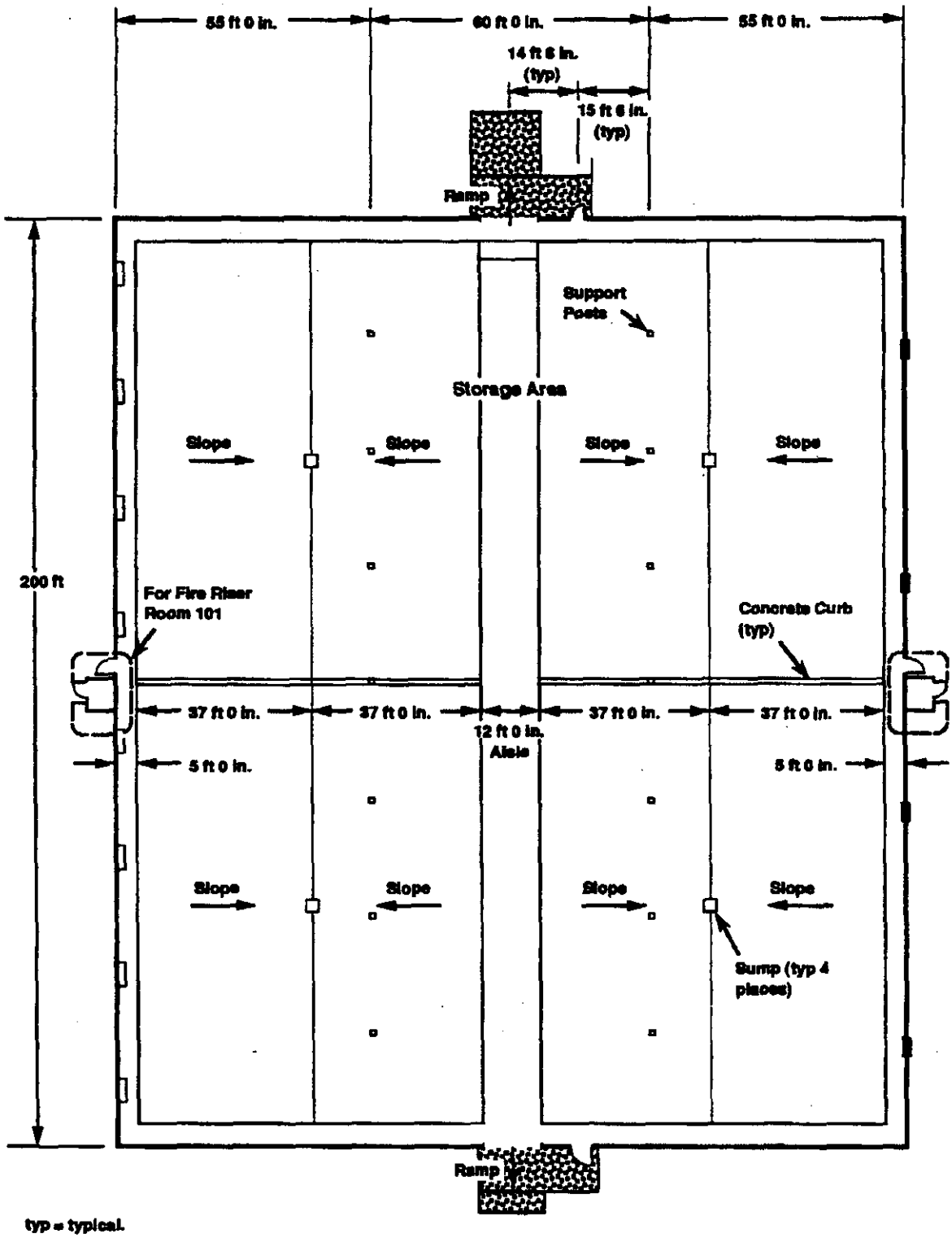
Not to scale.

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

H96040178.4R2

Typical Waste Storage Building (2403-WA through WC)

Plan

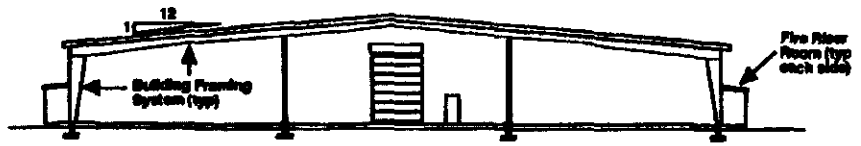


typ = typical.

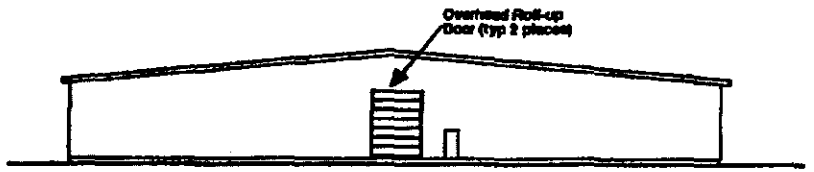
Note: To convert feet to meters, multiply by 0.3048.
To convert inches to centimeters, multiply by 2.54.

H9804017B.3

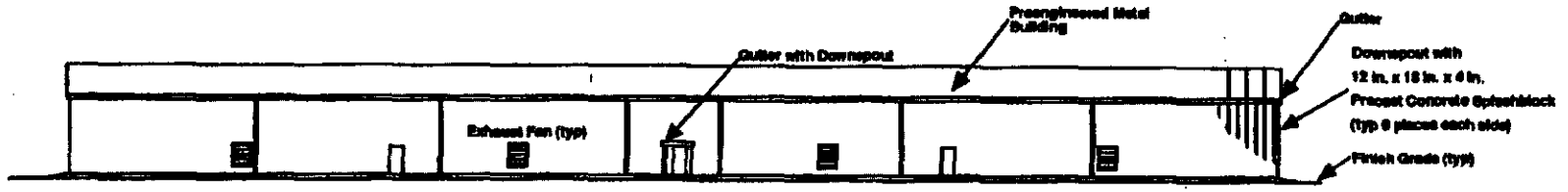
Waste Storage Building (2403-WD)



Section



North Elevation

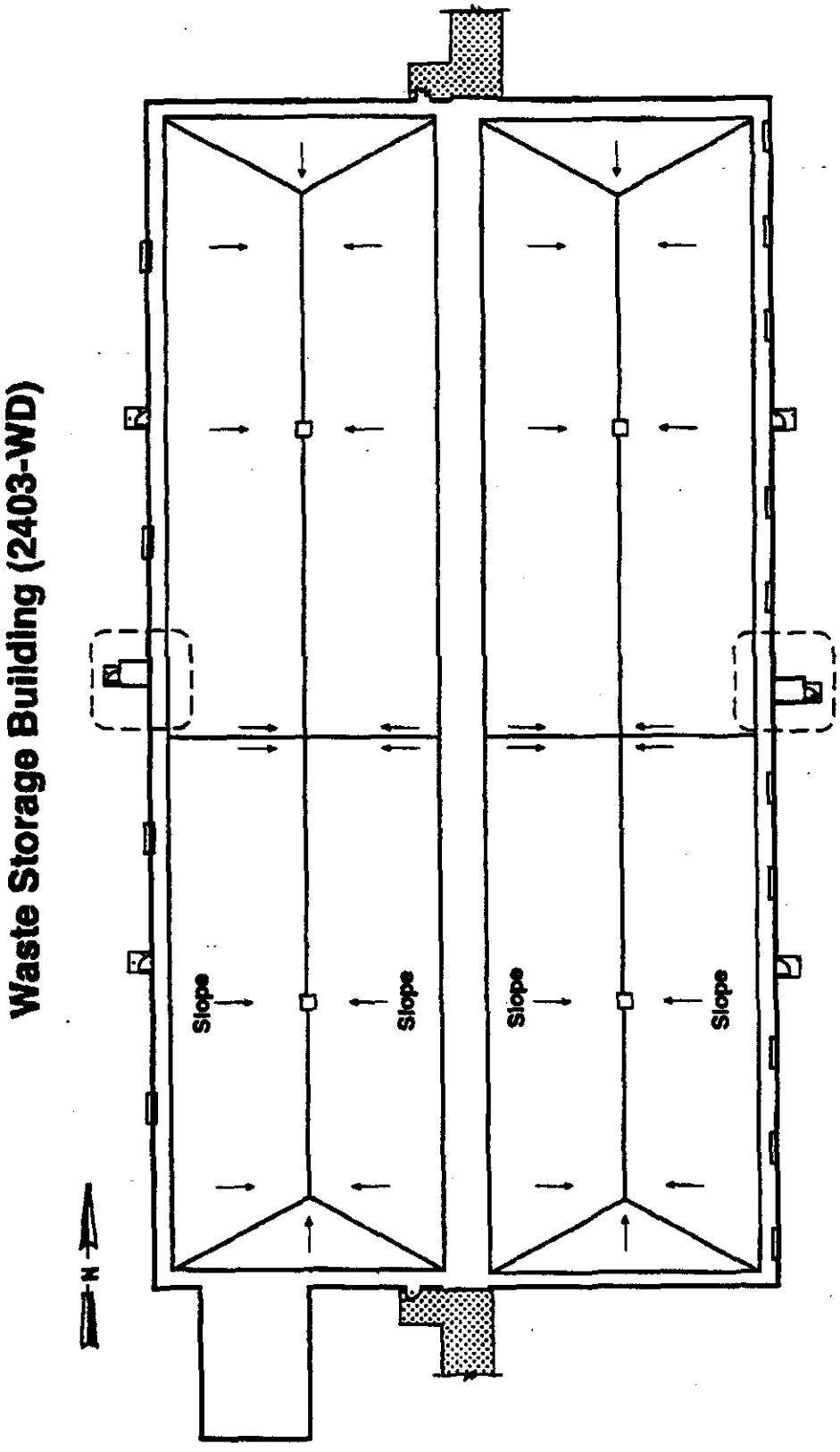


West Elevation

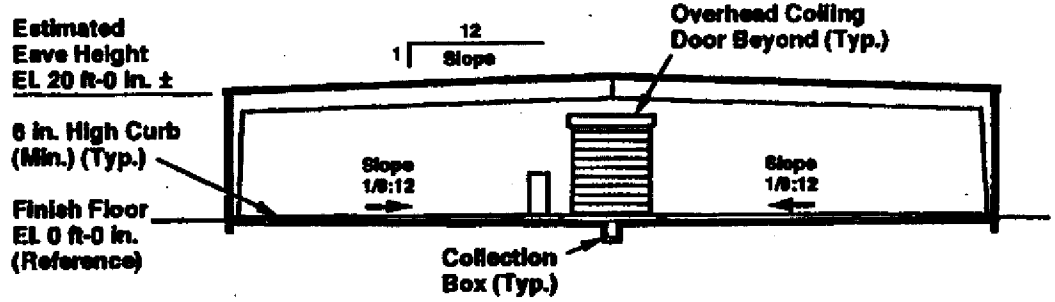
Metric Conversion: 2.54 centimeters per inch
0.305 meter per foot

typ = typical.

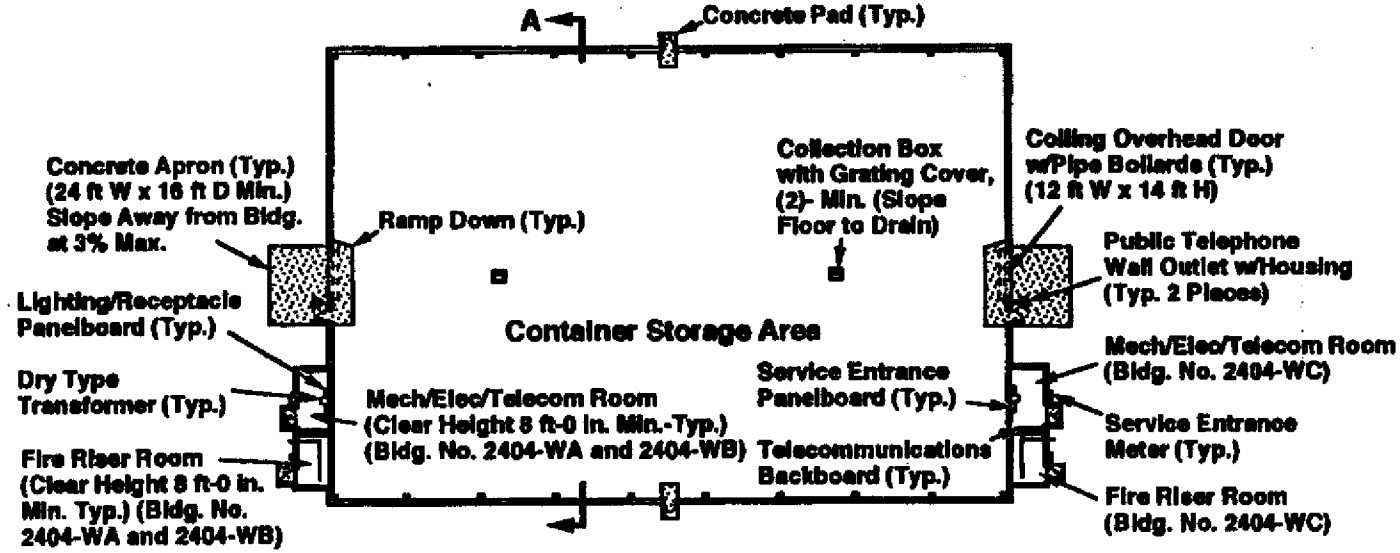
20304068.11R2


Waste Storage Building (2403-WD)
Slope
Slope
Slope
Slope
N
H9804017B.2
Not to scale.

Typical Waste Storage Building (2404-WA through WC)



A Section



Floor Plan

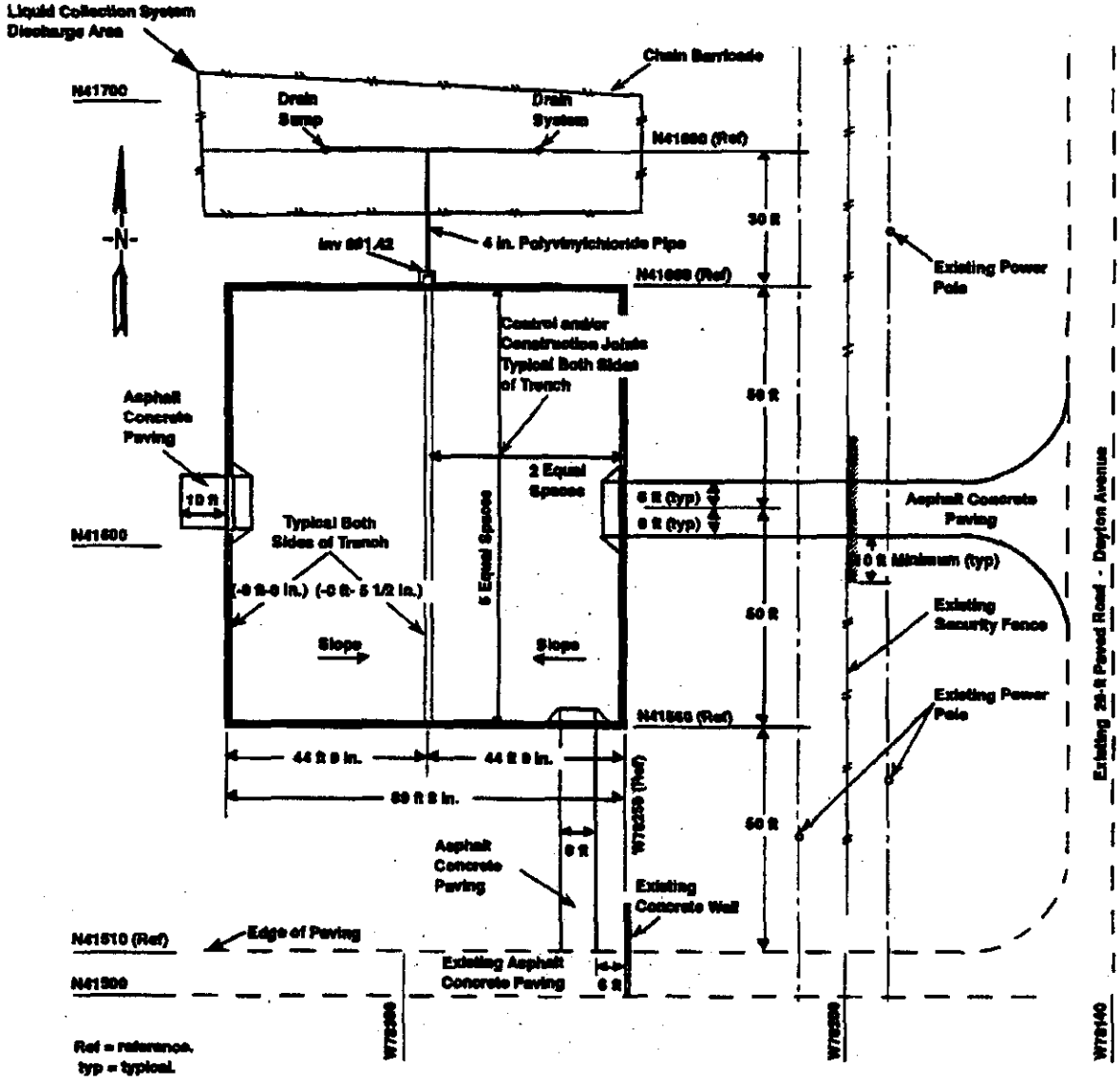
Min = minimum.
Typ = typical.

Not to scale.

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

H96060291.1R2

Waste Storage Pad
Civil Plan



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

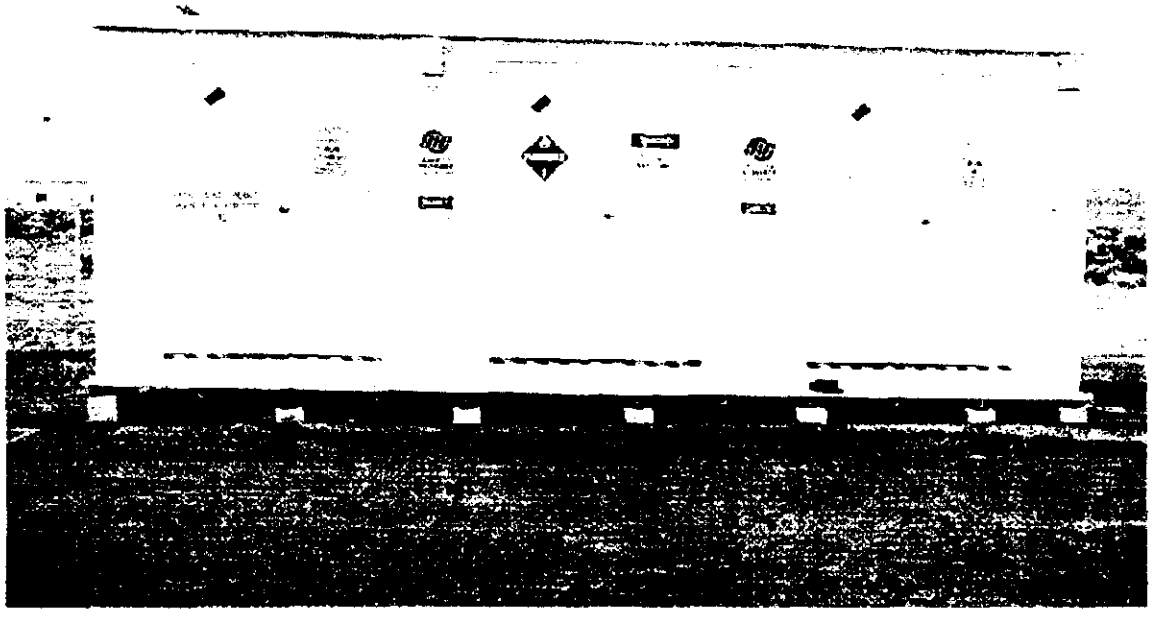
H9901 0036.6 R2

CENTRAL WASTE COMPLEX AERIAL VIEW

46°33'17"
119°38'24"

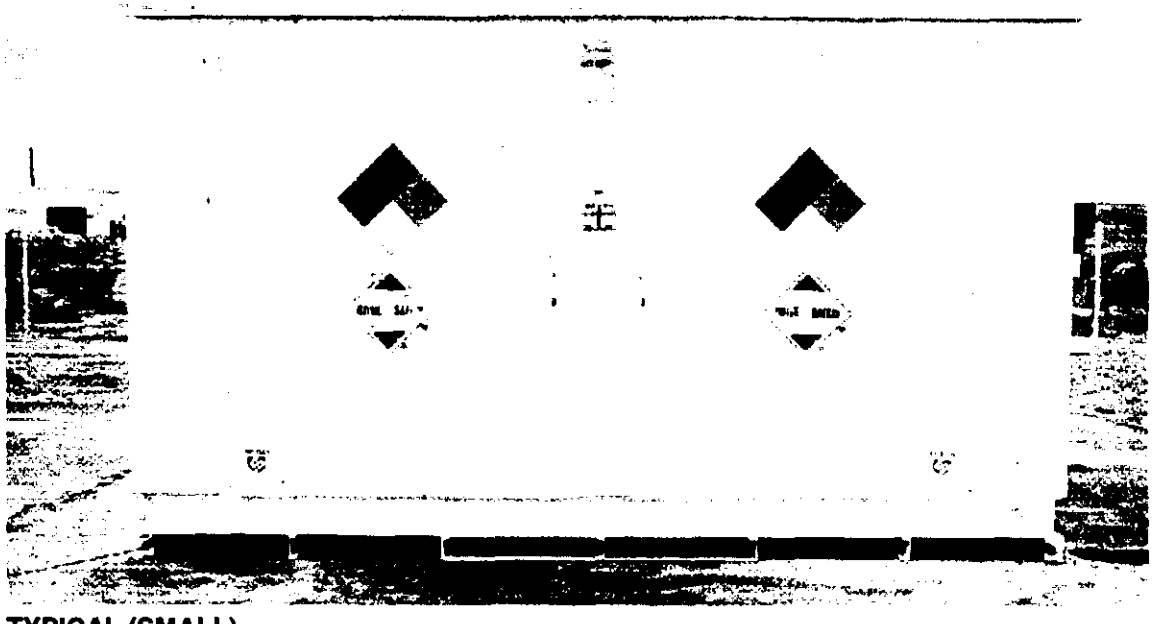
98030102-41CN
(PHOTO TAKEN 1998)

CENTRAL WASTE COMPLEX FLAMMABLE AND ALKALI METAL WASTE STORAGE MODULES



TYPICAL (LARGE)
46°33'17"
119°38'24"

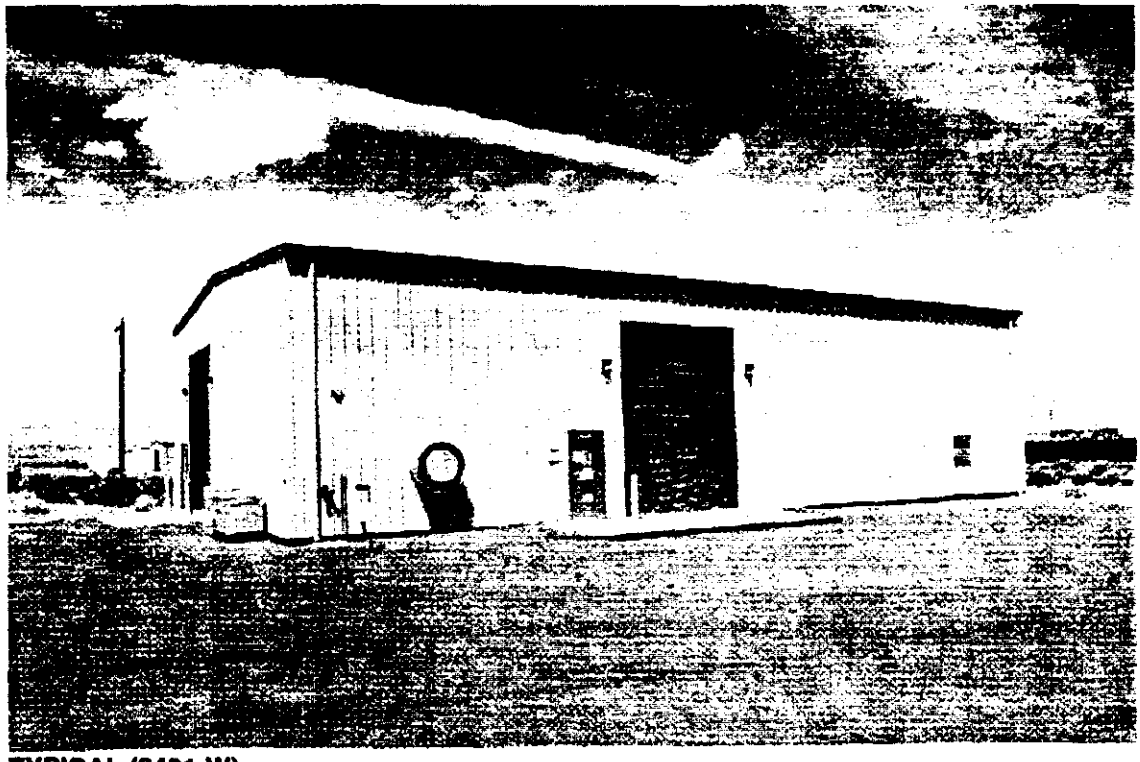
93040010-9CN
(PHOTO TAKEN 1993)



TYPICAL (SMALL)
46°33'17"
119°38'24

93040010-11CN
(PHOTO TAKEN 1993)

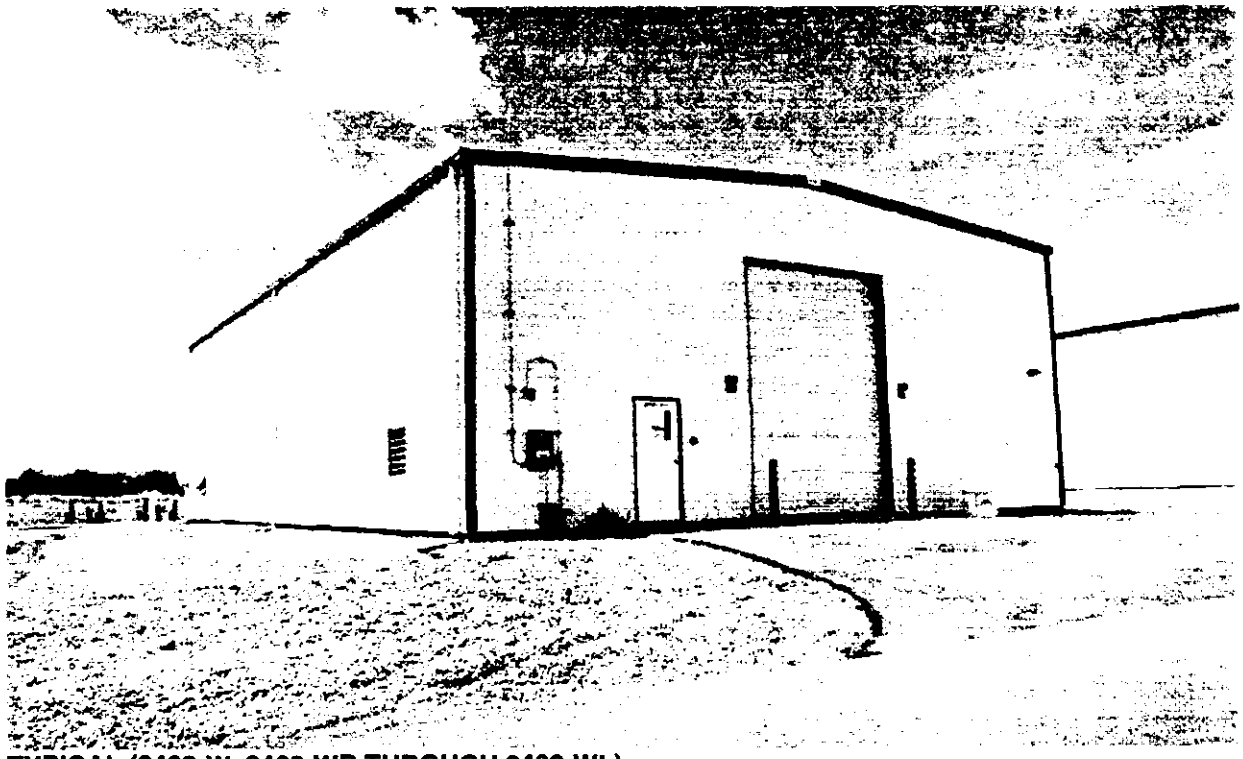
CENTRAL WASTE COMPLEX
WASTE STORAGE BUILDING



TYPICAL (2401-W)
46°33'17"
119°38'24"

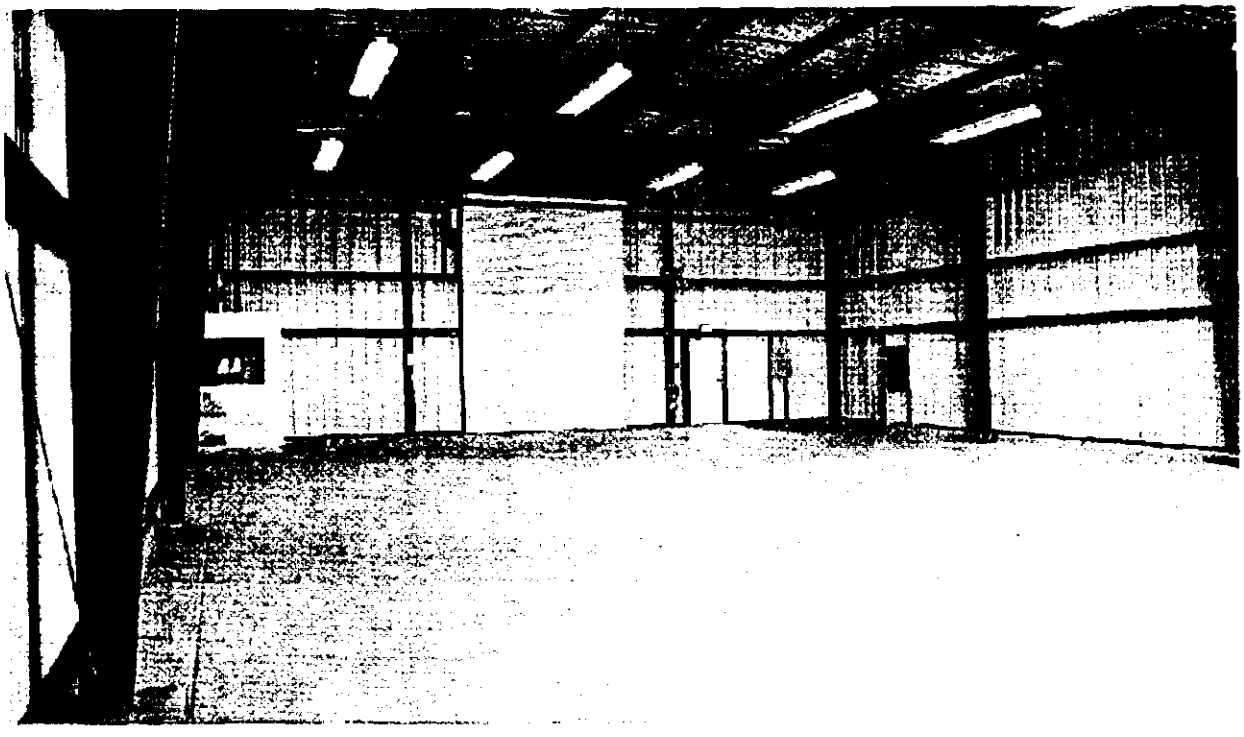
90061110-44CN
(PHOTO TAKEN 1990)

CENTRAL WASTE COMPLEX
WASTE STORAGE BUILDING



TYPICAL (2402-W, 2402-WB THROUGH 2402-WL)
46°33'17"
119°38'24"

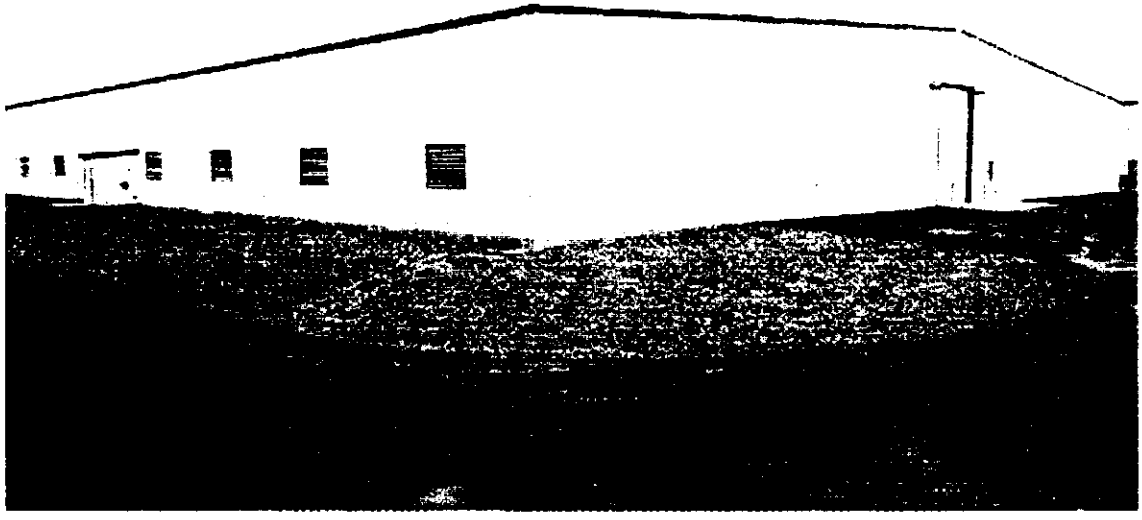
90061110-26CN
(PHOTO TAKEN 1990)



TYPICAL (INTERIOR)
46°33'17"
119°38'24"

90061110-10CN
(PHOTO TAKEN 1990)

CENTRAL WASTE COMPLEX
WASTE STORAGE BUILDING



TYPICAL (2403-WA, WB, AND WC)
46°33'17"
119°38'24"

93040010-22CN
(PHOTO TAKEN 1993)

TYPICAL (INTERIOR)
46°33'17"
119°38'24"

93040010-25CN
(PHOTO TAKEN 1993)

CENTRAL WASTE COMPLEX
WASTE STORAGE BUILDING

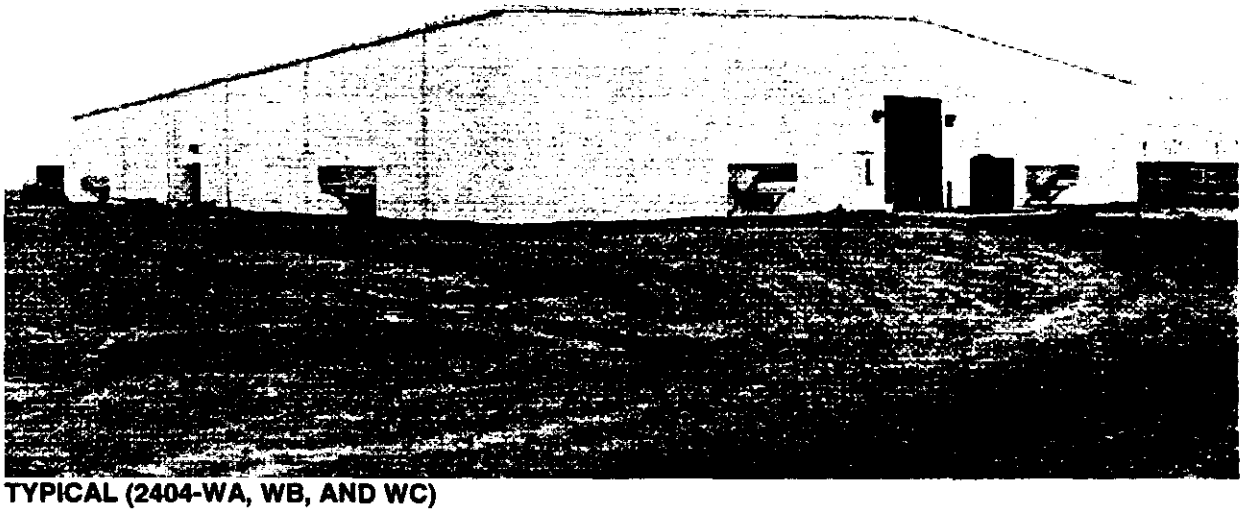
TYPICAL (2403-WD)
46°33'17"
119°38'24"

93040010-13CN
(PHOTO TAKEN 1993)

TYPICAL (INTERIOR)
46°33'17"
119°38'24"

93040010-16CN
(PHOTO TAKEN 1993)

CENTRAL WASTE COMPLEX
WASTE STORAGE BUILDING



TYPICAL (2404-WA, WB, AND WC)
46°33'17"
119°38'24"

96080579-29CN
(PHOTO TAKEN 1996)

TYPICAL (INTERIOR)
46°33'17"
119°38'24"

96080579-32CN
(PHOTO TAKEN 1996)

CONTENTS

APPENDIX

FIGURE

2.0 FACILITY DESCRIPTION AND GENERAL PROVISIONS [B AND E]

This chapter briefly describes the CWC location and provides an overview of CWC operations, including the following:

- General description
- Topography
- Traffic information.

The CWC, located in the 200 West Area (Chapter 1.0), provides storage and treatment for dangerous, mixed, and/or radioactive waste generated on or off the Hanford Facility. Treatment includes absorption and solidification of free liquids, neutralization of corrosive materials, and stabilization and encapsulation of solid waste matrices. A more detailed discussion of the waste types and known characteristics of the waste and the identification of the methods of storage and treatment are provided in Chapters 3.0 and 4.0, respectively. Although the storage and treatment of radioactive waste is not within the scope of this permit application, the information is provided for general knowledge.

The CWC currently consists of the following:

- Flammable and Alkali Metal Waste Storage Modules
- Waste Storage Buildings
- Waste Storage Pad
- Waste Receiving and Staging Area.

These buildings, storage modules, and the storage pad (Chapter 1.0) provide space for waste containers. Storage structures with physical features that provide for segregated storage areas are operated to maintain appropriate separation between arrays of incompatible waste (incompatibility is defined in WAC 173-303-395).

2.1 CENTRAL WASTE COMPLEX DESCRIPTION [B-1 and B-1a]

Descriptions of CWC structures are provided in the following sections.

These structures, sometimes referred to as radioactive and/or mixed waste structures, were designed to manage various waste categories concurrently, and to comply with storage requirements. This allows for compatible combinations of waste to be stored.

2.1.1 Flammable and Alkali Metal Waste Storage Modules

The Flammable and Alkali Metal Waste Storage Modules are pre-engineered structures (Chapter 1.0). The size and weight of the storage modules vary among manufacturers. As a result, there is no set 'standard' module. The floor support system is designed for loads up to 0.12 kilogram per square centimeter.

The front, back, and side walls of all the Flammable and Alkali Metal Waste Storage Modules are constructed of 10-gauge steel and are coated inside with chemical-resistant epoxy paint or have a corrosion-resistant covering. All roofs are constructed of 12-gauge steel. Three of the Flammable Waste

Storage Modules have fire-retardant plywood floors and ceilings within the metal skin. The remaining Flammable and Alkali Metal Waste Storage Modules are constructed of metal. All modules have a vented catch sump under the storage floor. This provides spill containment, as well as precluding spills from affecting other containers by keeping the storage deck clean. Each sump has a capacity of 1,500 to 7,600 liters depending on the manufacturer. Water supply presently is not provided but could be made available if necessary. Under no circumstances would water be provided to the Alkali Metal Waste Storage Modules.

The Flammable and Alkali Metal Waste Storage Modules are designed to meet all the storage requirements for ignitable, reactive, and corrosive dangerous, mixed, radioactive, and/or *Toxic Substances Control Act* (TSCA) *of 1976* waste of this type. Most of the Flammable and Alkali Metal Waste Storage Modules currently store low-level radioactively contaminated flammable and alkali metal waste. Only compatible waste occupies any one storage module or dedicated secondary containment system at any one time. Two of the Flammable Waste Storage Modules are modified for transuranic flammable waste. The remaining Flammable and Alkali Metal Waste Storage Modules, and any future Flammable and Alkali Metal Waste Storage Modules, also could be modified for a specific use depending on storage needs.

2.1.2 2401-W Waste Storage Building

The 2401-W Waste Storage Building is a pre-engineered steel structure for dangerous, mixed, radioactive, and/or TSCA waste (Chapter 1.0), 15.2 meters wide by 24.4 meters long by 6.1 meters high (to the eave), with a clear span in the 15.2-meter direction. The 26-gauge metal structure has two 3.6-meter by 4.9-meter-high rollup truck doors and two personnel doors. The foundation is integrated into a perimeter concrete curb 15.2 centimeters abovegrade. The floor accommodates a 908-kilogram forklift and an approximate 1,000 container equivalent load, not to exceed the floor loading limit of 0.22 kilogram per square centimeter. Ramps are across the curb for loading and unloading operations.

Utilities and services for the 2401-W Waste Storage Building include sanitary water, which is required to serve the fire suppression system (Appendix 2A). A 100-ampere (240-volt) service panel is provided for fire suppression, heaters, lighting, and the electronic fire alarm system.

The 2401-W Waste Storage Building is maintained at atmospheric pressure; heating and cooling are not required for operations. The 2401-W Waste Storage Building is uninsulated with the exception of the heated sprinkler risers that are in an enclosure within the building. The purpose of the enclosures is to provide a heated space within which the sprinkler system risers can be housed and kept from freezing. Ventilation complies with the Uniform Building Code occupancy requirements (ICBO 1996).

2.1.3 2402-W Waste Storage Buildings

The 2402-W Waste Storage Buildings are pre-engineered steel structures for dangerous, mixed, radioactive, and/or TSCA waste (Chapter 1.0), 15.2 meters wide by 24.4 meters long by 6.1 meters high (to the eave), with a clear span in the 15.2-meter direction. The 26-gauge metal structures have two 3.6-meter by 4.9-meter-high rollup truck doors and two personnel doors. The foundation is integrated into a perimeter concrete curb 15.2 centimeters abovegrade. The floor accommodates a 908-kilogram forklift and an approximate 1,000 container equivalent load, depending on waste management criteria not to exceed the floor loading limit of 0.34 kilogram per square centimeter for the 2402-W Waste

Storage Building and 0.98 kilogram per square centimeter for the 2402-WB through WL Waste Storage Buildings. Ramps are across the curb for loading and unloading operations.

Electrical power is supplied to the 2402-W Waste Storage Buildings by underground cables. Power to the 2402-W Waste Storage Buildings are supplied as single phase, 120/240 volts to 100-ampere service panels. Power is supplied to wall exhausters, and low-voltage circuits (120 volt) provide power for all lighting, fire sprinkler equipment, and convenience receptacles.

Only sanitary water is used in the 2402-W Waste Storage Buildings. The sanitary water is routed to the 2402-W Waste Storage Buildings from a looped supply system (Appendix 2A).

The 2402-W Waste Storage Buildings are maintained at atmospheric pressure; heating and cooling are not required for operations. The 2402-W Waste Storage Buildings are uninsulated with the exception of the heated sprinkler risers that are in enclosures within the buildings. The purpose of the enclosures is to provide a heated space within which the sprinkler system risers can be housed and kept from freezing. Ventilation complies with ICBO requirements.

2.1.4 2403-WA through WC Waste Storage Buildings

The 2403-WA through WC Waste Storage Buildings, for dangerous, mixed, radioactive, and/or TSCA waste (Chapter 1.0), are 51.8 meters wide, 61 meters long, and 6.1 meters high (to the eave), each with a total of 3,159 square meters. The 2403-WA through WC Waste Storage Buildings each accommodate approximately 11,600 208-liter containers. Spill pallets are available for storage of containerized TSCA waste.

The 2403-WA through WC Waste Storage Buildings are steel-supported, sheet-metal-covered structures with an eave height of 6.1 meters and a roof slope ratio of 0.3 to 3.7 meters. The structural system chosen is modular beam and column with a rigid frame. Each rigid frame (7.6 meters on center) is supported by two interior columns, spaced at a distance of one third of the overall width of the storage building (17.6 meters on center). The roof and wall panels are 26-gauge steel sheets with exterior finish. Exterior rolling service doors are 3.7 meters wide and 5.5 meters high with uninsulated steel slats, which have bottom weather seals and weatherstripping. The service doors have a manual or electrical chain-hoist operation. Personnel doors are manufacturers' standard reinforced-steel doors.

All steel columns and rigid frames rest on reinforced concrete pier footings designed to receive the primary building loads. The perimeter has a reinforced concrete foundation carried to a depth of 97 centimeters below grade. The floors accommodate a 908-kilogram forklift and an approximate 11,600 container equivalent load, not to exceed to the floor loading limit of 0.98 kilogram per square centimeter.

Floor areas are divided into quadrants by approximately 12.7-centimeter-high concrete curbs and are sealed with an impervious epoxy resin floor surfacing system that is compatible with the stored waste (Chapter 4.0, Appendix 4C). An aisle is provided through the centers of the 2403-WA through WC Waste Storage Buildings to accommodate loading and unloading operations. Curbs are arranged so that the curbs do not interfere with forklift travel, and ramps are provided over curbs. Access and maneuverability areas around the 2403-WA through WC Waste Storage Buildings are stabilized with asphalt or gravel. Adjacent areas are stabilized and are graded to slope away from the 2403-WA through WC Waste Storage Buildings to preclude water collection. The interior of the buildings, with the

exception of the floor and the sprinkler riser enclosure, remains unfinished. All exposed steel is primed. Wall and roof panels are coated on the interior surface with the manufacturers' standard finish.

Power and telephone lines are extended from the aerial lines through underground concrete-encased conduits to a centrally located distribution point. The central distribution point contains pad-mounted transformers and service equipment for electrical power and a pedestal terminal box for telephones. Power and telephone lines branch out from the centrally located distribution point through underground conduits to the 2403-WA through WC Waste Storage Buildings.

Electrical power is supplied by an aerial 13.3-kilovolt power line located along the west side of Dayton Avenue. Power is supplied as 3-phase, 120/208 volts and the buildings have 125-ampere service. Power (3-phase, 208-volt) is supplied to wall exhausters, while low-voltage circuits (single-phase, 120 volt) provide power for all lighting, fire sprinkler equipment, and convenience receptacles.

Only sanitary water is used in the 2403-WA through WC Waste Storage Buildings. The sanitary water is routed from a looped supply system (Appendix 2A).

The 2403-WA through WC Waste Storage Buildings are maintained at atmospheric pressure; heating and cooling are not required for operations. The 2403-WA through WC Waste Storage Buildings are uninsulated with the exception of the heated sprinkler risers that are in enclosures attached to the buildings. The purpose of the enclosures is to provide a heated space within which the sprinkler system risers can be housed and kept from freezing. Ventilation complies with ICBO requirements .

2.1.5 2403-WD Waste Storage Building

The 2403-WD Waste Storage Building for dangerous, mixed, radioactive, and/or TSCA waste (Chapter 1.0), is a large storage building that is 51.8 meters wide, 99 meters long, and 6.1 meters high (to the eave), for a total of 5,120 square meters. This storage building accommodates approximately 17,500 208-liter containers. Spill pallets are available for storage of containerized TSCA waste.

The 2403-WD Storage Building is a steel-supported, sheet-metal-covered structure with a roof slope ratio of 0.3 to 3.7 meters. The structural system chosen is modular beam and column with a rigid frame. Each rigid frame (7.6 meters on center) is supported by two interior columns, spaced at a distance of one third of the overall width of the storage building (17.6 meters on center). The roof and wall panels are 26-gauge steel sheets with exterior finish. Exterior rolling service doors are 3.7 meters wide and 5.5 meters high with uninsulated steel slats, which have bottom weather seals and weatherstripping. The service doors have a manual or electrical chain-hoist operation. Personnel doors are manufacturers' standard reinforced-steel doors.

All steel columns and rigid frames rest on reinforced concrete pier footings designed to receive the primary building loads. The perimeter has a reinforced concrete foundation carried to a depth of 97 centimeters below grade. The floor accommodates a 908-kilogram forklift and an approximate 17,500 container equivalent load, not to exceed to the floor loading limit of 0.98 kilogram per square centimeter.

Floor areas are divided into quadrants by approximately 12.7-centimeter-high concrete curbs and are sealed with an impervious epoxy resin floor surfacing system that is compatible with the stored waste. An aisle is provided through the center of the 2403-WD Storage Building to accommodate loading and unloading operations. Curbs are arranged so that the curbs do not interfere with forklift travel. Ramps

are provided over curbs. Access and maneuverability areas around the 2403-WD Storage Building are stabilized with asphalt or gravel. Adjacent areas are stabilized and are graded to slope away from the 2403-WD Waste Storage Building to preclude water collection. The interior of the 2403-WD Waste Storage Building, with the exception of the floor and the sprinkler riser enclosure, remains unfinished. All exposed steel is primed. Wall and roof panels are coated on the interior surface with the manufacturers' standard finish.

Power and telephone lines are extended from the aerial lines through underground concrete-encased conduits to a centrally located distribution point. The central distribution point contains a pad-mounted transformer and service equipment for electrical power and a pedestal terminal box for telephones. Power and telephone lines branch out from the centrally located distribution point through underground conduits to the 2403-WD Waste Storage Building.

Electrical power is supplied to the 2403-WD Waste Storage Building by an aerial 13.3-kilovolt power line located along the west side of Dayton Avenue. Power is supplied as 3-phase, 120/208 volts and the building has 125-ampere service. Power (3-phase, 208-volt) is supplied to wall exhausters, while low-voltage circuits (single-phase, 120 volt) provide power for all lighting, fire sprinkler equipment, and convenience receptacles.

Only sanitary water is used in the 2403-WD Waste Storage Building. The sanitary water is routed from a looped supply system (Appendix 2A).

The 2403-WD Waste Storage Building is maintained at atmospheric pressure; heating and cooling are not required for operations. The 2403-WD Waste Storage Building is uninsulated with the exception of the heated sprinkler risers that are in an enclosure attached to the building. The purpose of the enclosure is to provide a heated space within which the sprinkler system risers can be housed and kept from freezing. Ventilation complies with ICBO requirements.

2.1.6 2404-W Waste Storage Buildings

The 2404-W Waste Storage Buildings, for dangerous, mixed, radioactive, and/or TSCA waste (Chapter 1.0) are 37 meters wide, 55 meters long, and 6.1 meters high (to the eave), each with a total of 2,035 square meters of floor area. The 2404-W Waste Storage Buildings each accommodate approximately 4,600 208-liter containers of waste.

The 2404-W Waste Storage Buildings are steel-supported, sheet-metal-covered structure with a roof slope ratio of 0.3 to 3.7 meters. The structural system chosen is a free span building with metal beams and columns with a rigid frame. The beams are spaced at 6.1 meter centers on the side of the building and 7.3 meter centers on the ends of the building. The roof is 24 gauge and the wall panels are 26-gauge steel sheets with exterior finish. Exterior rolling service doors are 3.7 meters wide and 4.3 meters high with uninsulated steel slats, which have bottom weather seals and weatherstripping. The service doors have a manual or electrical chain-hoist operation. Personnel doors are manufacturers' standard reinforced-steel doors.

All steel columns and rigid frames rest on reinforced concrete pier footings designed to receive the primary building loads. The perimeter has reinforced concrete footings that are 1.86 square meters and a concrete floor slab 17.8 centimeters thick. The floors accommodate a 908-kilogram forklift and an approximate 4,600 container equivalent load, not to exceed to the floor loading limit of 0.98 kilogram

per square centimeter. The foundation is integrated into a perimeter concrete curb 15.2 centimeters abovegrade.

The interior floors are sloped with raised perimeter curbing to contain and direct spilled liquids to collections sumps. The floors are sealed with an impervious epoxy resin floor surfacing system that is compatible with the stored waste. An aisle is provided through the center of the 2404-W Waste Storage Buildings to accommodate loading and unloading operations. Curbs are arranged so that the curbs do not interfere with forklift. Ramps are provided over curbs. Access and maneuverability areas around the 2404-W Waste Storage Building are stabilized with asphalt or gravel. Adjacent areas are stabilized and are graded to slope away from the 2404-W Waste Storage Buildings to preclude water collection. All exposed steel is primed.

Power and telephone lines are extended from aerial lines through underground concrete-encased conduits to a centrally located distribution point. The central distribution point contains an underground electrical vault with a transformer (from 13.8 kilovolts to 480 volts) and feeds service equipment in the mechanical equipment and telecommunication room for electrical power and a pedestal terminal box for telephones. Power and telephone lines branch out from a centrally located distribution point through underground conduits to the 2404-W Waste Storage Building mechanical equipment and telecommunication rooms.

Electrical power is supplied by an aerial 13.8-kilovolt power line located along the west side of Dayton Avenue. Power to the 2404-W Waste Storage Buildings is supplied as 3-phase, 480/277 volts and single phase 240/120 volt power after the transformer. The 2404-W Waste Storage Buildings have 225-(Panel A) and 150-(Panel B) ampere service. Power (3-phase, 480/277-volt) is supplied to the roof exhausters, while low-voltage circuits (single-phase, 240/120 volt) provide power for all lighting, fire sprinkler equipment, and convenience receptacles. One special outlet is provided in each building for 30 ampere/480 volt service to run any potential temporary special equipment.

Only sanitary water is used in the 2404-W Waste Storage Buildings. The sanitary water is routed to the 2404-W Waste Storage Buildings from a looped supply system (Appendix 2A).

The 2404-W Waste Storage Buildings are maintained at atmospheric pressure; heating and cooling are not required for operations. Ventilation complies with ICBO requirements of four air changes per hour. The 2404-W Waste Storage Buildings are not insulated. However, two heated and insulated rooms attached but not connected (by doors) to the storage buildings contain the fire riser and all of the electrical and telecommunication boards.

2.1.7 Waste Storage Pad

The Waste Storage Pad, approximately 18-centimeter-thick concrete, is designed to support loading up to 0.56 kilogram per square centimeter. The Waste Storage Pad is curbed with 15.2 centimeters of concrete and provided with an impervious epoxy sealant to prevent contaminants from entering the concrete. Information on the epoxy sealant is located in Chapter 4.0, Appendix 4C. The Waste Storage Pad is provided with an access ramp and a rainwater collection and removal system. Monitoring and/or sampling for contaminated rainwater are performed (Chapter 4.0).

2.1.8 Waste Receiving and Staging Area

The Waste Receiving and Staging Area is an asphalt pad approximately 61 meters long and 46 meters wide (2,787 square meters). The allowable floor loading is 0.56 kilogram per square centimeter. The Waste Receiving and Staging Area is used for container handling and staging of waste destined for the various storage buildings. Components of the Waste Receiving and Staging Area include access for loading and unloading operations.

2.1.9 Other Environmental Permits

Environmental permits that are required to support operation of the CWC are identified in the *Annual Hanford Site Environmental Permitting Status Report* (e.g., DOE/RL-96-63).

2.1.10 Construction Schedule [B-1b]

Any proposed new construction for the CWC will be managed as described in the *Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste* (HF RCRA Permit) (Ecology 1994).

2.2 TOPOGRAPHIC MAP [B-2]

A topographic map (Drawing H-13-000003) is located in Appendix 2A.

2.3 CENTRAL WASTE COMPLEX ROADWAYS [B-4]

General traffic information for the Hanford Facility is presented in the *Hanford Facility Dangerous Waste Permit Application, General Information Portion* (DOE/RL-91-28).

Waste is transported to CWC in vehicles ranging from pickup trucks to tractor trailer rigs, depending on the size of the load.

Trucks going to CWC enter the 200 West Area through Gate 611 or Gate 609 from Route 3, shown on Figure 2-1. The paved roads provide adequate all-weather access to CWC. Parking areas for CWC personnel also are provided. Existing paved roads provide satisfactory all-weather access during operation.

2.4 RELEASE FROM SOLID WASTE MANAGEMENT UNITS [E]

Information concerning releases from SWMUs is discussed in the General Information Portion (DOE/RL-91-28).

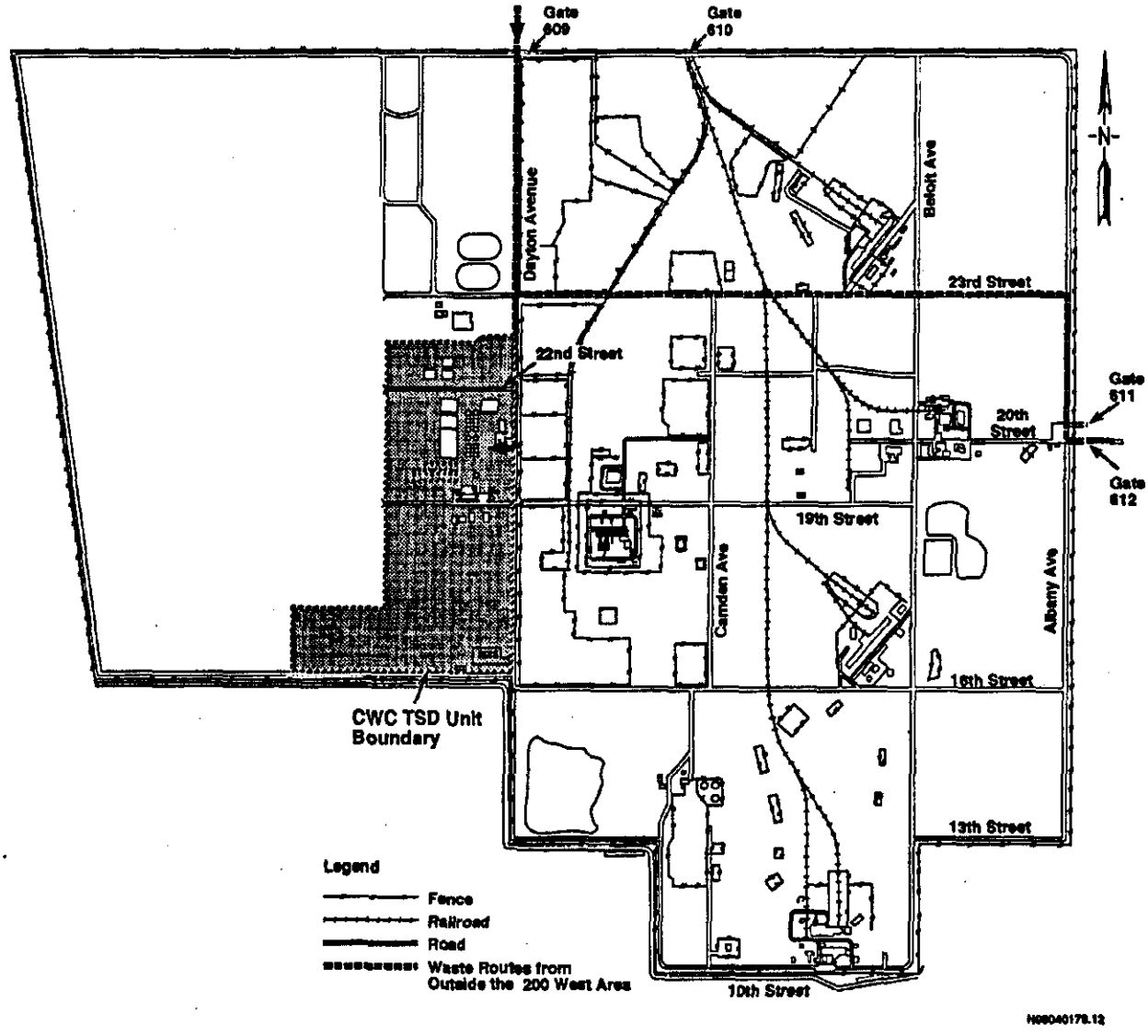


Figure 1. Waste Routes in the 200 West Area.

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3.0 WASTE ANALYSIS [C]

This chapter provides information on the chemical, biological, and physical characteristics of the waste stored and treated at CWC. A waste analysis plan (Appendix 3A) describes the methodology for determining waste types. Although the storage and treatment of radioactive waste is not within the scope of this permit application, the information is provided for general knowledge.

3.1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C-1]

Table 3-1 lists the waste numbers of material stored at CWC. Waste normally can be characterized as 'U', 'P', 'F', 'D', or 'W' waste numbers (WAC 173-303) by the use of manufacturers' product information, material safety data sheets, laboratory analysis, and such reference as the *Registry of Toxic Effects of Chemical Substances* (NIOSH 1997). Waste also is characterized in accordance with the requirements of 40 CFR 261 and 761. Because of the nature of the waste managed at CWC, no biological characterization is necessary.

Some waste regulated under TSCA also can be received and stored at CWC.

It is the responsibility of the onsite generating units and offsite generators to completely and correctly identify the dangerous constituents of their waste (Table 3-1). The CWC operating organization maintains copies of the following records for each waste stored at CWC, as applicable:

- All records providing a description of the waste
- Documentation identifying the dangerous characteristics of the waste
- The basis for waste designation
- Laboratory reports with chemical and physical analysis of samples
- Manifests or onsite waste tracking forms.

Waste stored and treated at CWC is packaged in a system of multiple barriers selected and specifically engineered to isolate the waste content from humans and the environment. The waste is confined in package systems that can include several plastic, metal, and glass containers and other materials to provide additional barriers to the environment or to make the waste more compatible with other barrier materials. Specific package barrier information is provided in Chapter 4.0.

In general, each package is unique, and containers continually are being accepted for storage. The CWC accepts waste having the waste numbers identified in Table 3-1, excluding explosive, shock-sensitive (Chapter 4.0), and class IV oxidizer waste [in waste volumes greater than 10 pounds (22 kilograms)].

Under current operating conditions, waste stored at CWC is packaged in double containment or otherwise packaged to ensure isolation from the environment. Chapter 4.0, provides details of the container system.

3.2 WASTE ANALYSIS PLAN [C-2]

The CWC waste analysis plan (Appendix 3A) summarizes the waste acceptance processes. Also described in the waste analysis plan are sampling methods; analytical parameters and rationale; quality control and quality assurance methods; requirements for incoming waste; requirements for spilled material; storage requirements for ignitable, reactive, and incompatible waste; and the methods for waste tracking and recordkeeping.

Table 3-1. Dangerous Waste Numbers of Materials Stored at Central Waste Complex.

Number	Reference
U and P numbers	WAC 173-303-9903
F001 through F005	WAC 173-303-9904
F020 through F023	WAC 173-303-9904
F026 through F028	WAC 173-303-9904
F039	WAC 173-303-9904
W001	WAC-173-303-9904
D001	WAC 173-303-090(5)
D002	WAC 173-303-090(6)
D003	WAC 173-303-090(7)
D004 through D043	WAC 173-303-090(8)
WT01 and WT02	WAC 173-303-100 and 104
WP01 and WP02 and WP03	WAC 173-303-100 and 104
WSC2	WAC 173-303-090(6)

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4.0 PROCESS INFORMATION [D]

This chapter discusses the processes used to store waste at CWC. A discussion of run-off and run-on control systems also is presented. Although the storage of radioactive waste is not within the scope of this permit application, the information is provided for general knowledge.

4.1 CONTAINERS [D-1]

All waste accepted for storage at CWC is packaged in approved containers (U.S. Department of Transportation and/or U.S. Department of Energy), unless alternate packages are dictated by the size, shape, or form of waste (49 CFR 173) (e.g., boxes).

Exterior surfaces of 208-liter metal containers either are painted or galvanized in accordance with specifications. Protective coatings for waste packages other than 208-liter containers are specified on the waste tracking forms for individual waste streams.

4.1.1 Containers with Free Liquids

Containers with free liquids are discussed in the following sections.

4.1.1.1 Description of Containers [D-1a]. Waste stored in CWC is packaged in galvanized or aluminized 208-liter steel containers or other approved containers in a double-packaging system. The inner containment can be either a 4-mil or heavier plastic liner or a 90-mil polyethylene liner.

Before liquids are accepted for storage, the liquids are (1) bound by sorption or (2) sealed in leak-resistant containers (e.g., labpacks or overpacks) and surrounded by sorbent material in a 208-liter container or other approved container to facilitate eventual treatment of the liquid. The labpack/overpack configuration results in a smaller container(s) packaged with an appropriate sorbent to sorb at least twice the maximum amount of liquid potentially present. In both packaging configurations, the sorbent selected is compatible with the waste, and if known, the eventual treatment requirements. Acceptable sorbents are documented in the CWC operating record for each waste stream. Sorbents are selected based on the following criteria: compatibility with the waste, no additional hazards created, and appropriateness for ultimate disposal/treatment strategy (e.g., nonbiodegradable sorbents for waste acceptable for onsite disposal). Waste with the potential to form condensate during storage contains sufficient sorbent in the bottom of the container to sorb any condensate formed.

Gas generation is controlled to prevent pressurization exceeding 1.5 atmospheres and combustible gas concentrations exceeding the lower explosive limit for up to 20 years of storage. To prevent the potential buildup of gases, vents such as Nucfil®*, vent clips, or other approved devices are used.

4.1.1.2 Container Management Practices [D-1b]. Before receipt at CWC, all 208-liter containers are closed by the onsite generating unit or offsite generator by means of a neoprene gasket, steel lid, locking ring,

* NucFil® is a Registered Trademark of the Nuclear Filter Technology, Incorporated.

locking ring bolt, and a lock nut torqued tight or by other available methods to meet applicable U.S. Department of Transportation packaging requirements. On receipt, each container or group of containers is inspected before acceptance by CWC operations personnel for damage, proper closure, marking, and proper accompanying documentation.

Each container can be handled individually or as a group on pallets. If handled individually, either a hand-truck dolly, a fork-lift truck with 'barrel grabber', or a crane with a 'barrel tong', or other approved methods (all specifically designed for handling containers) could be used. The containers are placed on pallets that can be handled by a forklift vehicle. A maximum of four containers can be stored on each pallet, and stacking of pallets allows for a maximum of 12 containers per stack, three containers in height. Heavier containers are rotated to the bottom of the stack to ensure a stable center of gravity for each stack. Aisle space requirements are provided in Chapter 6.0, Section 6.3.2. In the Flammable and Alkali Metal Waste Storage Modules, maximum storage capacity is 58 208-liter container equivalents. However, this estimate could fluctuate depending on storage module size.

The container packaging, module construction, and container handling is designed to maintain containment of the waste, provide retrieval capability of damage-free and contamination-free containers, limit storage intrusion, and limit human exposure to dangerous waste and hazardous materials. Retrieved containers from the Low-Level Burial Grounds can be assayed, x-rayed, and headspace analyzed for volatiles and semivolatile compounds. In addition, records of the waste provide process knowledge concerning the waste, which is used to identify the hazards. Appropriate labels are applied to the containers before acceptance at CWC.

4.1.1.3 Container Labeling [D-1c]. Containers are labeled and marked to indicate the dangerous and radioactive characteristics of the waste. All waste containers received are marked in accordance with the requirements specified under 49 CFR 172. In addition to the 49 CFR 172 marking and labeling requirements, all waste containers must be marked, as appropriate, to adequately identify the major risk(s) associated with the contents of the containers, per WAC 173-303-630(3).

4.1.2 Containment Requirements for Storing Containers [D-1d]

The following sections describe secondary containment systems.

4.1.2.1 Secondary Containment System Design and Operation [D-1d(1)(a) and (b)]. The Waste Storage Pad and each of the storage buildings (except for the 2403-WA through WD Waste Storage Buildings, which have a sloping floor and sump) are designed with 15.2 centimeter curbing that serves as a liquid catch basin (Appendix 4A). In addition, all containers are elevated (e.g., pallets, skids) to protect the containers from contacting accumulated liquids.

Calculations performed to verify containment capacity are detailed in Appendix 4B. The Waste Storage Pad has a collection removal system for spill containment and the collection of liquid (e.g., rain, snowmelt). Calculations for the 25-year/24-hour storm are provided in Appendix 4B. The Flammable and Alkali Metal Waste Storage Modules have self-contained catch basins to catch spills. The Waste Receiving and Staging Area serves only as a receipt and staging area.

The floors of the various storage buildings were constructed from reinforced concrete that was sealed with a polyurethane enamel epoxy resin. When cured, this sealant has properties similar to glass. The

polyurethane sealant is chemically resistant and inert with respect to acids, bases, oxidizers, combustibles, and flammables. Information on the sealant properties is included in Appendix 4C. All piping penetrations and construction joints are grouted or caulked and sealed.

If inspections identify floor areas where the sealant has been compromised (e.g., concrete is exposed), this area(s) is noted on the inspection checklist. Repairs are made in a timeframe established by the CWC supervisor, temperature conditions (per coating manufacturer recommendations) permitting. The inspection checklist is signed to indicate acceptance of the repair.

Concrete is essentially an inert material with respect to caustic, oxidizing, combustible, and flammable materials, and the concrete has been sealed to prevent seepage of liquid into the concrete. Therefore, there are no compatibility problems with the base and the waste stored at CWC.

4.1.2.2 Containment System Capacity [D-1d(1)(c)]. Each storage building floor is 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 4-1 lists the total containment and maximum container storage volumes for each storage building and the Waste Storage Pad.

4.1.2.3 Control of Run-On [D-1d(1)(d)]. The only major run-on or run-off foreseen would be an event such as a fire sprinkler activation or pipe break. All CWC buildings are roofed structures (except for the Waste Receiving and Staging Area and the Waste Storage Pad); therefore, run-on is prevented. Containment systems in CWC are capable of holding various amounts of liquid, as the size of the storage buildings varies. Collected or contained liquid can be removed by hand pumps for large quantities and by absorbents for smaller quantities. All waste stored in CWC structures is in sealed containers, which limits the detrimental impact of a run-on or run-off situation.

In the event that contaminated water is released from any CWC structure resulting from flooding of a containment system by fire sprinkler activation or a pipe break (Section 4.1.3), the incident will be treated as a spill.

When waste is stored on the Waste Storage Pad, the trench drain plug is kept closed and locked. The CWC supervisor controls the trench key. If water from a known source (e.g., rainwater, snowmelt) accumulates in the Waste Storage Pad trench when waste is stored, the following is performed.

- Liquid is inspected visually for signs of contamination (i.e., discoloration, etc.).
- If contamination is suspected, an analysis of pH and radioactive contamination is performed.
- The CWC logbook is reviewed to identify any spills.
- Cleanup reports are reviewed to confirm that the Waste Storage Pad is clean.
- The CWC supervisor signs the logbook, indicating that these steps have been completed and that the Waste Storage Pad is clean.
- The CWC supervisor or designee unlocks the drain plug and the water is released to the ground. Releases to the environment will be recorded in the CWC logbook.

- After the trench has been completely drained, the CWC supervisor or designee locks the drain plug.

- The CWC supervisor signs the logbook, indicating that the trench was drained and the drain plug is closed and locked.

Water that has accumulated in the Waste Storage Pad trench that cannot be confirmed to be free of contamination is containerized and stored in an area of CWC that is equipped with secondary containment. The containerized water is handled in accordance with the provisions of the waste analysis plan (Chapter 3.0).

Actions to be taken in response to a spill or discharge are detailed in the building emergency plan (Appendix 7A).

4.1.3 Removal of Liquids from Containment System [D-1d(2)]

In the event of a spill or release that results in the collection of liquid waste material in the containment system, the following is performed.

- Containers affected are inspected for signs of leakage. Leaking containers are repackaged and identified in the CWC operating logbook.

- Inspection reports and CWC operating logbook are reviewed to identify any waste releases in the waste storage areas for which remedial actions have not been completed.

- The equipment used for removal of large quantities of liquid normally is a hand-held pump or vacuum system. Absorbents are used for removal of small amounts of liquid. The waste material is placed in an approved container.

  The containerized waste is handled as follows.

  - If the waste has been altered during stabilization and cleanup actions (absorbed, mixed, diluted, etc.), the containerized waste is placed in storage and managed in accordance with the provisions of the waste analysis plan (Chapter 3.0).

  - The CWC inventory is updated to reflect the changes in waste description, volume, and storage locations.

  - If the waste was not altered during stabilization and cleanup activities, the containerized waste is placed in the appropriate storage area, and the CWC inventory is altered to reflect any changes.

- Documentation is approved indicating that the waste was removed from the containment system and cleanup activities are completed. Completion of this cleanup is documented in the logbook.

Specific actions to be taken in response to a spill or discharge are detailed in the Building Emergency Plan (Appendix 7A).

In the event of a fire sprinkler activation or pipe break within CWC structures that results in collection of water in the containment system, the following is performed.

- Water in the containment system is inspected visually for signs of contamination.
- If contamination is suspected, an analysis of pH and radioactivity is performed.
- Containers in the storage building(s) affected by sprinkler activation or pipe break are inspected for signs of leakage.
- Inspection reports and the CWC operating logbook are reviewed to identify any waste releases in the waste storage structure(s) for which remedial actions have not been completed.
- The CWC supervisor signs the operating logbook indicating that the previous steps have been completed and that the storage structure(s) are clean.

  Water that has accumulated in the containment system that is suspected of being contaminated is handled as follows.

  - The water is removed from the containment system and managed in accordance with the waste analysis plan (Appendix 3A).
  - Water that has been accumulated in the containment system that can be verified to be free of contamination is released to the ground.
  - The CWC supervisor signs the operating logbook indicating that the water was removed from the containment system.

4.2 CONTAINERS WITHOUT FREE LIQUIDS [D-1e]

Containers without free liquids that do not exhibit ignitability or reactivity are discussed in the following sections.

4.2.1 Test For Free Liquids

A test for free liquids is not performed unless specific instructions are received because testing would increase the radiation exposure of personnel.

4.2.2 Description of Containers

The description of containers is the same as described in Section 4.1.1.1.

4.2.3 Container Management Practices

Container management practices are the same as described in Section 4.1.2.

4.2.4 Container Storage Area Drainage

The description of the storage area drainage is the same as described in Section 4.1.2. Areas inside the storage buildings and outside adjacent areas are sloped so that water flows away, presenting no danger of flooding.

4.3 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE IN CONTAINERS [D-1f]

Ignitable, reactive, and incompatible waste stored in containers is packaged and managed in the manner described in Section 4.1.1 for containers with free liquids.

4.3.1 Management of Reactive Waste in Containers [D-1f(1)]

The CWC stores waste exhibiting the characteristics of reactivity as specified in WAC 173-303-090 (Chapter 3.0). Proper precautions are taken to prevent any offnormal situations from occurring (Chapter 6.0, Section 6.5).

4.3.2 Management of Ignitable and Reactive Waste in Containers [D-1f(2)]

The following precaution is used for storing ignitable and reactive waste. All containers of waste with a flash-point of less than 37.8 °C or reactive waste are placed in the Flammable and Alkali Metal Waste Storage Modules. These storage modules are physically separated by a distance of at least 1.5 meters between adjacent modules (NFPA 1997).

4.3.3 Design of Areas to Manage Incompatible Wastes [D-1f(3)]

Packages containing incompatible waste are not permitted in the same container. Incompatible waste is stored in separate containment systems or separate storage modules. Incompatible mixtures include those that have the potential to generate a dangerous evolution of heat or gas or produce corrosive materials (49 CFR 173.21). Also, waste is not placed in an unwashed container that previously held an incompatible waste or material.

The onsite generating unit or offsite generator and the CWC operating organization are responsible for determining the regulatory status of each waste and for determining the incompatible compounds of the waste (Chapter 3.0). Status information determined by CWC operations is passed to the onsite generating unit or offsite generator. Onsite generating unit or offsite generator transportation personnel inspect the container for proper packaging, labeling, and marking, and review the completed waste manifest or onsite waste tracking form before transport to CWC. Containers are inspected at CWC to ensure that the waste is

properly packaged, marked, labeled, and that correct information is recorded on the manifest or waste tracking form (Chapter 3.0).

Each storage area contains one compatibility group that is segregated either by walls or curbs.

4.4 AIR EMISSIONS CONTROL [D-8]

This section addresses the CWC requirements of Air Emission Standards under 40 CFR 264, Subpart CC.

4.4.1 Applicability of Subpart CC Standards [D-8c]

The air emission standards of 40 CFR 264, Subpart CC, apply to tank, surface impoundment, and container storage units that manage wastes with average volatile organic concentrations equal to or exceeding 500 parts per million by weight, based on the dangerous waste composition at the point of origination (61 FR 59972). However, containers that are used solely for management of mixed waste are exempt. Mixed waste is managed at CWC and dangerous waste also could be managed at this TSD unit.

TSD owner/operators are not required to determine the concentration of volatile organic compounds in a dangerous waste if the wastes are placed in waste management units that employ air emission controls that are in compliance with the Subpart CC standards. Therefore, the approach to Subpart CC compliance at CWC is to demonstrate that CWC meets the Subpart CC control standards (40 CFR 264.1084 - 264.1086).

4.4.2 Demonstrating Compliance with Subpart CC Standards

Container Level 1 and Level 2 standards are met at CWC by managing all dangerous waste in U.S. Department of Transportation containers [40 CFR 264.1086(f)]. Level 1 containers are those that store more than 0.1 cubic meter and less than or equal to 0.46 cubic meter. Level 2 containers are used to store more than 0.46 cubic meter of waste that are 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 Level 1 and Level 2 containers include a visual inspection when a container of dangerous waste is received at CWC and when waste is initially placed in a container at CWC, and at least once every 12 months when stored onsite for 1 year or more.

If DOT compliant containers are not used at CWC, alternate container management practices are used that comply with the Level 1 or Level 2 standards as applicable. Specifically, these 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 4.2 provides detail on container management practices at CWC.

Container Level 3 standards apply when a container is used for the "treatment of a hazardous waste by a waste stabilization process" [40 CFR 264.1086(2)]. Because a waste stabilization process is not applied to dangerous waste in containers at CWC, these standards do not apply.

Table 4-1. Storage Volume for Each Storage Building. (sheet 1 of 3)

Building	Maximum number of 208-liter containers	Maximum total volume (liters)	Maximum containment capacity (liters)
2401-W	1,072	222,926*	30,200
2402-W	1,072	222,976*	50,200
2402-WB	1,072	222,976*	50,200
2402-WC	1,072	222,976*	50,200
2402-WD	1,072	222,976*	50,200
2402-WE	1,072	222,976*	50,200
2402-WF	1,072	222,976*	50,200
2402-WG	1,072	222,976*	50,200
2402-WH	1,072	222,976*	50,200
2402-WI	1,072	222,976*	50,200
2402-WJ	1,072	222,976*	50,200
2402-WK	1,072	222,976*	50,200
2402-WL	1,072	222,976*	50,200
2403-WA	11,600	2,412,800*	188,000
2403-WB	11,600	2,412,800*	188,000
2403-WC	11,600	2,412,800*	188,000
2403-WD	17,500	3,640,000*	312,000
2404-WA	4,600	956,800*	436,000
2404-WB	4,600	956,800*	436,000
2404-WC	4,600	956,800*	436,000
Flammable Waste Storage Module 1	27	5,616**	2,000
Flammable Waste Storage Module 2	27	5,616**	2,000
Flammable Waste Storage Module 3	58	12,064**	7,600
Flammable Waste Storage Module 4	28	5,824**	3,300

Table 4-1. Storage Volume for Each Storage Building. (sheet 2 of 3)

Building	Maximum number of 208-liter containers	Maximum total volume (liters)	Maximum containment capacity (liters)
Flammable Waste Storage Module 5	32	6,656**	3,500
Flammable Waste Storage Module 6	32	6,656**	3,500
Flammable Waste Storage Module 7	32	6,656**	3,500
Flammable Waste Storage Module 8	28	5,824**	3,300
Flammable Waste Storage Module 9	32	6,656**	3,500
Flammable Waste Storage Module 10	32	6,656**	3,500
Flammable Waste Storage Module 11	32	6,656**	3,500
Flammable Waste Storage Module 12	32	6,656**	3,500
Flammable Waste Storage Module 13	28	5,824**	3,300
Flammable Waste Storage Module 14	58	12,064**	7,600
Flammable Waste Storage Module 15	32	6,656**	3,500
Flammable Waste Storage Module 16	40	8,320**	4,200
Flammable Waste Storage Module 17	40	8,320**	4,200
Flammable Waste Storage Module 18	40	8,320**	4,200
Flammable Waste Storage Module 19	30	6,240**	3,300
Flammable Waste Storage Module 20	30	6,240**	3,300

Table 4-1. Storage Volume for Each Storage Building. (sheet 3 of 3)

Building	Maximum number of 208-liter containers	Maximum total volume (liters)	Maximum containment capacity (liters)
Flammable Waste Storage Module 21	32	6,656**	3,100
Flammable Waste Storage Module 22	32	6,656**	3,100
Flammable Waste Storage Module 23	32	6,656**	3,100
Flammable Waste Storage Module 24	32	6,656**	3,100
Flammable Waste Storage Module 25	32	6,656**	3,100
Flammable Waste Storage Module 26	48	9,984**	1,500
Flammable Waste Storage Module 27	48	9,984**	1,500
Waste Storage Pad	1,700	353,600**	183,000
Alkali Metal Waste Storage Module 1	32	6,656**	2,700
Alkali Metal Waste Storage Module 2	32	6,656**	3,400
Alkali Metal Waste Storage Module 3	32	6,656**	2,700
Alkali Metal Waste Storage Module 4	32	6,656**	3,400

* Maximum total volume can be increased by 100 percent depending on types, sizes, and quantities of boxes or other types of containers.

** Maximum total volume can be increased by 54 percent if 113-liter containers are stacked on top of each 208-liter container.

CONTENTS

5.0 GROUNDWATER MONITORING FOR LAND-BASED UNITS [D-10]

The CWC is not operated as a dangerous waste surface impoundment, waste pile, land treatment unit, or landfill as defined in WAC 173-303-645(1)(a). Therefore, groundwater monitoring is not required.

CONTENTS

6.0 PROCEDURES TO PREVENT HAZARDS [F]

This chapter discusses security; inspection schedules; preparedness and prevention requirements; preventive procedures, structures, equipment; and prevention of reaction of ignitable, reactive, and incompatible waste stored at CWC.

The CWC is designed and operated to minimize exposure of the general public and operating personnel to waste. Shielding, contamination control, control of toxic or dangerous material, safety and security procedures, and structures are used to keep exposure as low as reasonably achievable (ALARA). In addition, CWC is designed to withstand accidents without undue risk to the health and safety of the general public and operating personnel.

6.1 SECURITY [F-1]

The following sections describe the security measures, equipment, and warning signs used to control entry to CWC. A discussion of Hanford Facility security is provided in the General Information Portion (DOE/RL-91-28).

6.1.1 Security Procedures and Equipment [F-1a]

The following sections describe the 24-hour surveillance system, barrier, and warning signs used to provide security and to control access to CWC.

6.1.1.1 24-Hour Surveillance System. The entire Hanford Facility is a controlled-access area. Refer to General Information Portion (DOE/RL-91-28).

6.1.1.2 Barrier and Means to Control Entry. The CWC is protected by fences and building structures to enhance physical security. Security lighting is provided. Entrances to CWC from within the 200 West Area are open during normal day-shift operations. However, visitors are required to check in at the operations office before entering areas of CWC where they might be exposed to waste. Gates are secured during off-shift hours with access provided on an as-needed basis.

6.1.1.3 Warning Signs. The individual CWC storage structures are posted with radiation signs that are visible from all angles of approach and are visible from a distance of at least 7.6 meters. Each storage structure used for waste storage is posted with a sign, printed in English, near the entrance reading "DANGER-UNAUTHORIZED PERSONNEL KEEP OUT," or an equivalent legend, in black and red letters on a white background. In addition to these signs, the fences around CWC and 200 West Area are posted with signs warning against unauthorized entry. The signs also are visible from all angles of approach.

6.1.2 Waiver [F-1b]

Waiver of the security procedures and equipment requirements for CWC is not requested. Therefore, the requirements of WAC 173-303-310 (1)(a) and (b) are not applicable to CWC.

6.2 INSPECTION PLAN [F-2]

This section describes the method and schedule for inspection of CWC. The purpose of inspections is to identify leaking containers, improperly stored containers, and degradation of containment and safety equipment and/or systems. These inspections help to ensure that situations do not exist that might cause or lead to the release of waste to the environment or that might pose a threat to human health. Abnormal conditions identified by inspections must be corrected on a schedule that prevents hazards to personnel, the public, and the environment as determined by a solid waste operations supervisor.

6.2.1 General Inspection Requirements [F-2a and F-2b]

The content and frequency of inspections are described in this section. Inspections, implemented through operating requirements, are documented on inspection checklists and log sheets. The schedule and inspection records are kept at MO-720. Inspection records are retained for a minimum of 5 years. The inspection checklists consist of a listing of items that are to be assessed during each inspection. A yes/no response is made for each listed item. A 'yes' response means that the item is in compliance with the conditions stated on the checklist. Any problems identified during the inspection, as indicated by a 'no' response on the checklist, are reported to the CWC operating organization.

6.2.1.1 Types of Problems. Each week a qualified operator performs an inspection. Discrepancies are noted in the additional information section of the checklist. When completed, the inspector prints their name, signs, and dates the inspection checklist, and sends a copy to the CWC operating organization. The inspection checklist is stored for a minimum of 5 years.

The fire systems at CWC are inspected annually by representatives of the Hanford Fire Department. Their inspection includes the following:

- Fire protection system inspection and testing
  - Fire alarm pull box inspection and testing
  - Manual and automatic fire door inspection and testing
- Dry-pipe sprinkler system inspection and testing
  - System visual inspection
  - System internal inspection
  - Pressure of incoming water supply inspection
  - Condition of gauges by visual inspection
  - Flow alarm device testing
  - Zone indicated on fire alarm control panel by visual inspection
- Ignitable or reactive waste storage area.

The CWC operations personnel conduct monthly inspections and tests of safety equipment. These inspections and tests include fire extinguishers, spill kits, and pressure gauges.

6.2.1.2 Frequency of Inspections. To ensure safety, the storage building (if occupied) and waste inventory are inspected daily when waste handling activities occur and only deficiencies are documented. The CWC operations organization performs a weekly audit inspection of CWC and the waste inventory (regardless of

occupation) to ensure compliance with applicable federal and state regulations. Inspection frequencies are indicated on the respective inspection checklist.

Fire protection equipment, storage building alarms, and communication equipment are tested and inspected as identified in Section 6.2.1.1.

As required by WAC 173-303-395(1)(d), an annual inspection of CWC areas where ignitable or reactive waste is stored is performed by a professional knowledgeable of the Uniform Fire Code (NFPA 1997). The following information is entered into the CWC operating record as a result of this inspection:

- Date and time of the inspection
- Name of the person who performed the inspection
- Notation of the observations made
- Any remedial actions that were taken as a result of this inspection.

6.2.2 Schedule for Remedial Action for Problems Revealed [F-2c]

If inspections identify leaks, spills, and/or precipitation in the secondary containment, the resultant liquid will be removed on a schedule that prevents hazards to human health and the environment. Further corrective actions are discussed in the building emergency plan (Chapter 7.0). If corrosion is observed on containers, corrective actions will be pursued in a timeframe established by the CWC supervisor. Depending on the severity of the corrosion, corrective action could range from correcting on discovery or longer if procurement of needed materials and personnel are required.

If inspections identify floor areas where the sealant has been compromised (e.g., concrete is exposed), this area(s) is noted on the inspection checklist. Repairs are made in a timeframe established by the CWC supervisor, temperature conditions (per coating manufacturer recommendations) permitting.

Other conditions that are not a threat to human health and the environment will be dispositioned in a timeframe established by the operations supervisor.

6.2.3 Specific Process Inspection Requirements [F-2d]

The following sections detail the inspections to be performed at CWC.

6.2.3.1 Container Inspection [F-2d(1)]. Specific items and/or problems to be noted during weekly inspections include the following:

- Condition of concrete floor, curbing, and walls
- Appropriate safety and packaging equipment
- Container structural integrity
- Containers closed
- Corrosion of containers

- Evidence of spills or leaks
- Container labels and markings in place, legible, and unobscured
- Appropriate aisle spacing.

Records of inspection are maintained at MO-720 as detailed in Section 6.2.1.

6.2.3.2 Corrective Actions. On receipt, each container for storage is inspected by operations personnel to confirm appropriate documentation and compliance with the waste acceptance criteria before the container is stored. Refer to Section 6.2.2 for corrective actions.

6.3 PREPAREDNESS AND PREVENTION REQUIREMENTS [F-3]

The following sections document the preparedness and prevention measures taken at CWC.

6.3.1 Equipment Requirements [F-3a]

The following sections describe the internal and external communications systems and the emergency equipment required.

6.3.1.1 Internal Communications. The onsite communication system at CWC includes a telephone located on a telephone pole at the southeast corner of the Waste Receiving and Staging Area and two-way radios maintained by operations personnel. The telephone system provides internal and external communication. Telephones also are available in the operations office at the south end of CWC (the location of internal communication equipment and the primary staging area is identified in the building emergency plan provided in Appendix 7A). Immediate emergency instruction to personnel working at CWC is provided by two-way radios.

6.3.1.2 External Communications. The CWC is equipped with devices for summoning emergency assistance from the Hanford Fire Department and/or emergency response teams as necessary. External communication is made via a telephone communication system, a two-way radio base station, and two-way portable radios.

A telephone is available in the operations office and on a telephone pole at the southeast corner of the Waste Receiving and Staging Area. The locations of external communication equipment and the primary staging area are identified in the building emergency plan provided in Appendix 7A. In addition, the following external communication systems are available for notifying persons assigned to emergency response organizations.

In the 2403-W and 2404-W Waste Storage Buildings, two telephones are provided for communications. In addition, the following external communication systems are available for notifying personnel assigned to emergency response organizations:

- Fire alarm pull boxes and fire sprinkler flow-monitoring devices-- connected to a system monitored around the clock by the Hanford Fire Department

- Telephone number 911 --contact point for the Hanford Facility; on notification, the Hanford Patrol Operations Center notifies and/or dispatches required emergency responders

- Telephone number 373-3800--single point of contact for the emergency duty officer; this number can be dialed from any Hanford Site telephone

- Crash-alarm telephone system--consists of selected telephones disassociated from the regular system and automatically connected to control stations

- Two-way radio system--the system accesses the Hanford Facility emergency network and can summon the Hanford Fire Department, Hanford Patrol, and/or any other assistance requested to handle emergencies.

6.3.1.3 Emergency Equipment. A detailed list of equipment is included in the building emergency plan provided in Appendix 7A. The Hanford Fire Department is capable of providing rapid response (less than 10 minutes) to fires within the 200 West Area. Portable fire extinguishers are provided on motorized equipment and vehicles, and in or near all CWC storage buildings. Personnel are trained in the use of emergency equipment (Chapter 8.0).

6.3.1.4 Water for Fire Control. The CWC has a potable water main installed for fire control (Appendix 2A). In the event that water pressure is lost, the Hanford Fire Department normally has a truck equipped with a hydraulically operated aerial ladder, and one backup fire engine without a boom that is used if the aerial ladder is inoperable. Fire engines have a pumping capacity of approximately 5,600 liters of water per minute.

6.3.2 Aisle Space Requirement [F-3b]

Aisle spacing for CWC structures is sufficient to allow the movement of personnel and fire protection equipment in and around the containers. This aisle spacing meets the requirements of the NFPA for the protection of personnel and the environment. The following are the specific requirements for individual structures in CWC.

- 2401-W, 2402-W, 2402-WB through 2402-WL, 2403-WA through 2403-WD, and 2404-WA through 2402-WC Waste Storage Buildings: Inspection aisle space is 0.76 meter or greater. Separation between oxidizers, combustibles, and other waste categories is accomplished by placing the waste on separate containment systems.

- Flammable and Alkali Metal Waste Storage Modules: Inspection aisle space is 0.76 meter or greater.

- Waste Storage Pad: Inspection aisle space is 0.76 meter or greater.

Rows of containers are placed no more than two containers wide in accordance with WAC 173-303-630(5)(c). The containers are loaded and unloaded through the rollup doors located at each storage building.

6.4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT [F-4]

The following sections describe preventive procedures, structures, and equipment.

6.4.1 Unloading Operations

In general, transport vehicles are positioned near the receiving building in a manner that provides an unobstructed work area for a powered forklift to offload the containers. Qualified operators ensure that the following inspections are carried out before waste is unloaded at CWC.

- Containers are inspected for damage before being unloaded for storage.
- Waste is not unloaded without the approval of operations supervision during inclement weather.
- Path to storage area is clear of obstructions.
- The truck is placed so that container movement occurs over an appropriate waste unloading area.

The containers are placed in the storage building(s) or the Mixed Waste Storage Pad as assigned on the associated waste storage documentation.

6.4.2 Run-Off

Chapter 4.0 contains information on run-off and run-on of liquid at CWC.

6.4.3 Water Supplies

Water is supplied from the Columbia River via the Hanford Site potable water system. All hose connections to the potable water line have a one-way check valve installed to prevent backflow. These check valves prevent contamination from entering the water supply lines from within CWC.

The water supply system (potable and fire sprinkler supply) is routed from two sources to provide a looped supply system per U.S. Department of Energy Order 6430.1A: one from the south near the 272-WA Building, which is approximately 457 meters away, and the second from the east near T Plant Complex, which is approximately 1,524 meters away.

6.4.4 Equipment and Power Failure

Loss of electrical power does not constitute an emergency situation. However, all alarms are supplied with a battery backup system that automatically engages when there is a failure of the normal power supply. Therefore, the storage buildings will not be occupied during power outages without adequate alternate substitutes for those systems except for personnel providing a fire watch.

Rechargeable battery-powered lighting units provide emergency illumination. Self-powered lights are located near all exits.

As described in Section 6.3.1.2, emergency communication equipment is available to summon emergency assistance in the event of a power loss.

6.4.5 Personnel Protection Equipment

If a leak is discovered, the following protection could be required: radiation protection coveralls, cloth shoe covers plus rubber boots, gloves, and a cloth cap. In addition, various types of respiratory devices are available if required. Personnel are directed to use a particular type of respiratory device, depending on the specific respiratory hazard that exists. Available respiratory protection equipment includes the following:

- Airpacks
- Filter masks with a graphite filter. This type of mask is for removing particulates from the respiratory stream
- Face masks with cartridges that react with various chemical fumes. These masks are used in special circumstances
- Full-face masks, with hoses attached to an air compressor some distance away, also are available when needed.

Personnel are required to be trained in using the various respiratory devices and must be checked for mask fit as necessary (Appendix 8A). Refer to Appendix 7A for information regarding actions taken during a spill or release to the environment.

6.5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND/OR INCOMPATIBLE WASTE [F-5]

The following section describes prevention of reaction of ignitable, reactive, and/or incompatible waste.

6.5.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste [F-5a]

All waste, including reactive waste, is stored in sealed, approved containers. The use of non-sparking tools is not required except at the Flammable and Alkali Metal Waste Storage Modules.

Smoking is prohibited within CWC structures. "NO SMOKING" signs are posted and are visible at 7.6 meters.

6.5.2 Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste [F-5b]

Based on the waste characteristics identified by the onsite generating unit or offsite generator, specific packaging instructions are provided by the CWC operating organization. Stored liquids are packaged in

nonleaking inner containers and surrounded by sorbent material within appropriate liners inside steel containers (Chapter 4.0). Liquids are stored in CWC until treatment is available. Incompatible waste is not packaged within the same container.

CONTENTS

APPENDIX

TABLE

7.0 CONTINGENCY PLAN [G]

The WAC 173-303 requirements for a contingency plan are satisfied in the following documents: Portions of the *Hanford Emergency Response Plan* [Attachment 4 of the HF RCRA Permit (DW Portion)] and portions of the *Building Emergency Plan for Central Waste Complex* (Appendix 7A).

The unit-specific building emergency plan also serves to satisfy a broad range of other requirements [e.g., Occupational Safety and Health Administration standards (29 CFR 1910), TSCA (40 CFR 761) and U.S. Department of Energy Orders]. Therefore, revisions made to portions of this contingency plan document that are not governed by the requirements of WAC 173-303 will not be considered as a modification subject to WAC 173-303-830 or Hanford Facility RCRA Permit (DW Portion) Condition I.C.3. Table 7-1 identifies which portions of the Building Emergency Plan are written to meet WAC 173-303 contingency plan requirements.

Table 7-1. Hanford Facility Documents Containing Contingency Plan Requirements of WAC 173-303-350(3). (sheet 1 of 2)

Requirement	Attachment 4 of the HF RCRA Permit (DW Portion)	Building Emergency Plan
-350(3)(a) - A description of the actions which facility personnel must take to comply with this section and WAC 173-303-360.	X[1] Section 1.3.2	X[1] Section 7.1 through 7.3
-350(3)(b) - A description of the actions which shall be taken in the event that a dangerous waste shipment, which is damaged or otherwise presents a hazard to the public health and the environment, arrives at the facility, and is not acceptable to the owner or operator, but cannot be transported pursuant to the requirements of WAC 173-303-370(5), Manifest system, reasons for not accepting dangerous waste shipments.	X[1] Section 1.3.2	X[1,2] Section 7.2
-350(3)(c) - A description of the arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services as required in WAC 173-303-340(4).	X Table 3-1	
-350(3)(d) - A current list of names, addresses, and phone numbers (office and home) of all persons qualified to act as the emergency coordinator required under WAC 173-303-360(1). Where more than one person is listed, one must be named as primary emergency coordinator, and others must be listed in the order in which they will assume responsibility as alternates. For new facilities only, this list may be provided to the department at the time of facility certification (as required by WAC 173-303-810 (14)(a)(i)), rather than as part of the permit application.		X[3] Section 13.0
-350(3)(e) - A list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.	X Hanford Fire Department: Appendix C	X Section 9.0

Table 7-1. Hanford Facility Documents Containing Contingency Plan Requirements of WAC 173-303-350(3). (sheet 2 of 2)

Requirement	Attachment 4 of the HF RCRA Permit (DW Portion)	Building Emergency Plan
-350(3)(f) - An evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe the signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes.	X[4] Figure 5-2	X[5] Section 1.5

[1]The *Hanford Emergency Response Plan* contains descriptions of actions relating to the Hanford Site Emergency Preparedness System. No additional description of actions are required if emergency planning activities are addressed. If other credible scenarios exist or if emergency procedures at the unit are different, the language contained in the Building Emergency Plan will be used during an event by a Building Emergency Director.

[2]This requirement only applies to TSD units which receive shipment of dangerous or mixed waste defined as off-site shipments in accordance with WAC 173-303.

[3]Emergency Coordinator names and home telephone numbers are maintained separate from any contingency plan document, on file in accordance with Hanford Facility RCRA Permit, DW Portion, General Condition II.A.4. and is updated, at a minimum, monthly.

[4]The Hanford Facility (sitewide) signals are provided in this document. No unit/building signal information is required unless unique devices are used at the unit/building.

[5]An evacuation route for the TSD unit must be provided. Evacuation routes for occupied buildings surrounding the TSD unit are provided through information boards posted within buildings.

CONTENTS

APPENDIX

8.0 PERSONNEL TRAINING [H]

The training plan provided in Appendix 8A discusses training requirements pertaining to CWC.

The training program is designed to be compliant with all applicable federal, state, and DOE-RL training requirements. The training program complies with requirements contained within WAC 173-303-330 for the development of a written dangerous waste training program. The training program is designed to prepare personnel to manage and maintain TSD units in a safe, effective, efficient, and environmentally sound manner. In addition to preparing personnel to manage and maintain TSD units under normal conditions, the training program ensures that personnel are prepared to respond in a prompt and effective manner should offnormal or emergency conditions occur.

CONTENTS

9.0 EXPOSURE INFORMATION REPORT

The CWC does not store, treat, or dispose of hazardous waste in a surface impoundment or a landfill as defined in 40 CFR 270.10 and RCRA, Section 3019. Therefore, exposure information is not required.

CONTENTS

10.0 WASTE MINIMIZATION [D-9]

To fulfill the requirements of 40 CFR 264.73(b)(9), a certification that the CWC has a waste minimization/pollution prevention program in place is entered, annually, into the CWC operating record.

CONTENTS

FIGURE

11.0 CLOSURE AND FINANCIAL ASSURANCE [I and I-1i]

This chapter presents the closure plan for CWC. Closure of CWC will comply with WAC 173-303-610 regulations for TSD units. As a storage and treatment unit, the CWC is not anticipated to become extensively contaminated by dangerous waste.

CWC is operated as a clean, well-maintained unit. Detailed records are maintained of the materials stored at CWC. Spills and other unusual occurrences are handled promptly and documented. The closure approach will be clean closure. Consistent with the criteria that must be met to clean close a TSD unit, no postclosure activities will be necessary [refer to General Information Portion (DOE/RL-91-28)]. Clean closure may be pursued for one or more structures at the CWC (partial closure) or for the entire CWC. The closure process will be the same for partial closure or closure of the entire CWC. This chapter describes the performance standards that will be met and closure activities that will be conducted to achieve clean closure.

Federal facilities are not required to comply with WAC 173-303-620 as is stated in the regulations and as described in Condition II.H.3. of the Dangerous Waste Portion of the Hanford Facility RCRA Permit (Ecology 1994).

11.1 CLOSURE PLAN [I-1]

The following sections address closure performance standards, waste removal, and decontamination standards.

11.1.1 Closure Performance Standard [I-1a]

These sections describe the performance and removal or decontamination standards to be applied to CWC.

11.1.1.1 Performance Standard. This plan has been developed to close CWC in a manner that meets the closure performance standards of WAC 173-303-610(2).

In general, these standards can be achieved by removing, to background levels or regulatory thresholds, dangerous waste from CWC, and by decontaminating and removing all equipment, structures, soils, or other materials containing or contaminated with dangerous waste or waste residue.

11.1.1.2 Removal or Decontamination Standard. Clean closure of CWC requires removal and disposal of all dangerous waste present in the storage structures, removal and disposal of all contaminated equipment and structural components, decontamination of any contaminated storage building surfaces, remediation of any contaminated soil attributable to CWC within the storage unit boundary, and restoration of the area. Any materials, equipment, or structures that are removed from CWC will be designated in accordance with WAC 173-303-070 and disposed of accordingly. Because soil contamination from CWC operations is not expected, no sampling is planned for clean closure. The CWC will be considered clean when surfaces are free of dangerous waste contamination, if there are no measurable amounts of radiological contamination above background levels, and no obvious visual signs of potential dangerous waste contamination.

Should decontamination be necessary, as determined by visual inspection or survey of the CWC structures, clean closure will require removal and disposal of all dangerous waste, contaminated equipment, and rinsates to standards specified in WAC 173-303-610(2)(b). If during inspection contamination is found warranting sampling and analysis of contaminated structures, equipment, or soils, this closure plan will be amended.

11.1.2 Closure Activities [I-1b]

Closure of CWC will ensure that the storage buildings, storage modules, storage pad, and associated equipment are not contaminated (contamination is not expected). Any sampling and analysis activities required for clean closure will be accomplished in accordance with an amended closure plan containing a sampling and analysis/decontamination plan that meets the requirements in place at the time of closure.

Closure activities could entail visual inspections, surveys, decontamination, removal, and disposal of the structure, equipment and soil (sampling is not expected). These activities consist of the following:

- Perform document review and interview personnel to determine spill history
- Remove inventory of stored waste
- Perform visual inspection and where necessary, a radiation survey of building, structure, and surrounding area
- Decontaminate and remove equipment for reuse and/or disposal if necessary
- Decontaminate structures, including floors and walls if necessary
- Decontaminate storage areas if necessary
- Perform verification survey of the decontaminated structures and storage areas
- Remediate and verify, as necessary, or dispose of contaminated sections of each component
- Dispose of all contaminated materials and rinsates generated during the closure activities
- Decontaminate or dispose of equipment used in performing closure activities
- Restore the area after closure activities are complete
- If sampling activities are determined necessary to obtain clean closure, initiate closure plan modification to accommodate closure. Follow revised closure plan.
- Obtain Professional Engineer (PE) certification that closure activities were completed in accordance with the approved plan.

For partial closure of CWC, Ecology will be notified in writing that partial closure activities are beginning. The written notification will indicate those portions being closed. Closure activities for partial closure will be the same as closure for the entire CWC.

11.1.3 Maximum Extent of Operation [I-1b(1) and I-1c]

An estimated maximum waste inventory is identified in Chapter 4.0, Table 4-1. The volumes are given as 208-liter container equivalents. The volume within each container consists of waste and all necessary packing material.

11.1.4 Inventory Removal, Disposal or Decontamination of Equipment, Structures, and Soils [I-1b(2) and (3)]

The CWC provides storage capacity for both onsite and offsite waste generated before final disposal. At the time of closure, no waste will remain at CWC.

11.1.4.1 Removal of Waste Inventory. At closure, all containers of waste will be removed from the storage structures. The containers of waste will be transferred to another permitted onsite TSD unit or permitted offsite facility. The waste could be moved out of the storage structures at different times, first removing the containers from one of the structures. This would allow some containers to be moved into a still active structure, while the other structure(s) undergoes closure activities.

11.1.4.2 Survey and Inspection. After removal of the waste containers, a radiation survey will be performed on the interior walls, grating(s), containment basin(s), and floor(s). Any area showing measurable radiological levels above background levels will be noted for closer examination during visual inspection.

A visual assessment of whether spills have occurred within the CWC will be performed after all waste has been removed. The visual inspection also will include evaluation to the extent possible of the interior walls, containment areas, grates, and floors. Photographs of the components will be taken during visual inspections and included with inspection checklist (Figure 11-1). For areas that show potential dangerous waste contamination, field personnel will determine whether to remove and dispose or to decontaminate.

11.1.4.3 Decontamination and Removal of Equipment. Most of the equipment at CWC is used for container handling and storage. This equipment could become contaminated in the event of a leaking or ruptured container.

The equipment will be removed from the area and managed or handled by one of the following methods: (1) decontamination and recycle or reuse, (2) disposal as dangerous waste, (3) disposal as mixed waste, or (4) disposal as a radiological waste. The method to be used will be determined based on the specific piece of equipment, the level of contamination, the waste designation performed in accordance with WAC 173-303-070, and the estimated quantity of waste to be generated during decontamination. Final disposal will be determined using appropriate techniques available at the time of closure.

11.1.4.4 Decontamination of Structures. Decontamination of contaminated structures or contaminated portions thereof will begin with a visual inspection and, where necessary, a radiation survey. In areas where surveys show measurable radioactivity, decontamination will be performed. Any waste deposits found during the visual inspection will be removed and disposed as appropriate.

The floors, trenches, sumps, and interior walls of each contaminated structure or contaminated portion thereof will be washed down. The method of decontamination used will depend on the nature of the area of contamination. Decontamination methods might include wiping, washing, brushing, or scrubbing, and rinsing with water or other appropriate method. One possible method for this washdown is a high-pressure, low-volume detergent wash to target both organic and inorganic constituents. Decontamination procedures will address minimization of liquid used and how the wash will be conducted. The decontamination liquids will be collected in the trenches and sumps and pumped into containers such as bung-type 208-liter containers. The pump will be rinsed three times and the rinsate stored in containers, as detailed previously. Decontamination waste will be designated and the appropriate method of disposal determined.

11.1.4.5 Decontamination of the Waste Storage Pad. Decontamination will begin with a visual inspection and, where necessary, a radiation survey. The results of these two activities will be treated as described in Section 11.1.4.4. If contaminated, the storage pad will undergo a decontamination wash similar to that described in Section 11.1.4.4.

11.1.4.6 Verification Survey and Inspection. Following decontamination of any contaminated equipment, structures, or storage areas, a verification survey and inspection will be performed. Results will be documented on the inspection checklist (Figure 11-1). If decontamination was successful and no measurable amounts of radiological contamination above background are found, the clean closure process will conclude and certification will occur (Section 1.3).

11.1.4.7 Remediation. Remediation activities will commence if contamination is found during the verification survey inspection (Section 11.1.4.6) or if contamination is found in soils or the immediate area surrounding the CWC storage structures. Remediation activities are not expected to occur as the CWC is well operated and any spills occurring during the operating life of the TSD unit are completely cleaned up. Remediation of soils or surrounding areas will be determined by the initial survey and results from the documentation review and interview of personnel. If questions arise concerning whether soils or the surrounding areas should be remediated, the closure plan will be amended through a permit modification to address these questions.

In the unlikely event that contaminants are suspected to have penetrated the sealant, sampling will be performed as necessary to determine the extent of contamination. If sampling is necessary to achieve clean closure, the closure plan will be amended.

11.2 SCHEDULE FOR CLOSURE [I-1f]

The closure schedule is based on the time required to perform applicable closure activities described in Sections 11.1.2 and 11.1.4. Closure will be completed 180 days after the last shipment of waste is received at CWC [WAC 173-303-610(4)(b)] or structure(s) when partial closure is selected. In addition, notification by DOE-RL that the unit or structure(s) will no longer receive waste is a prerequisite of closure.

When a closure date is established for the overall TSD unit, a revised closure plan and schedule will be evaluated, including any additional closure activities required for clean closure. If closure plan modifications are necessary to achieve clean closure, a revised schedule will be proposed as part of the permit modification package.

For partial closure of the TSD unit, Ecology will be notified in writing that partial closure activities are beginning. The written notification will indicate those portions of the TSD unit being closed.

11.3 CERTIFICATION OF CLOSURE

PE certification of closure will cover only the portions of the CWC covered by the closure activities proposed (partial closure or closure of the entire unit). The PE certification will occur upon disposition of decontamination generated waste and completion of closure activities summarized in Section 11.1.2 and described in Section 11.1.4. The PE will provide a signed statement that meets the applicable requirements of WAC 173-303-610(6), certifying that the closure activities were performed in accordance with the technical specifications of the approved closure plan. A copy of the PE certification will be transmitted to Ecology and placed in the Administrative Record.

The PE will certify that the unit has been closed in accordance with the approved partial closure plan. The PE certification is to confirm that the activities took place as described. The PE is not responsible for corroborating information on any part of the partial closure plan not addressing activities completed in support of closure.

EXAMPLE

INSPECTION CHECKLIST
FOR CWC CLOSURE ACTIVITIES

1. Storage structure identification: _____

2. Component description (e.g., wall, wood floor): _____

3. Material (e.g., wood, metal): _____

NOTE: Attach photographs taken during visual inspection.

INITIAL INSPECTION
date: _____ time: _____

4. Radiation survey performance standard met? (at or below background):
_____

5. Visual inspection performance standard met? (no obvious visual signs of potential contamination): _____

6. Comments on survey/inspection (or N/A if not applicable): _____
_____
_____

7. If photographs taken, attach

DECONTAMINATION, if required
date: _____ time: _____

8. (If required to move the structures) Radiation survey performance standard at decontamination location met? (at or below background):
_____

9. Decontamination method used (or N/A): _____
_____
_____
_____

10. Comments on decontamination (or N/A): _____
_____
_____
_____

11. If photographs taken, attach

Figure 11-1. Example Inspection Checklist for CWC Closure Activities. (sheet 1 of 2)

VERIFICATION INSPECTION, if required
date: _____ time: _____

12. Radiation survey performance standard met? (at or below background):
_____

13. Visual inspection performance standard met? (no obvious visual signs of potential contamination): _____

14. Comments on verification inspection (or N/A): _____
_____
_____
_____

15. If photographs taken, attach.

WITNESSES:

_____ _____ / _____
Print: name and title Signature Date

_____ _____ / _____
Print: name and title Signature Date

Figure 11-1. Example Inspection Checklist for CWC Closure Activities. (sheet 2 of 2)

CONTENTS

12.0 REPORTING AND RECORDKEEPING

Reporting and recordkeeping requirements that could be applicable to the Hanford Facility are described in Chapter 12.0 of the General Information Portion (DOE/RL-91-28). Not all of these requirements and associated reports and records identified in Chapter 12.0 of the General Information Portion are applicable to the CWC. Those reporting and recordkeeping requirements determined to be applicable to the CWC are summarized as follows:

- Contingency plan and incident records (as identified in the General Information Portion, DOE/RL-91-28):

  - Immediate reporting
  - Written reporting
  - Shipping paper discrepancy reports.

- Unit-specific Part B permit application documentation and associated plans

- Personnel training records

- Inspection records (unit)

- Onsite transportation documentation

- Land disposal restriction records

- Waste minimization and pollution prevention.

In addition, the following reports prepared for the Hanford Facility will contain input, when appropriate, from the CWC:

- Quarterly HF RCRA Permit modification report
- Anticipated noncompliance
- Required annual reports.

Annual reports updating projections of anticipated costs for closure and postclosure will be submitted as required by the HF RCRA Permit.

The CWC Operating Record 'records contact' is kept on file in the General Information file of the Hanford Facility Operating Record (refer to Chapter 12.0, DOE/RL-91-28).

CONTENTS

13.0 OTHER FEDERAL AND STATE LAWS [J]

Federal, state, and local laws applicable to the CWC are discussed in Chapter 13.0 of the General Information Portion (DOE/RL-91-28). Generally, the laws applicable to the CWC include, but might not be limited to, the following:

Atomic Emergency Act of 1954
Federal Facility Compliance Act of 1992
Clean Air Act of 1977
Safe Drinking Water Act of 1974
Emergency Planning and Community Right-to-Know Act of 1986
Toxic Substances Control Act of 1976
National Historic Preservation Act of 1966
Endangered Species Act of 1973
Fish and Wildlife Coordination Act of 1934
Federal Insecticide, Fungicide, and Rodenticide Act of 1975
Hazardous Materials Transportation Act of 1975
National Environmental Policy Act of 1969
Washington Clean Air Act of 1967
Washington Water Pollution Control Act of 1945
Washington Pesticide Control Act of 1971
Model Toxics Control Act
Benton Clean Air Authority Regulation 1
State Environmental Policy Act of 1971.

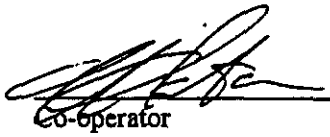
CONTENTS

14.0 PART B CERTIFICATION [K]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator
John D. Wagoner, Manager
U.S. Department of Energy
Richland Operations Office

5/22/98
Date



Co-operator
H. J. Hatch,
President and Chief Executive Officer
Fluor Daniel Hanford, Inc.

May 14, 1998
Date

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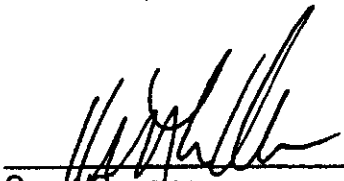
14.0 PART B CERTIFICATION [K]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



6/21/99

Owner/Operator
Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office

Date

6/21/99

Co-operator
R. D. Hanson,
President and Chief Executive Officer
Fluor Daniel Hanford, Inc.

Date

Note: This certifies the following Revision 1A Chapters and Appendices: Chapter 1.0, Chapter 2.0, Appendix 2A, Appendix 3A, Appendix 4A, Appendix 7A, and Appendix 8A.

CONTENTS

15.0 REFERENCES

DOE Order 6430.1A, *General Design Criteria*.

DOE/RL-91-28, *Hanford Facility Dangerous Waste Permit Application, General Information Portion*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-96-63, *Annual Hanford Site Environmental Permitting Status Report*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, 1994, *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit*, Number WA7890008967, revised periodically, Washington State Department of Ecology, Olympia, Washington.

Ecology, 1996, *Dangerous Waste Permit Application Requirements*, Publication Number #95-402, Washington State Department of Ecology, Olympia, Washington.

ICBO, 1996, *Uniform Building Code*, International Conference of Building Officials, Whittier, California.

NFPA, 1997, *National Fire Protection Code*, updated periodically, National Fire Protection Association, Quincy, Massachusetts.

NIOSH, 1997, *Registry of Toxic Effects of Chemical Substances*, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, Washington, D.C.

55 FR 61, "Hazardous Waste Management System; Identification and History of Hazardous Waste; Toxicity Characteristics Revision".

APPENDICES

APPENDIX 2A

TOPOGRAPHIC MAP

APPENDIX 2A

CONTENTS

ENGINEERING CHANGE NOTICE

Page 1 of 3

1. ECN 650955

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental (●)	Fred Sargent, Waste Management Hanford, T4-03, 373-2106	(●) Yes ( ) No	May 3, 1999
Direct Revision ( )			
Change ECN ( )			
Temporary ( )			
Standby ( )			
Supersedure ( )			
Cancel/Void ( )			

6. Project Title/No./Work Order No.	7. Bldg./Sys./Fac. No.	8. Approval Designator
2401-W Facility Update	2401-W	S E FH

9. Document Numbers Changed by this ECN (includes sheet no. and rev.)	10. Related ECN No(s).	11. Related PO No.
Drawing H-13-000003, Sheet 1, R.1	NA	NA

12a. Modification Work	12b. Work Package No.	12c. Modification Work Completed	12d. Restored to Original Condition (Temp. or Standby ECNs only)
( ) Yes (fill out Blk. 12b) (●) No (NA Blks. 12b, 12c, 12d)	NA	NA Design Authority/Cog. Engineer Signature & Date	NA Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? ( ) Yes (●) No

Update Dwg. H-13-000003, Sht. 1, Rev. 1, to show changes at 2401-W Facility. Update changes in the fence line surrounding the 2401-W Facility and in the outline of the asphalt pavement in the facility, as shown on Page 3 of 3 of this ECN.

14a. Justification (mark one)	14b. Justification Details
Criteria Change ( )	Incorporate existing field layout of 2401-W Facility into general site layout.
Design Improvement ( )	
Environmental ( )	
Facility Deactivation ( )	
As-Found (●)	
Facilitate Const. ( )	
Const. Error/Omission ( )	
Design Error/Omission ( )	

15. Distribution (include name, MSIN, and no. of copies)

FD Sargent	T4-03
JR Rosser	T4-03
BM Barnes	T4-04
DG Saueressig	H6-24
Eng Doc Files	T4-03

RELEASE STAMP

MAY 10 1999

DATE:

STA: 5

HANFORD RELEASE

ID: 12

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 650955

16. Design Verification Required
- ○ Yes
- ◉ No

17. Cost Impact

	ENGINEERING	CONSTRUCTION
Additional	○ $ _____	○ $ _____
Savings	○ $ _____	○ $ _____

18. Schedule Impact (days)
- Improvement ○ _____
- Delay ○ _____

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐	Tickler File	☐
Environmental Report	☐	Inspection Plan	☐	_____	☐
Environmental Permit	☐	Inventory Adjustment Request	☐	_____	☐

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision

21. Approvals

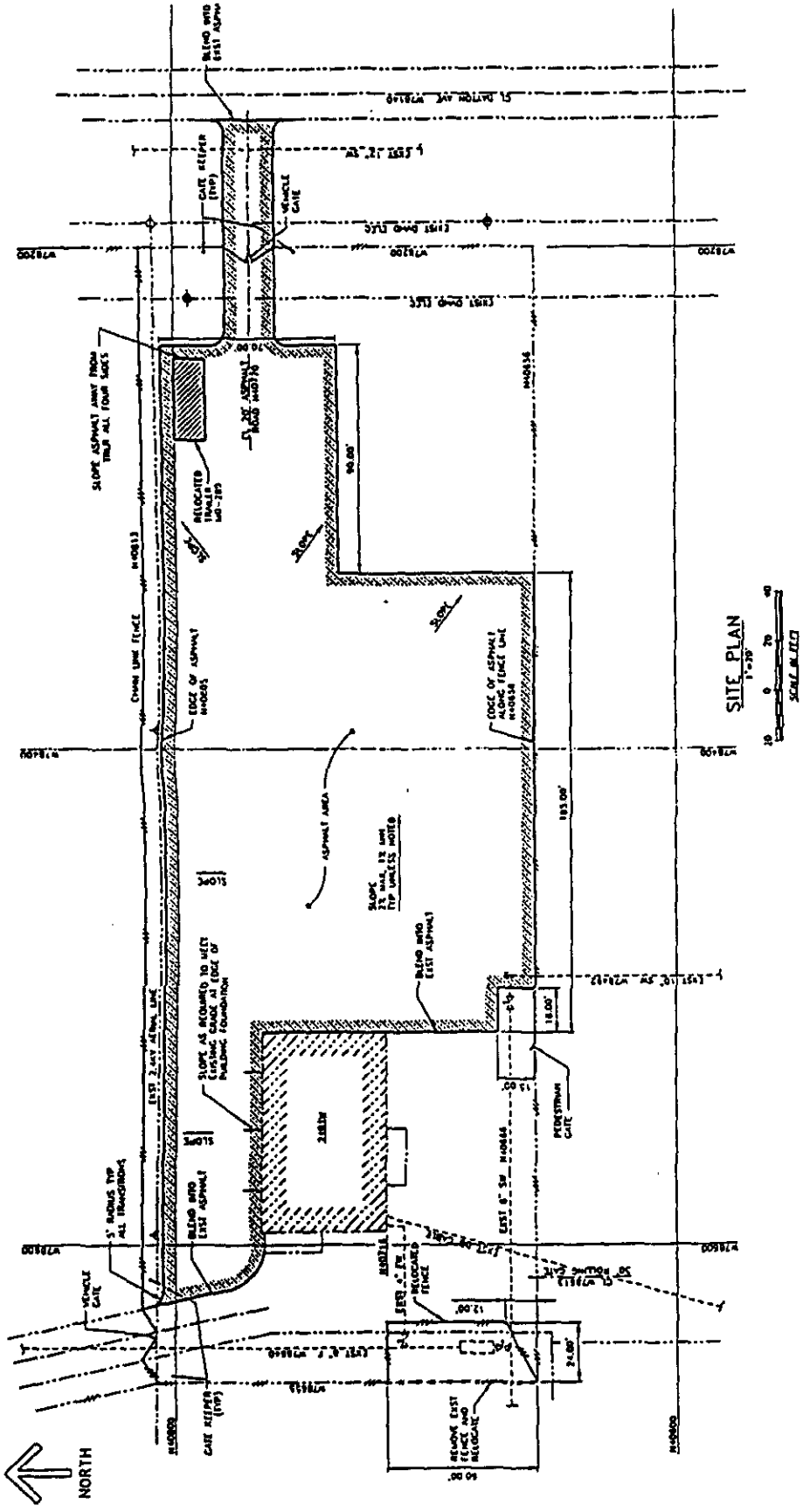
	Signature	Date
Design Authority FD Sargent	FD Sargent	5/3/99
Cog. Eng. FD Sargent	FD Sargent	5/3/99
Cog. Mgr. JR Rosser	JR Rosser	5/4/99
QA NA		
Safety NA		
Environ. BM Barnes	BM Barnes	5/4/99
Other		

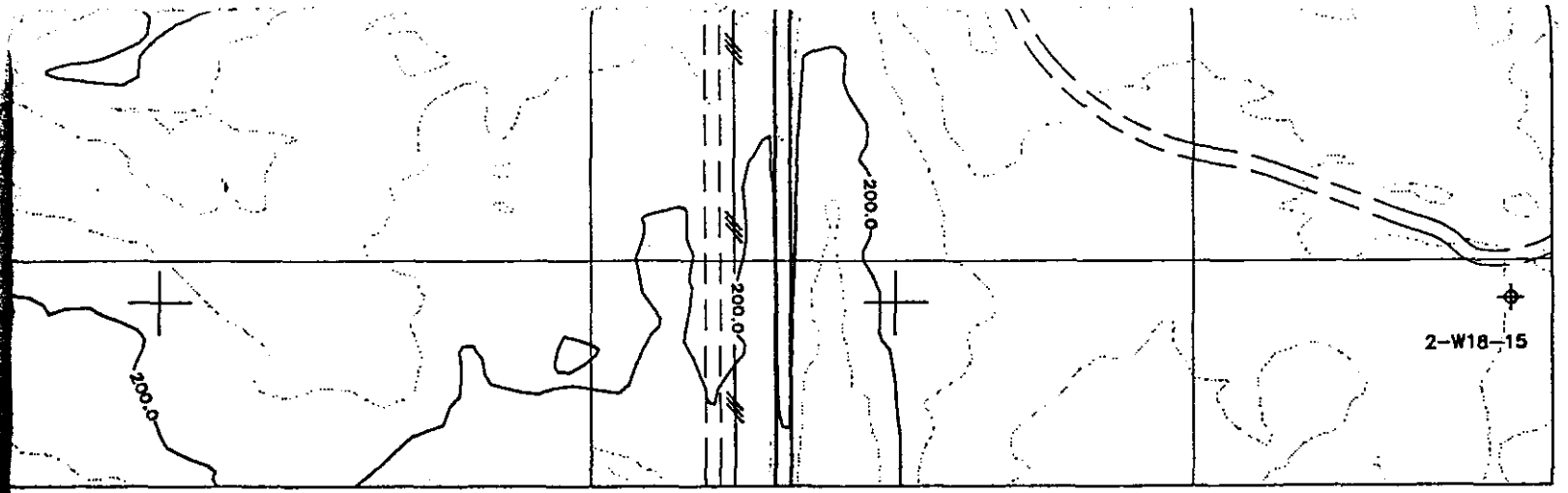
	Signature	Date
Design Agent		
PE		
QA		
Safety		
Design		
Environ.		
Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL


SITE PLAN
NORTH
SLOPE ASPHALT AWAY FROM BLDG ALL FOUR SIDES
RELOCATED TRAILER 340-199
CHAIN LINK FENCE
EDGE OF ASPHALT
ASPHALT AREA
SLOPE AS REQUIRED TO MEET EXISTING GRADE AT EDGE OF BUILDING FOUNDATION
BLEND INTO EXIST ASPHALT
PEDESTRIAN GATE
VEHICLE GATE
GATE KEEPER (TYP)
RELOCATED FENCE
REMOVE EXIST FENCE AND RELOCATE



DWG NO H-13-000003 SH

THIS MAP IS TO BE USED FOR REFERENCE PURPOSES ONLY.
DO NOT USE THIS MAP FOR CONSTRUCTION PURPOSES.

		DATE
DRAWN	BR KAMPII	4-25-91
CHECKED	GD TILLEY	9-18-91
DFTG APVD	DC BOOTHROYD	9-18-91
COG ENGR	BM BARNES	9-18-91
APVD		
APVD	D COWEN	9-18-91
APVD		
APVD		
APVD		

	COG ENGR	OTHER	OTHER
APPROVALS BY/DATE			

U.S. DEPARTMENT OF ENERGY
Richland Operations Office
Westinghouse Hanford Company

CENTRAL WASTE COMPLEX
WASTE RECEIVING AND PROCESSING
TOPO MAP

SIZE	BLDG NO	INDEX NO	DWG NO	REV
F	2403-WA	0110	H-13-000003	1

SCALE SHOWN | ENT 124619 | SHEET 1 OF 2

A

DWG NO H-13-0(

SEE DRAWING H-13-000003 SH-1 FOR
LEGEND, GENERAL NOTES & WIND ROSE

THIS MAP IS TO BE USED FOR REFERENCE PURPOSES ONLY.
DO NOT USE THIS MAP FOR CONSTRUCTION PURPOSES.

DRAWN BR KAMPII	DATE 4-25-91	U.S. DEPARTMENT OF ENERGY Richland Operations Office Westinghouse Hanford Company
CHECKED GD TILLEY	9-19-91	
DFTG APVD DC BOOTHROYD	9-19-91	
COG ENGR BM BARNES	9-19-91	CENTRAL WASTE COMPLEX WASTE RECEIVING AND PROCESSING TOPO MAP
APVD		
APVD D COWEN	9-19-91	
APVD		
APVD		
APVD		
APVD		

COG ENGR	OTHER	OTHER
APPROVALS BY/DATE		

SIZE	BLDG NO	INDEX NO	DWG NO	REV
F	2403-WA	0110	H-13-000003	1

CD2:12.0:SS	SCALE SHOWN	EDT 124619	SHEET 2 OF 2

CHK PRINT ☐ DATE

COMMENT PRINT ☐ DATE

A

2

1

APPENDIX 3A

CENTRAL WASTE COMPLEX WASTE ANALYSIS PLAN

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CONTENTS

CONTENTS (cont)

APPENDIX

FIGURES

TABLE

GLOSSARY

ALARA	as low as reasonably achievable
ASTM	American Society for Testing and Materials
AWMP	alternative waste management plan
CAP	corrective action plan
COLIWASA	composite liquid waste sampler
CFR	Code of Federal Regulations
CWC	Central Waste Complex
DOE-RL	U.S. Department of Energy, Richland Operations Office
DQO	data quality objectives
Ecology	Washington State Department of Ecology
HNF	Hanford Nuclear Facility (document identifier)
LDR	land disposal restriction
LLBG	Low-Level Burial Grounds
MSDS	material safety data sheet
NDA	nondestructive assay
NDE	nondestructive examination
PCB	polychlorinated biphenyl
PES	performance evaluation system
pH	negative logarithm of the hydrogen-ion concentration
QA/QC	quality assurance and quality control
RCRA	*Resource Conservation and Recovery Act of 1976*
RCW	Revised Code of Washington
SWITS	solid waste information tracking system
SWMU	solid waste management unit
TRU	transuranic
WAC	Washington Administrative Code
WAP	waste analysis plan
WSRd	waste specification record
°C	degrees Celsius

METRIC CONVERSION CHART

The following conversion chart is provided to the reader as a tool to aid in conversion.

Into metric units			Out of metric units		
If you know	Multiply by	To get	If you know	Multiply by	To get
Length			**Length**		
inches	25.40	millimeters	millimeters	0.0393	inches
inches	2.54	centimeters	centimeters	0.393	inches
feet	0.3048	meters	meters	3.2808	feet
yards	0.914	meters	meters	1.09	yards
miles	1.609	kilometers	kilometers	0.62	miles
Area			**Area**		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092	square meters	square meters	10.7639	square feet
square yards	0.836	square meters	square meters	1.20	square yards
square miles	2.59	square kilometers	square kilometers	0.39	square miles
acres	0.404	hectares	hectares	2.471	acres
Mass (weight)			**Mass (weight)**		
ounces	28.35	grams	grams	0.0352	ounces
pounds	0.453	kilograms	kilograms	2.2046	pounds
short ton	0.907	metric ton	metric ton	1.10	short ton
Volume			**Volume**		
fluid ounces	29.57	milliliters	milliliters	0.03	fluid ounces
quarts	0.95	liters	liters	1.057	quarts
gallons	3.79	liters	liters	0.26	gallons
cubic feet	0.03	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.76	cubic meters	cubic meters	1.308	cubic yards
Temperature			**Temperature**		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

1.0 UNIT DESCRIPTION

The purpose of this waste analysis plan (WAP) is to document the waste acceptance process, sampling methodologies, analytical techniques, and overall processes that are undertaken for waste accepted for storage at the Central Waste Complex (CWC), which is located in the 200 West Area of the Hanford Facility, Richland, Washington. Because dangerous waste does not include the source, special nuclear, and by-product material components of mixed waste, radionuclides are not within the scope of this documentation. The information on radionuclides is provided only for general knowledge.

1.1 DESCRIPTION OF UNIT PROCESSES AND ACTIVITIES

The CWC is a nonland-based unit consisting of various buildings, storage modules, and storage pad (Figure 1-1). The CWC structures are used for the storage of waste and are subject to *Dangerous Waste Regulations*, Washington Administrative Code (WAC) 173-303 and 40 Code of Federal Regulations (CFR) 761.

The CWC consists of the 2401-W, 2402-W, 2403-W, and 2404-W waste storage buildings, Flammable and Alkali Metal Waste Storage Modules, the waste storage pad, and the waste receiving and staging area (Figures 1-2 through 1-8). Further discussion on these structures can be found in Chapter 2.0 of the *Hanford Facility Dangerous Waste Permit Application, Central Waste Complex* (DOE/RL-91-17).

1.1.1 How Waste is Accepted, Moved, Processed, and Managed

The following sections describe the different types of information and knowledge used for waste acceptance. The movement, processing, and management of waste at the CWC is described in Chapter 4.0 of the CWC dangerous waste permit application documentation (DOE/RL-91-17).

1.1.1.1 Narrative Process Descriptions

The onsite generating unit, offsite generator, and treatment, storage, and/or disposal (TSD) unit transferring waste to the CWC is hereafter referred to as a 'generator' unless otherwise denoted in this WAP.

Waste that meets land disposal restriction (LDR) requirements, as specified in 40 CFR 268 and WAC 173-303-140, is stored in the CWC. Waste not meeting LDR requirements, but awaiting further treatment offsite or onsite either at the Waste Receiving and Processing Facility (WRAP) or the T Plant Complex (T Plant) can be stored at the CWC. The CWC unit-specific operating record will contain information necessary to meet LDR requirements for any waste awaiting further treatment. Containerized waste that is not fully characterized or is awaiting sampling results can be stored in CWC (DOE/RL-91-17). The Hanford Facility is required to sample certain waste depending on the type of treatment standard to ensure that the waste or treatment residuals are in compliance with applicable LDR requirements. Such testing is performed according to the frequency specified in this WAP.

1.1.1.2 Waste Acceptance Process

CWC waste acceptance process consists of following activities:

- Waste Stream Approval. The generator provides information concerning each waste stream on a waste profile sheet. The waste stream information is reviewed against the CWC waste acceptance criteria. If the waste stream information is sufficient and meets the applicable acceptance criteria, the waste stream is approved. In addition, the initial verification frequency for the waste is determined in accordance with the requirements found in the performance evaluation program (PES) (Section 1.1.1.3). For a more complete description of the waste stream approval process, refer to Section 2.1.1.

- Waste Shipment Approval. The generator provides specific data for each waste container on the container data sheet. The container data are reviewed against the waste profile sheet data and the CWC acceptance criteria before being approved for shipment. In addition, the CWC operating organization determines if any of the containers require verification based on the verification frequency as determined by PES. For a more complete description of the waste shipment approval process, refer to Section 2.1.2.

- Verification. Verification activities include container receipt inspection, physical screening, and/or chemical screening. A percentage of waste shipments and containers are selected for receipt verification during the waste shipment approval process. These containers can be inspected visually, verified by NDE, or sampled for field or laboratory analysis to confirm that the waste matches the waste profile and container data information supplied by the generator. Any discrepancies between the verification results and the waste profile sheet must be resolved before final acceptance at CWC in accordance with the conformance issue resolution process found in Section 1.1.1.3.3.

1.1.1.2.1 Types of Acceptable Knowledge

When collecting documentation on a waste stream or container, the CWC operating organization or representative organization, hereafter referred to the 'CWC operating organization', must determine if the information provided by the generator is acceptable knowledge. Acceptable knowledge requirements are met using any one or a combination of the following types of data:

- Mass balance from a controlled process that has a specified input for a specified output
- Material safety data sheets (MSDSs) on unused chemical products
- Test data from a surrogate sample
- Analytical data on the waste or a waste from a similar process.

In addition, acceptable knowledge requirements can be met using a combination of analytical data or screening results and one or more of the following:

- Interview information
- Logbooks
- Procurement records
- Qualified analytical data
- Radiation work package
- Procedures and/or methods
- Process flow charts
- Inventory sheets
- Vendor information
- Mass balance from an uncontrolled process (e.g., spill cleanup)
- Mass balance from a process with variable inputs and outputs (e.g., washing/cleaning methods).

If the information is sufficient to quantify constituents and characteristics as required by the regulations and CWC acceptance criteria, the information is considered acceptable knowledge. The CWC acceptance criteria is defined as the requirements found in the WAP and the associated Part A, Form 3, (DOE/RL-91-17, Chapter 1.0).

1.1.1.3 Description of Performance Evaluation System

A PES is used to determine initial physical screening frequency of the generator. PES provides a periodic status of an individual generator's performance for waste received. Also, PES provides a mechanism for determining corrective actions and physical screening frequency adjustments when a problem has been discovered after waste has arrived at CWC.

1.1.1.3.1 Initial Physical Screening Frequency Determination

The initial physical screening frequency is determined based on the following process.

- CWC operating organization reviews the generator waste profile information to determine the relative potential for misdesignation or inappropriate segregation based on all relevant information, including any previous experience with the generator. Based on this review, CWC operating organization identifies any concerns associated with the following criteria:

  - documented waste management program
  - waste stream characterization information
  - potential for inappropriate segregation.

- Based on the identification of concerns during the review, the CWC operating organization establishes the initial physical screening frequency for the new generator's waste stream based on the following criteria:

  - Initial physical screening frequency of, at a minimum, 20 percent: No concerns identified (e.g., cleanup of contaminated soil where the soil has been well characterized and no other waste generation processes are occurring at that location)

  - Initial physical screening frequency of, at a minimum, 50 percent: Concern(s) identified in one criterion (e.g., a facility with many different processes that generate debris that have differing management paths)

  - Initial physical screening frequency of 100 percent: Concerns identified in two or more criteria (e.g., a facility with many different process and questionable segregation controls).

1.1.1.3.2 Monthly Performance Evaluation

A performance evaluation is used to trend a generator's performance and is used to raise the generator's overall physical screening frequency. The evaluation should be objective and should consider the conformance issues documented during the Preshipment Review and Verification functions. The CWC operating organization will: (1) perform monthly evaluations based on deficiencies and conformance issues identified, (2) evaluate unsatisfactory performance for corrective actions, and (3) adjust physical screening rates accordingly.

1.1.1.3.3 Conformance Issue Resolution

Conformance issues during verification could result in a waste container that does not meet CWC waste acceptance criteria. If a possible conformance issue is identified, the following actions are taken to resolve the issue.

- CWC operating organization compile all information concerning the possible conformance issue(s).

- The generator is notified and requested to supply additional knowledge to assist in the resolution of the concern(s). If the generator supplies information that alleviates the concern(s) identified, no further action is required.

- On determination that a conformance issue has been identified, the CWC operating organization personnel and the generator discuss the conformance issue and identify the appropriate course of action to resolve the container/shipment in question, i.e., pick another sample set, return the container/shipment, divert the container/shipment to another TSD unit that can accept the container/shipment and resolve the issue, or the generator resolves the issue at the TSD unit. If the conformance issue(s) results in the failure of a shipment, the physical screening frequency for all streams from the generator are adjusted to 100 percent until the issue(s) adequately can be addressed.

- On resolution of the initial conformance issue, CWC operating organization requests the generator to provide a corrective action plan (CAP) that clearly states the reason for the failure and describes the actions to be completed to prevent re-occurrence. The generator could request a reduction in verification of unaffected streams. This request must be accompanied by a justification that identifies why this stream(s) would not exhibit the same conformance issue.

- CWC operating organization reviews the CAP and stream justification for adequacy. If the CAP is inadequate, the generator remains at a physical screening rate of 100 percent. If the stream justification is adequate, CWC operating organization could provide an alternative frequency as denoted in Section 1.1.1.3.2.

1.1.1.3.4 Process for Reducing the Physical Screening Frequency

Screening rate frequencies and changes to those frequencies could be applied to a specific waste stream, to a specific contractor, or to a specific offsite generator based on the circumstances surrounding the conformance issue. After the initial screening frequency for a given waste stream has been established or increased, the physical screening frequency can be reduced in accordance with the following.

The physical screening frequency will be reduced in three steps. Reduction for all steps is based on the ability to demonstrate that five containers from the waste stream in question pass verification. In addition, reduction to the minimum frequency requires that the CWC operating organization documents an acceptable evaluation of the corrective action plan, and the corrective action plan is fully implemented. At no time will the physical screening frequency be reduced below 5 percent for waste generated onsite or below 10 percent for offsite generators.

- Step 1. Reduce frequency by 66 percent after five containers from the waste stream in question pass verification.

- Step 2. Reduce frequency established in Step 1 by 50 percent or to the minimum allowable, whichever results in a greater frequency after five containers from the waste stream in question pass verification.

- Step 3. Reduce frequency to the minimum allowable after five containers from the waste stream in question pass verification. The CWC operating organization documents an acceptable evaluation of the corrective action plan, and the corrective action plan is fully implemented.

The screening rate reduction will be established during periodic performance evaluation system team meetings.

1.1.2 Process Flow Diagram

Refer to Figure 1-9 for CWC waste analysis plan flowchart and Section 1.1 for description.

1.1.3 Operating Conditions

The following conditions and constraints apply to waste accepted at CWC. The waste container weight must be known and proper handing procedures imposed to ensure safe operations. The waste container radiation dose must be known and procedures must ensure that personnel exposure is kept as low as is reasonably achievable (ALARA). The quantity of fissile material within the waste must be determined and must be low enough to prevent a criticality hazard. Liquid waste can be received if packaged in inner glass, metal, or plastic containers and surrounded by sufficient sorbent to sorb twice the amount of liquid present. Containers of waste that cause pressurization must be vented. Radionuclide and dangerous waste constituent inventories in waste containers must be kept low enough to ensure that personnel emergency exposure limits are not exceeded.

1.2 IDENTIFICATION AND CLASSIFICATION OF WASTE

Waste is accepted for treatment (mixed waste) and/or storage (mixed and dangerous) in CWC except for the following waste types:

- Bulk liquid waste
- Explosive waste
- Shock sensitive waste
- Class IV oxidizer waste
- Infectious waste.

Refer to DOE/RL-91-17, Chapter 4.0 for precautions that are taken when ignitable, reactive, or incompatible waste is stored.

CWC manages the following waste types:

- Labpack liquids
- Solids/debris
- Sludges/soils.

These waste types could be classified as transuranic, low-level, mixed, and/or dangerous. Unless otherwise prohibited by this WAP, the waste could exhibit the characteristics of ignitable, toxic, corrosive, and/or reactive. In addition to the waste received at CWC for verification or processing, CWC generates mixed and dangerous waste. This waste material consists of items such as personal protective equipment (PPE), rags, and spent equipment contaminated with dangerous cleaning agents, lubricants,

paints, or other dangerous materials. Process knowledge, field screening, or sampling and analysis are used as appropriate to characterize these waste materials. Field screening and sampling are in accordance with this WAP and occur at the point of waste generation or at the location where the waste materials are stored.

1.2.1 Dangerous Waste Numbers, Quantities, and Design Capacity

The Part A, Form 3, permit application for CWC identifies dangerous waste numbers, quantities, and design capacity (DOE/RL-91-17, Chapter 1.0).

1.2.2 Alternative Waste Management Plan

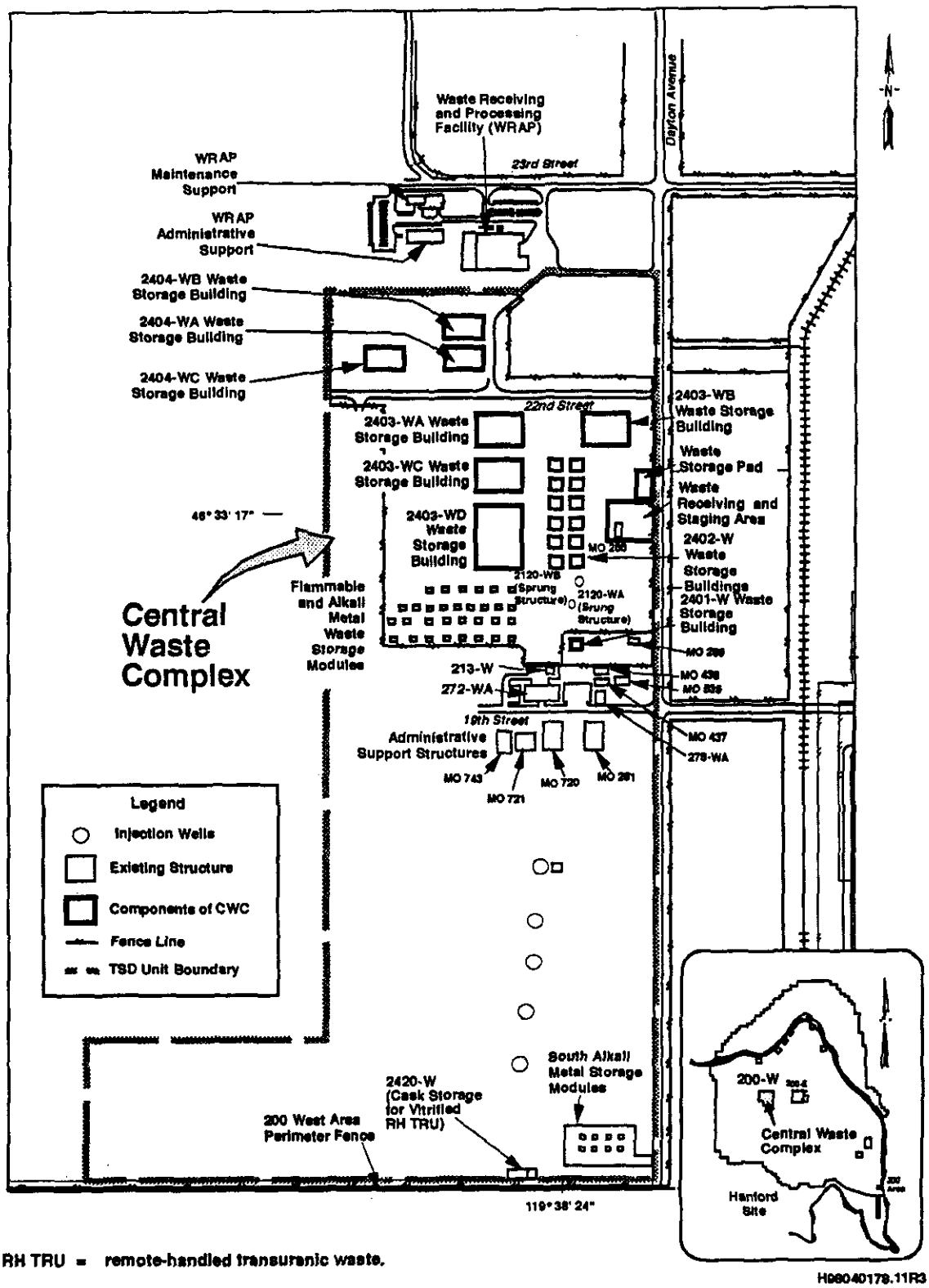
For waste that cannot be stored and disposed in accordance with the requirements set forth in this WAP, an alternative waste management plan (AWMP) could be submitted to the Washington State Department of Ecology (Ecology) for review. Because many activities associated with or necessary to support waste management projects readily would not be predictable, some flexibility in timeframes for submitting, reviewing, and completing waste management plans would be necessary. In general, the following schedules should be observed.

- Submit the AWMP to the Ecology Project Manager at least 120 days before the project is expected to begin. The cover letter would state that "no reply within 45 days constitutes approval".
- Ecology reviews and provides comments (if any) within 45 days after receiving the AWMP.
- On receipt, comments would be resolved through project manager meetings or other workshops as agreed to by the U.S. Department of Energy, Richland Operations Office (DOE-RL) and Ecology. When the AWMP is resubmitted following resolution of Ecology's comments, the same review timeframes would be applicable.
- If no comments are received from Ecology within 45 days after the AWMP is submitted, the plan would be denoted as approved.

These timeframes could be adjusted by mutual agreement to account for project-specific needs and priorities. The AWMP review would ensure the following.

- The project does not endanger human health and the environment.
- The course of action chosen is well justified.

On gaining written or automatic approval, the DOE-RL would proceed as described in the AWMP. Should the plan require revision because of unforseen circumstances, the DOE-RL would resubmit the plan before continuing. On conclusion of the project, the DOE-RL would supply Ecology with a report outlining the activities performed and the results of these activities. During the next permit modification cycle and no later than 1 year, a modification to the WAP would be submitted. Approval for a AWMP that violates a specific prohibition outlined in the WAP is not permitted without first receiving a modification to the permit.



RH TRU = remote-handled transuranic waste.

Not to scale.

Refer to topographic map (H-13-000003) for detail.

Figure 1-1. Central Waste Complex Site Plan.

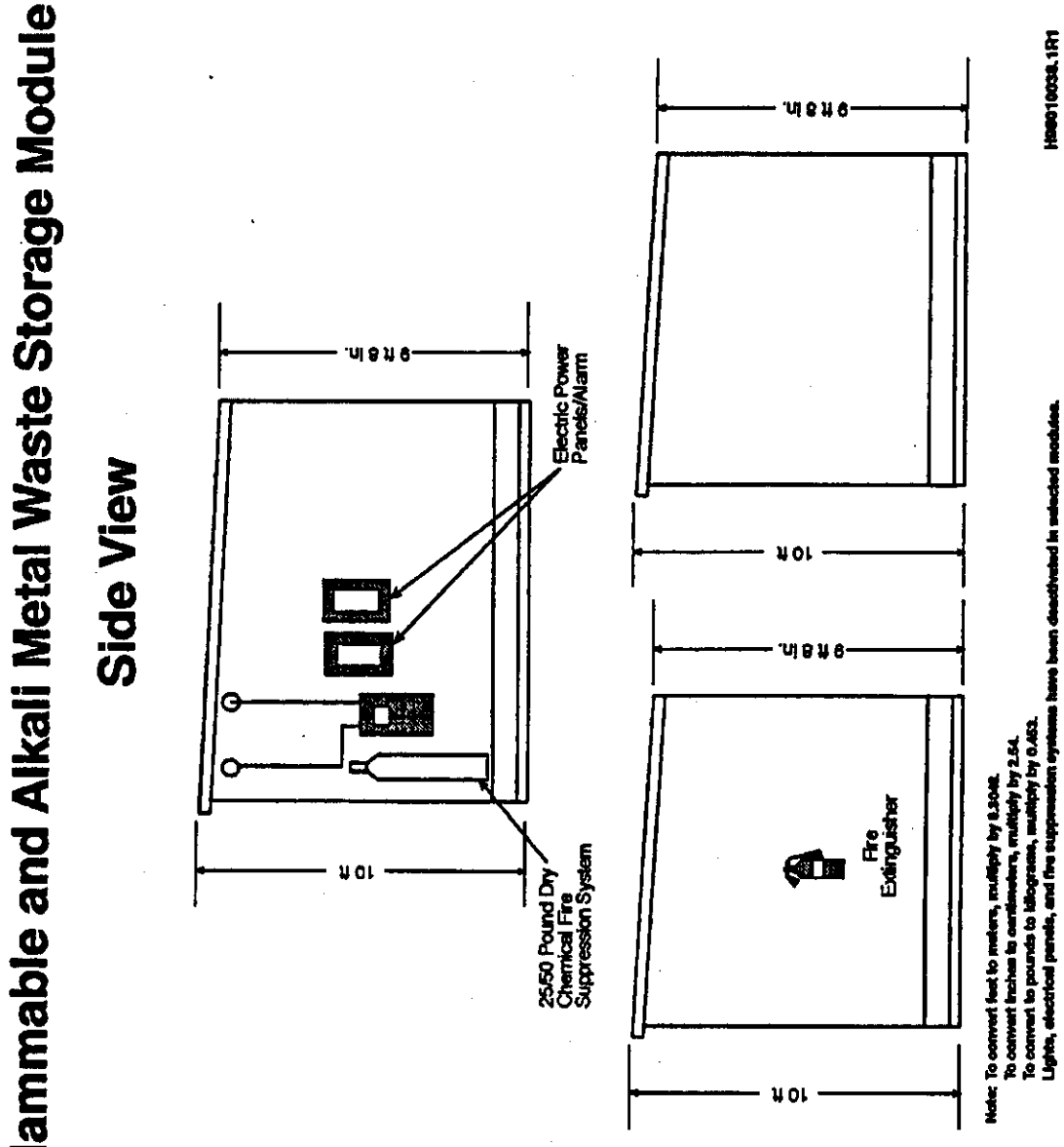


Figure 1-2. Flammable and Alkali Metal Waste Storage Building.

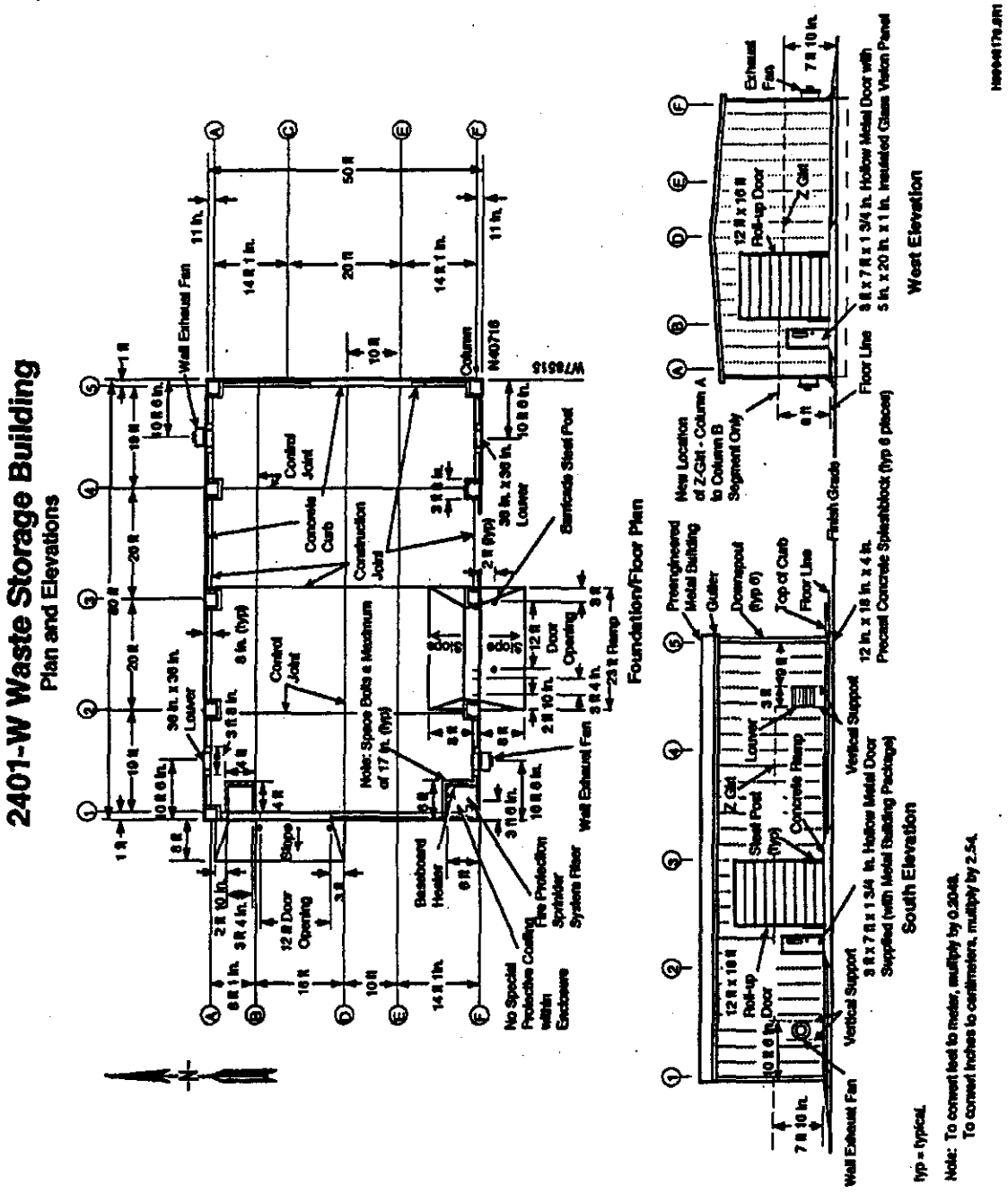


Figure 1-3. 2401-W Waste Storage Building.

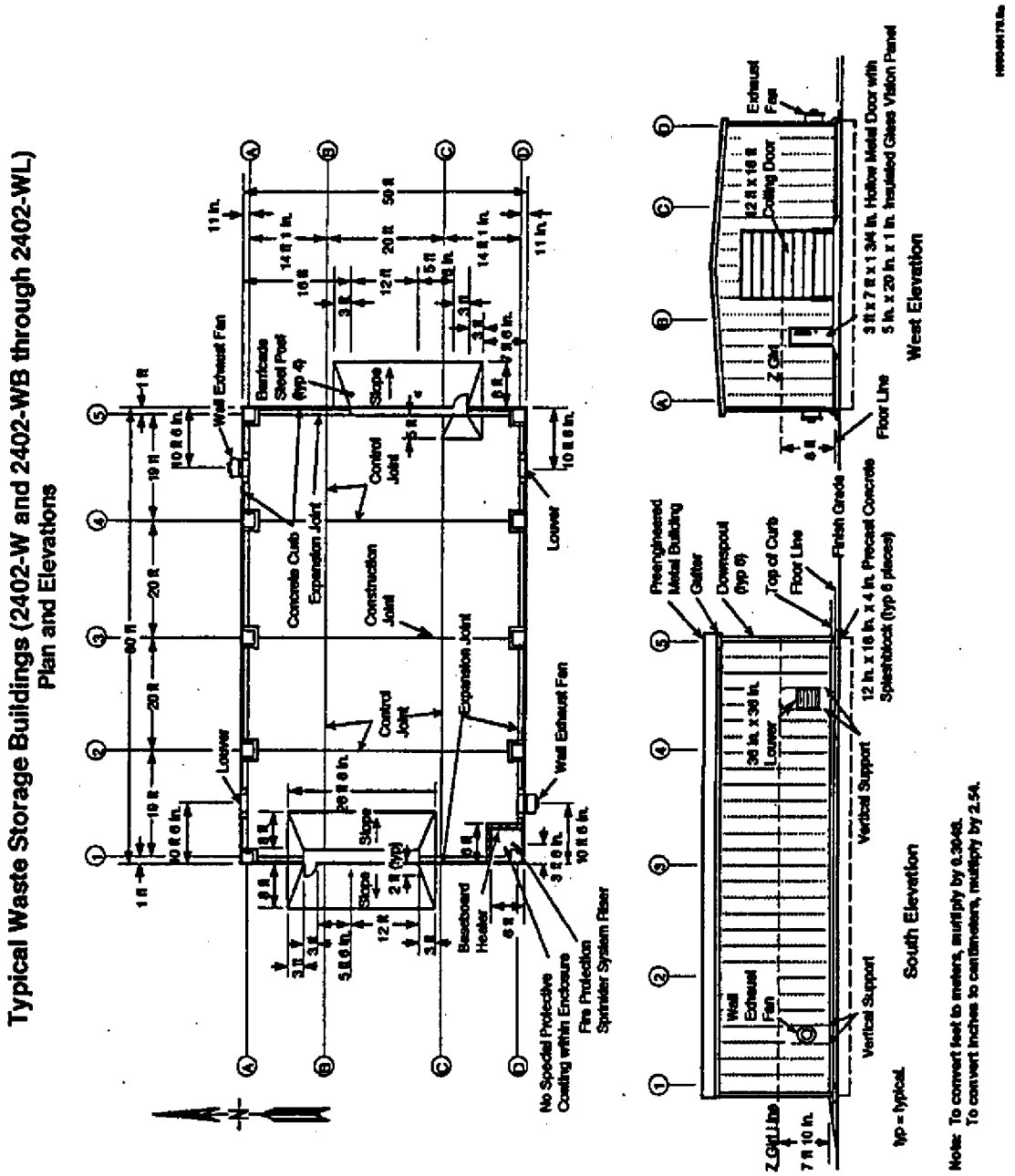


Figure 1-4. 2402-W Waste Storage Building.

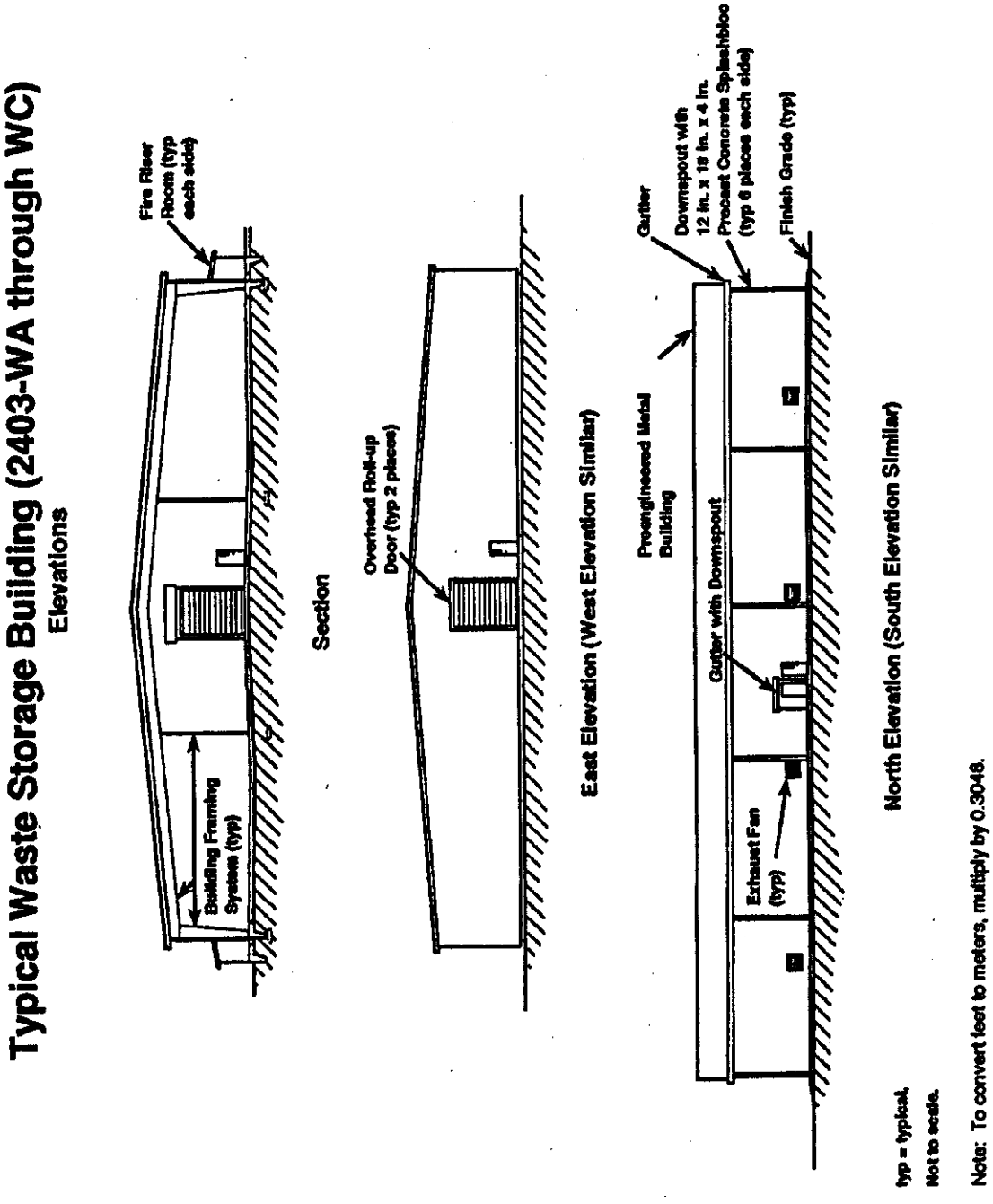


Figure 1-5. 2403-WA through WC Waste Storage Building.

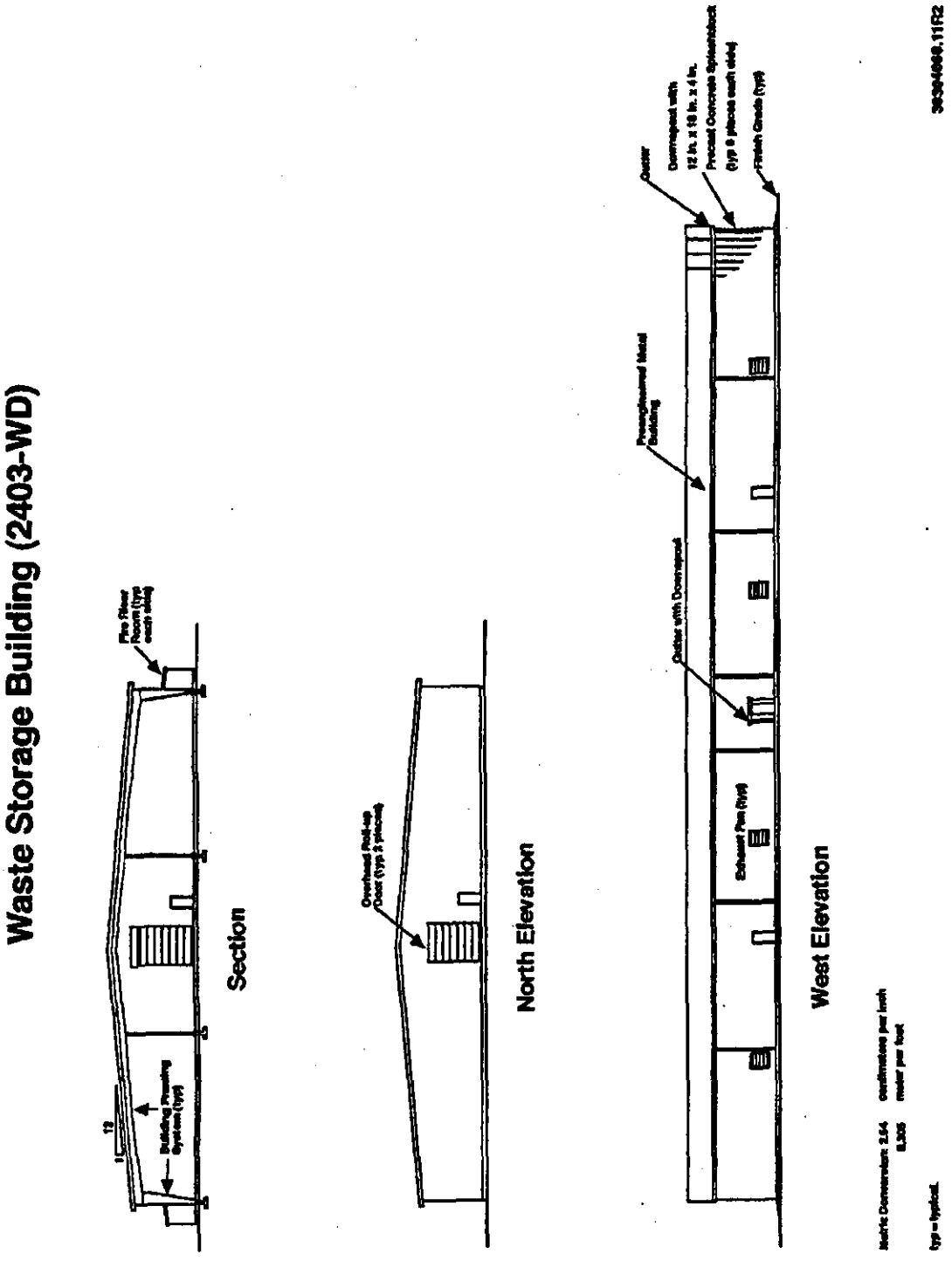


Figure 1-6. 2403-WD Waste Storage Building.

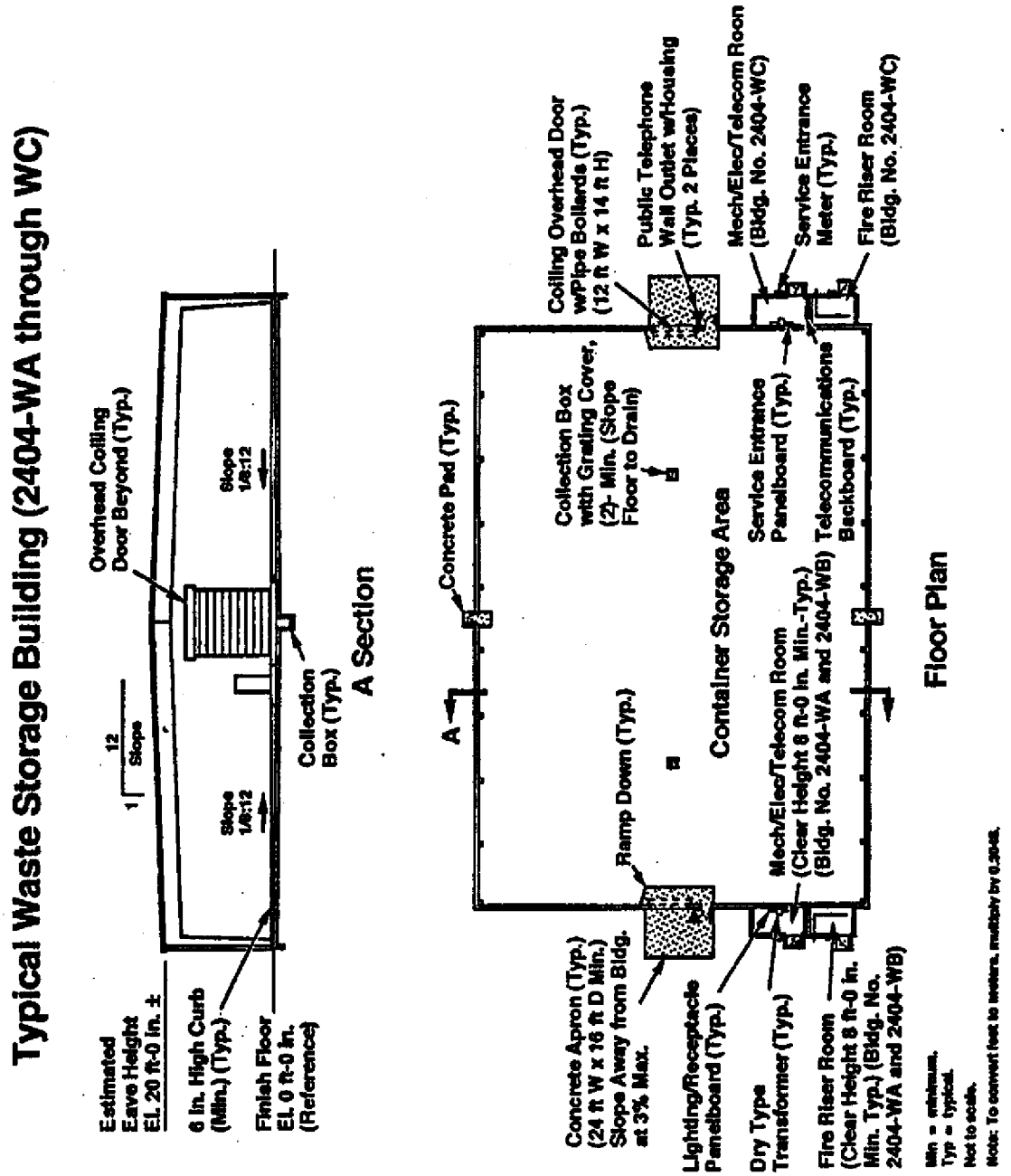


Figure 1-7. 2404-W Waste Storage Buildings.

Waste Storage Pad
Civil Plan

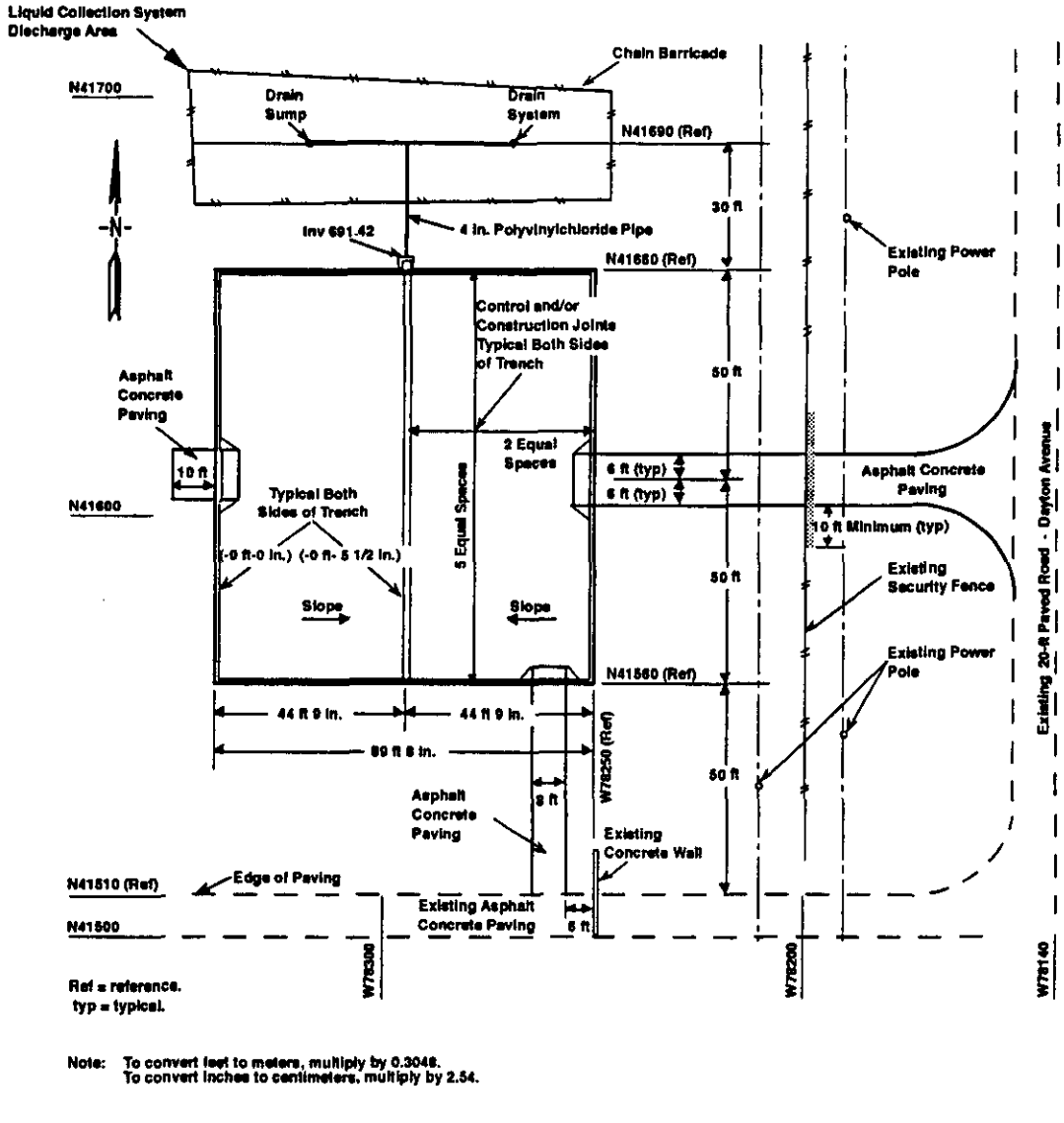


Figure 1-8. Waste Storage Pad.

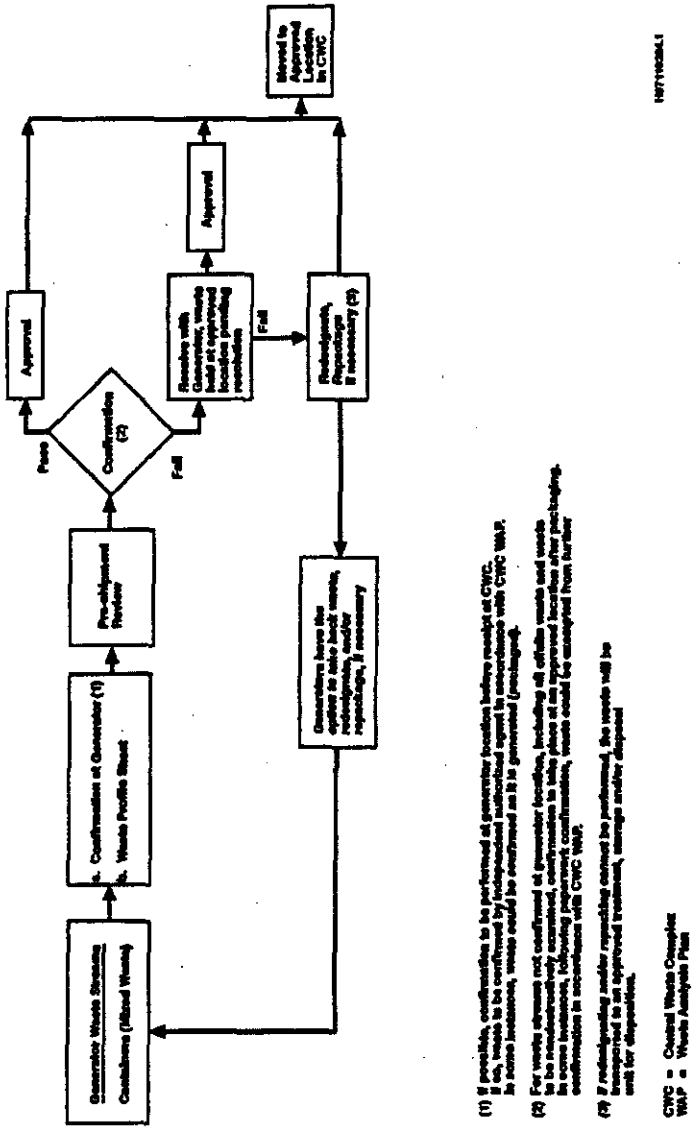


Figure 1-9. Central Waste Complex Waste Analysis Plan Flowchart.

2.0 CONFIRMATION PROCESS

The confirmation process includes completing appropriate pre-shipment reviews and verification steps and/or parameters. The requirement to confirm appears twice in WAC 173-303-300 and applies to two different scenarios.

Scenario 1: The process that an owner or operator uses to ensure knowledge supplied by the generator or TSD unit is acceptable knowledge to ensure that the waste is managed properly [WAC 173-303-300(1)]. This is accomplished by a pre-shipment review.

Scenario 2: The process that a facility owner or operator receiving offsite facility shipments uses to determine, by analysis if necessary, that each waste received at the facility matches the identity of the waste specified on the accompanying manifest or shipping paper [WAC 173-303-300(3)]. This is accomplished during verification.

2.1 PRE-SHIPMENT REVIEW

Pre-shipment review takes place before waste can be scheduled for transfer or shipment to CWC. The review focuses on whether the waste stream is defined accurately, meets the CWC waste acceptance criteria, and the LDR status is determined correctly. Only waste determined to be acceptable for treatment and/or storage is scheduled. This determination is based on the information provided by the generator. The pre-shipment review consists of the waste stream approval and waste shipment approval process. The following sections discuss the pre-shipment review process. The information obtained from the generator during the pre-shipment review, at a minimum, includes all information necessary to safely treat and/or store the waste. The pre-shipment review ensures the waste has been characterized and the data provided qualify as 'acceptable knowledge' (Section 2.1.3).

2.1.1 Waste Stream Approval Process

The waste stream approval process consists of reviewing stream information supplied on a waste stream profile and attached analysis. At a minimum, the profile requests the following information:

- Generator information (e.g., name, address, point-of-contact, phone number)
- Waste stream name
- Waste generating process description
- Radiological knowledge (e.g., classification, reportable radionuclides, characterization method)
- Chemical characterization information (e.g., characterization method(s), chemicals present, concentration ranges)
- Designation information
- LDR information including identification of underlying hazardous constituents if applicable

- Waste type information (e.g., physical state, absorbents used, inert materials, stabilizing agents used)

- Packaging information (e.g., container type, maximum weight, size)

- Attachments could consist of container drawings, process flow information, analytical data, etc.

This information is reviewed against the CWC waste acceptance criteria to ensure the waste is acceptable for receipt. If discrepancies are found during this review, additional information is requested that could include analytical data or a sample to be analyzed. If the waste cannot be received, the CWC operating organization will pursue acceptance of the waste at an alternative TSD unit or request the generator to pursue acceptance at an offsite facility.

On determination that the waste is acceptable, the CWC operating organization assigns the profile to a waste management path and establishes a waste verification frequency based on the requirements found in Sections 1.1.1.3 and 2.2.2.2.

2.1.2 Waste Shipment Approval Process

For each waste transfer or shipment that is a candidate for treatment and/or storage, the generator provides the following information:

- Container identification number
- Profile number
- Waste description
- Generator information (e.g., name, address, point-of-contact, telephone number)
- Container information (e.g., type, size, weight)
- Waste numbers
- Extremely hazardous waste or dangerous waste
- Dose rate information
- Reportable radionuclides and quantities
- Waste composition
- Packaging materials and quantities.

The pertinent information is entered into Solid Waste Information Tracking System (SWITS). Figure 2-1 is the waste acceptance process.

Where potential nonconformances exist in the information provided, (i.e., waste characteristics do not match the waste profile information, or additional constituents are expected to be present that do not appear on the documentation), the generator is contacted by the CWC operating organization or its representative for resolution. Refer to Section 6.0 for discussion on repeat and review frequency.

For each container, a technical review, physical screening determination, and chemical screening determination are performed as follows.

- **Technical review.** The individual container data are compared to the waste profile data to ensure the information is accurate. Every transfer or shipment is reviewed to ensure the waste meets the CWC waste acceptance criteria.

Based on waste identification information provided, the waste designation is reviewed to ensure consistency with waste designations per WAC 173-303-070, as well as for technical accuracy to ensure the waste meets the waste acceptance criteria.

If the transfer or shipment information is found to be acceptable, the CWC operating organization determines if any of the waste containers will be physically or chemically screened.

- **Physical screening determination.** Containers are chosen based on the methodology described in this section. The first criterion is based on whether pre-shipment review activities (document and characterization review) identify areas of potential concern. The second criterion is reviewing the current physical screening percentage (calculated using the following method) of containers received from said stream from said generator that have been received over the past 12 months as compared to those that have been physically screened. This criterion ensures that the minimum physical screening confirmation rates required by this WAP are met.

  - The number of containers selected for physical screening in shipments is determined by multiplying the total number of containers received during the previous 12 months or the date of the last physical screening adjustment, whichever occurs first. The rate will be applied for that stream including the containers identified in the shipment by the applicable verification rate, rounded up to the next integer. This selected group of containers constitutes a sample set.

  - Individual containers within a shipment are selected based on a review of the contents listed in the associated shipment documentation.

  - Containers are selected at random unless variability within the stream is noted. In this case containers representing different variations are selected (e.g., wood debris vs metallic debris).

- **Chemical screening determination.** Individual containers within a shipment are selected based on a review of the contents listed in the associated shipment documentation. Containers are selected at random unless variability within the stream is noted. In this case, containers representing different variations are selected (e.g., used oil, spent solvent).

On determining whether the shipment will be verified, the shipment is scheduled.

2.1.3 Acceptable Knowledge Requirements

The CWC operating organization ensures that all information used to make waste management decisions will be based on the requirements found in the following sections. For information determined to be 'acceptable knowledge', the CWC operating organization must determine if the information is adequate for management of the waste.

2.1.3.1 General Acceptable Knowledge Requirements

Adequate acceptable knowledge requires (1) general waste knowledge requirements, (2) LDR waste knowledge requirements, and/or (3) waste knowledge exceptions.

(1) **General Waste Knowledge Requirements.** At a minimum, the generator supplies enough information for the waste to be treated and/or stored at CWC. The minimum level of acceptable knowledge consists of designation data where the constituents causing a waste number to be

assigned are quantified, and data that address any CWC operational parameters necessary for proper management of the waste.

Where the available information does not qualify as acceptable knowledge or is not sufficient to characterize a waste for management, the sampling and testing methods outlined in WAC 173-303-110 must be used to determine whether a waste designates as toxic characteristic, corrosive, and/or contains free liquids.

If a generator's process knowledge indicates that constituents, which if present in the waste might cause the waste to be regulated, are input to a process but not expected to be in the waste, sampling and analysis must be performed to ensure the constituents do not appear in the waste. This requirement can be met through chemical screening. This sampling and analysis is required only for initial characterization of the waste stream.

(2) **LDR Waste Knowledge.** Waste is stored in CWC while awaiting analytical results for LDR requirements. The CWC operating record contains all information required to document that the appropriate treatment standards have been met or will be met after the waste is treated.

For the purposes of this WAP, a representative sample is required to demonstrate compliance with a concentration-based treatment standard (refer to Section 4.5). Corroborative testing for the sample could be accomplished in the following manner.

- Generators could use onsite laboratories or other laboratories to certify that the waste meets LDR requirements. For waste that does not meet LDR requirements, the generator must supply information on the treatment methods necessary to meet LDR requirements and in accordance with WAC 173-303-380(1)(o).

- The CWC operating organization uses these analytical data to meet applicable requirements found in 40 CFR 268.7 and WAC 173-303-140(4).

(3) **Waste Knowledge Exceptions.** In some situations, full characterization of waste for cradle-to-grave management is not possible or feasible before receipt at CWC for storage. For storage purposes, waste analysis requirements could be met through application of acceptable knowledge when such knowledge provides sufficient information to ensure that waste will be stored properly. Acceptable knowledge could be used to accommodate storage at CWC for the following.

- Waste previously disposed before the effective date of the regulation that has been or will be retrieved for storage at CWC, and for which adequate information has been obtained to ensure proper storage at CWC.

- Waste placed in storage before the effective date of this permit for which adequate information has been obtained to ensure proper storage at CWC.

- Newly-generated waste for which adequate information has been obtained to ensure proper storage at CWC.

For situations in which acceptable knowledge has been used to accommodate storage, such information will be supplemented as necessary before treatment and/or disposal of the waste.

2.1.3.2 Methodology to Ensure Compliance with Land Disposal Restrictions Requirements

All generators are subject to LDR requirements and are required to submit all information notifications and certifications described in WAC 173-303-380(1)(n) or (o). Mixed waste not meeting the treatment standards, but meeting the CWC waste acceptance criteria, can be stored at CWC (refer to Chapter 1.0, Section 1.1.1.1). The following are general requirements for offsite notifications or onsite information and supporting documentation.

- The waste is subject to LDR and the generator has treated the waste. The generator supplies the appropriate LDR certification information (40 CFR 268).

- The waste is subject to LDR and the generator has determined that the waste meets the LDR for disposal. The generator develops the certification based on process knowledge, and/or analytical data, and supplies the appropriate LDR certification information necessary to demonstrate compliance with the LDR treatment standards of 40 CFR 268 and WAC 173-303-140. State-only LDRs do not require this type of certification.

- The waste is subject to LDR and requires further treatment to meet applicable treatment standard. The generator supplies additional information concerning the waste and details any treatment necessary to meet applicable treatment standards.

A representative sample of the waste must be submitted for analysis to ensure that concentration-based LDR treatment standards are met. This sample could be taken by the CWC operating organization or the generator, and is required to comply with the treatment standards contained in 40 CFR 268.40 and 268.48 for underlying hazardous constituents.

2.2 VERIFICATION

Verification is an assessment performed by the CWC operating organization to substantiate that the waste received at CWC is the same as represented by the analysis supplied by the generator for the pre-shipment review. Verification is performed on waste received by CWC. Verification includes container receipt inspection, physical screening, and chemical screening. Waste is not accepted by CWC for treatment and/or storage until required elements of verification have been completed, including evaluation of any data obtained from verification activities.

All discrepancies identified during the verification process are resolved in accordance with Section 1.1.1.3.3.

2.2.1 Container Receipt Inspection

The container receipt inspection is a mandatory element of the confirmation process. Therefore, 100 percent of the transfers/shipments are inspected for damage and to ensure the waste containers are those indicated on the documentation. This activity is a mechanism for identifying any document discrepancies or damaged containers before acceptance. The container receipt inspection is performed by the CWC operating organization at CWC or at another onsite location. When another onsite location is chosen, the container receipt inspection will be completed within 24 hours of waste receipt. The CWC operating organization will ensure that the shipment: (1) is received in good condition, (2) is the waste

indicated on the manifest or shipping papers, (3) has not been opened improperly after physical and/or chemical screening was performed, and (4) is complete.

2.2.2 Physical Screening Process

Physical screening is considered an additional verification element. This section describes the requirement pertaining to methods, frequency, and exceptions concerning the use of physical screening as a verification activity. Physical screening could be performed before the waste is shipped to CWC. When screening is performed at a location not within the Solid Waste Project (e.g., WRAP, T Plant Complex, Low-Level Burial Grounds), tamper resistant seals are applied to each container examined.

2.2.2.1 Physical Screening Methods

Each of the following physical screening methods, listed in order of preference, complies with the requirement to verify a waste. If a method other than 1 or 2 is used, the reasoning behind the method chosen must be documented in the operating record. Choosing method 3 or 4 is not permitted if the basis for choosing 3 or 4 is because the nondestructive examination (NDE) units are not functional.

1. Visual inspection (opening the container)
2. NDE
3. Nondestructive assay (NDA)
4. Dose rate profile.

Refer to Section 2.2.5 for quality control pertaining to physical screening.

2.2.2.2 Physical Screening Frequency

Physical screening frequency is 5 percent for onsite generating units, applied per waste stream per subcontractor per year. For offsite generators, the minimum physical screening frequency is 10 percent per waste stream per generator per year. The CWC operating organization adjusts the physical screening frequency for generators based on objective performance criteria (refer to Section 1.1.1.3.1).

In the event that one of the containers in the original sample set fails, a second sample set of equal size, or a minimum of three additional containers, is selected from the shipment. First and second sample sets are selected using the rationale described in the pre-shipment review section (Section 2.1). A second failure in either the first or the second sample set constitutes failure of the shipment. If the second sample set passes the inspection the single failed container is considered an anomaly and the remainder of the shipment passes verification. All failed containers and shipments are dispositioned via the PES.

2.2.2.3 Physical Screening Exceptions

The following exceptions to the physical screening process outlined previously have been developed.

- Shielded, classified, and remote-handled mixed wastes are not required to be physically screened; however, the CWC operating organization must perform a more rigorous documentation review and obtain the raw data used to characterize the waste (<1 percent of current waste receipts). Ecology will be notified and have the opportunity to review information on these wastes before shipment. For classified waste, it is necessary to have an appropriate U.S. Department of Energy security clearance and a need to know the information as defined by the classifying organization or agency.

- Waste that physically cannot be screened at CWC or associated screening facility must be physically screened at the generator location (e.g., large components, containers that can not be opened, are greater than 20 mrem per hour, contain greater than 10 nanocuries per gram of transuranic radionuclides, or will not fit into the NDE unit). Physical screening at the generator location consists of observing the packaging of the waste. If no location can be found to perform the physical screening, no screening is required.

- Waste that is packaged by the TSD unit authorized independent agent are considered to have met the physical screening requirements denoted in this WAP [e.g., CWC operating organization packaged waste that is transferred to Waste Management Federal Services of Hanford, Inc. managed TSD units or Pacific Northwest National Laboratory (PNNL) packaged waste that is transferred to PNNL operated TSD units]. On closure of the container, tamper-resistant seals must be applied to ensure the integrity of the contents.

2.2.3 Chemical Screening Process

Chemical screening is considered an additional verification element. This section describes methods, frequency, and exceptions for chemical screening. Chemical screening could be performed before the waste is shipped to CWC. When screening is performed at a location not within the Solid Waste Project, tamper-resistant seals are applied to each outer container examined.

Selection and interpretation of chemical screening methods is conducted by qualified personnel. Unless otherwise noted, tests are qualitative, not quantitative. The objective of screening is to obtain reasonable assurance that the waste is generally consistent with the description in the shipping documentation. The following tests are selected depending on the waste matrix and the applicability of the method. A minimum of three listed screening tests, including pH screening, are conducted on each sample. If less than five of the following methods are selected, the rationale is recorded by the qualified analyst.

The following tests are conducted on all samples collected for chemical screening:

- pH
- Peroxide
- oxidizer
- Water reactivity.

Additionally, the following screening tests could be performed as needed:

- HOC (chlor-n-oil/water/soil)
- Headspace
- Sulfide
- Cyanide
- Paint filter.

Refer to Section 2.2.5 for quality control pertaining to chemical screening.

2.2.3.1 Chemical Screening Frequency

At a minimum, 10 percent of the mixed waste containers verified by physical screening (Section 2.2.2.2) must be screened chemically. Although grab samples are acceptable, the CWC operating organization obtains a representative sample.

Small containers of waste (labpacks), not otherwise identified in the exceptions, packaged in accordance with 40 CFR 264.316, 40 CFR 265.316, and WAC 173-303-161 are screened chemically in accordance with waste stream's chemical screening frequency as determined by PES (Section 1.1.1.3). Inner containers are segregated by physical appearance. At least one container from each group (or three containers if all are similar) are screened chemically.

2.2.3.2 Chemical Screening Exceptions

There are cases in which chemical screening is not required. The exceptions are as follows:

- Small containers of waste in overpacked containers (labpacks) packaged in accordance with WAC 173-303-161 and not prohibited under LDR specified in WAC 173-303-140
- Waste exempted from the physical screening requirements (Section 2.2.2.3) is exempted from chemical screening
- Commercial chemical products in the original product container(s) (e.g., off-specification, outdated, or unused products)
- Chemical containing equipment removed from service, (e.g., ballasts, batteries, etc.)
- Waste containing asbestos
- Waste, environmental media, and/or debris from the cleanup of spills or release of single substance or commercial product or otherwise known material (e.g., material for which an MSDS can be provided)
- Confirmed noninfectious waste (e.g., xylene, acetone, ethyl alcohol, isopropyl alcohol) generated from laboratory tissue preparation, slide staining, or fixing processes
- Hazardous debris as defined in WAC 173-303-040
- Other special-case could be exempted on a case-by-case basis with prior approval by Ecology.

2.2.4 Sampling for Confirmation Screening

Sampling methods will be performed in accordance with WAC 173-303-110(2), with the following exceptions. At all times, a best effort is employed to obtain a representative sample. When a representative sample cannot be obtained, selective sampling is performed at a location in the matrix that visually appears to have the greatest potential for dangerous constituent contamination. The chemical screening methods described in Section 3.0 do not require any sample preservation methods because the screening tests are performed at the time and location of sampling, or as soon as possible thereafter.

During the interim period, the samples are stored in a manner that maintains chain of custody and protects the sample composition.

2.2.5 Quality Assurance and Quality Control for Confirmation Process

The following QA and quality control (QC) elements are used by the CWC operating organization to ensure confirmation activities provide sufficient data to provide an indication that waste received is as described in the shipping documentation.

2.2.5.1 Physical Screening Quality Control

Physical screening QC is used only to ensure that quality data are obtained when performing nondestructive examination. Visual inspection does not consist of the use of instrumentation or chemical tests. Therefore, QC for visual inspection depends on appropriate training for the individual(s) performing the test. If NDE is used to meet the physical screening requirements, 5 percent per year of the containers that have been nondestructively examined are opened to ensure the method is providing accurate data. Containers opened for other reasons, such as chemical screening or to investigate inconsistencies, could be used to meet this requirement. This requirement is based on the total number of containers reviewed, not on a shipment or general waste stream basis. The CWC operating organization is required, at a minimum, to meet this requirement over a running 3-month average with a minimum of one container being opened for every month NDE is operated. If the evaluation of NDE shows that a false negative has occurred, a review of the NDE operation is required to determine if the false negative was due to operator error, equipment malfunction, or equipment limitations. Based on the review, corrective actions are required to be implemented before further use of NDE as a physical screening tool.

2.2.5.2 Chemical Screening Quality Control

The following QC elements are used when performing chemical screening parameters.

- Using appropriate sample containers and equipment. New disposable sampling equipment is used whenever possible.

- Using field QA/QC samples.

  - 5 percent of the total number of field samples taken are field blanks and field replicates. The percentage is calculated over a running 12-month period.

  - Field blanks--Field blanks refer to an artificial sample designed to monitor the introduction of artifacts into the sample preparation and analysis process. Typically reagent water is used as a blank matrix. A universal blank matrix however does not exist for solid samples. Results of the field blank analyses checks the water and reagents used for field screening.

  - Field replicates--Field replicates are defined as independent samples collected in such a manner that the samples are equally representative. For confirmation purposes, the field replicate is tested in the field for the same parameters for which the original sample was tested. If the field replicates do not agree, an additional two samples are tested. If the second duplicate pair of samples do not agree, all reagents for the test are checked and the test is not used until corrective

action is taken. Replicates are run on an as-needed-basis to meet the requirement stated in this section.

- Equipment Checks

Test kit reagents are checked regularly as recommended by the manufacturer. Field instrumentation have current calibrations, and reagents that are past their expiration dates, if applicable, are not used.

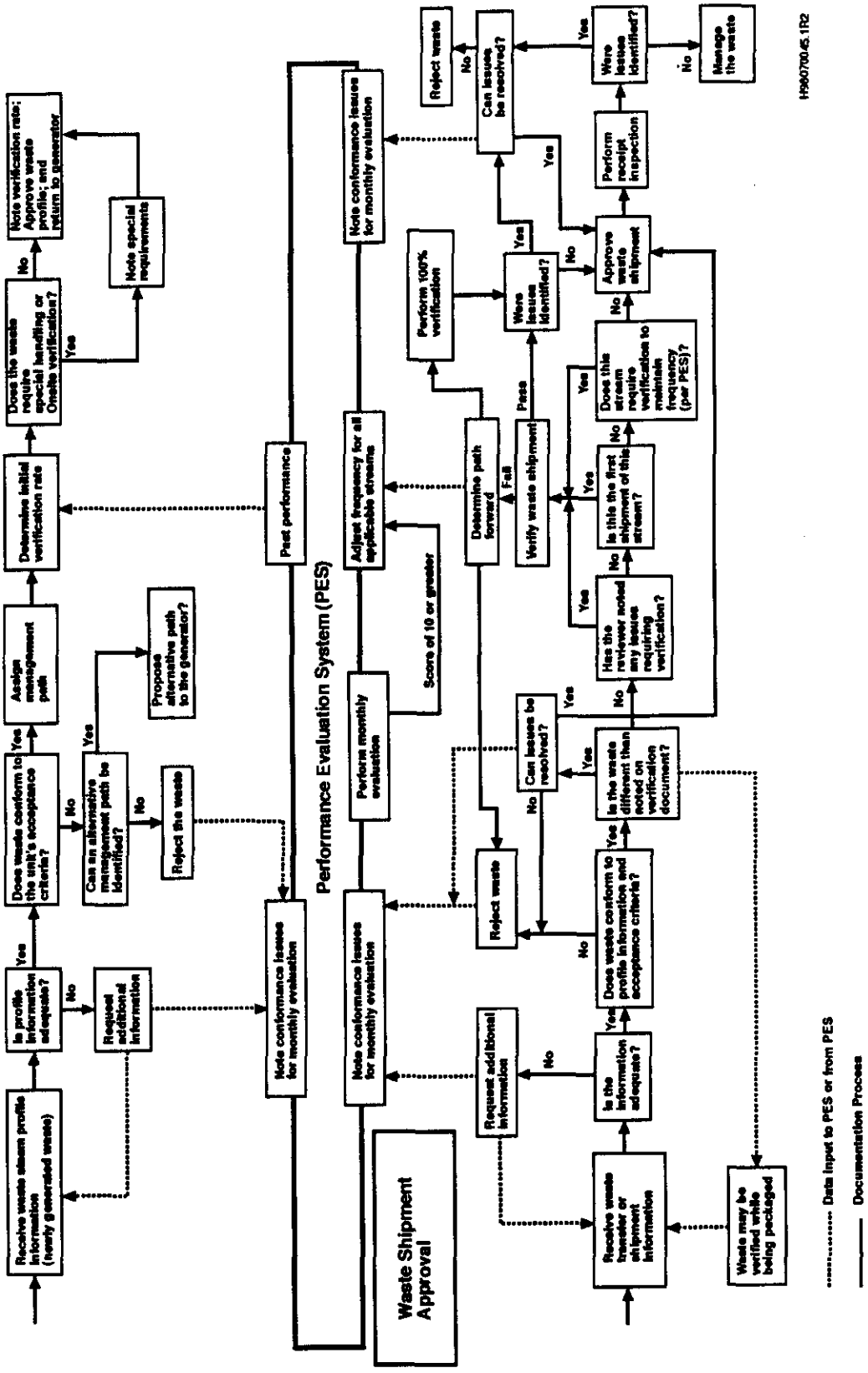


Figure 2-1. Waste Acceptance Process.

3.0 SELECTING WASTE ANALYSIS PARAMETERS

Analytical screening parameters that could be used for waste received at the CWC for confirmation purposes, waste designation requirements, and LDR requirements are discussed in the following sections.

3.1 PHYSICAL SCREENING PARAMETERS

The following methods could be used to perform physical screening. These methods are listed in order of preference. If a method other than 1 or 2 is used, the reasoning behind the method selection will be documented.

(1) Visual inspection (preferred method for physical screening):

Rationale. This method meets the requirement to ensure consistency between waste containers and the accompanying shipment documentation.

Method: The container is opened and the contents are removed as needed for visual examination. Homogenous loose solids could be probed to determine the presence of material not documented on the shipping documentation, or for improperly absorbed liquids. Visual observations are compared with the applicable profile information and the container specific information in the shipment documentation.

Failure criteria: A container fails the inspection for any of the following reasons; (a) undocumented, improperly packaged, or inadequately absorbed liquids; (b) discovery of prohibited articles or materials listed in Section 1.2; (c) discovery of material not consistent with the applicable waste stream profile; and (d) variability greater than 25 percent by volume in listed constituents (e.g., paper, plastic, cloth, metal).

(2) NDE:

Rationale. This method meets the requirement to ensure consistency between waste containers and the accompanying shipment documentation. This method also is subject to the QA checks listed in Section 2.2.5.1. Containers that are not easily amenable to visual inspection due to physical or radiological content, or facility availability, can be safely and economically examined.

Method: The container is scanned with a NDE system. Data are observed on a video monitor and captured on video tape. Personnel experienced with the interpretation of NDE imagery record their observations. These observations are compared to the contents listed on the shipping documentation.

Failure criteria: A container fails the inspection for any of the following reasons; (a) undocumented, improperly packaged, or inadequately absorbed liquids; (b) discovery of prohibited articles listed in Section1.2; (c) image data not consistent with the applicable waste stream profile; and (d) variability greater than 25 percent by volume in listed constituents (e.g., paper, plastic, cloth, metal).

(3) NDA:

Rationale. This method is available for obtaining data that can be compared with accompanying shipping documentation for consistency on containers that cannot be opened for visual inspection, and cannot be examined by NDE (e.g., high container dose rate, shielding.) The reason for selection of this method is documented.

Method. Radioactive waste is assayed in one or both of two different assay systems. The assay systems include gamma energy analysis (GEA) and imaging passive/active neutron (IPAN). Gamma emitting radionuclides are detected in the GEA assay system. This instrument determines the type and quantity of radionuclides based on their gamma energy spectrum. The IPAN uses passive and active neutron detection to determine the presence of fissionable radionuclides. Passive detection results are equated with Pu-240 and active detection results are equated with Pu-239. The curie amount of low energy gamma emitting radionuclides, other fissile and non-fissile alpha emitting radionuclides, and beta emitting radionuclides are calculated from the GEA and IPAN data and the generator supplied radionuclide information. Radionuclide ratios are calculated by dividing the activity of each radionuclide reported by the activity of the most prominent radionuclide.

Failure criteria. A container fails the assay if the difference between the reported radionuclide ratios and the measured ratios and the reported and measured curie amounts exceed 50 percent. The failure criteria are adjusted based on the density of the waste and the amount of fissionable material present.

(4) Dose rate profile:

Rationale. This method is used to obtain data that can be compared for consistency with the shipment documentation for a container. This method is used only when the previous three methods cannot be performed for technological or ALARA reasons (e.g., container size, weight, shielding, dose rate). The reason for selection of this method is documented.

Method. A portable dose rate meter is used to determine the contact dose rate at six evenly distributed points on the exterior of the waste package. The six readings obtained are recorded and averaged. The average reading is compared with the container contact dose rate recorded on the shipment documentation.

Failure criteria. If the average dose rate observed during the dose rate profile examination differs from that recorded on the shipping documentation by more than 100 percent, the container fails.

3.2 CHEMICAL SCREENING PARAMETERS

The following methods could be used to perform chemical screening.

(1) Ignitability and/or headspace volatile organic compound screening

Rationale: To determine the potential ignitability and the presence or absence of volatile organic compounds in waste, and to ensure personnel adequately are protected. This method is used when containers are opened for inspection. This method can be applied to any matrix.

Method: A sample of the headspace gases in a container is analyzed by one or more of the following types of portable instrumentation: organic vapor monitor, colorimetric gas sampling tubes, or a lower explosive level meter.

Tolerance: High organic vapor readings in matrices not documented as having volatile organic content constitutes failure.

(2) Peroxide screening:

Rationale: To determine the presence of organic peroxides in solvent wastes, to alert personnel to potential hazards, to ensure safe segregation and storage of incompatible wastes, and to confirm consistency with the shipping documentation. The test is sensitive to low parts per million ranges.

Method: A peroxide test strip is dampened with a pipet sample of liquid waste. Solids are tested by first wetting the test strip with water and contacting a small sample of the waste. A blue color change indicates a positive reaction. The color change can be compared with a chart on the packaging to determine an approximate organic peroxide concentration.

Tolerance: Peroxide concentrations greater than 20 parts per million in liquid waste constituents that are known organic peroxide formers not documented as having been stabilized constitutes failure.

(3) Paint filter liquids test:

Rationale: To verify the presence or absence of free liquid in solid or semisolid material.

Method: To a standard paint filter, 100 cubic centimeters or 100 grams of waste are added and allowed to settle for 5 minutes. Any liquid passing through the filter signifies failure of the test.

Tolerance: Failure of the test in waste matrices not documented as having free liquids constitutes failure of the container. Small quantities of condensate trapped in inner plastic liner folds are acceptable.

(4) pH screen:

Rationale: To identify the pH and corrosive nature of an aqueous or solid waste, to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the shipping documentation.

Method: Full range pH paper is used for the initial screening. If the initial screen indicates a pH below 4 or above 10, a pH meter could be used, or a narrow range pH paper. Solids are mixed with an equal weight of water and the liquid portion of the solution is tested. The extractant of the sample is placed on the pH paper and not dipped into the sample.

Tolerance: pH paper for this test has a sensitivity of +/-1.0 pH units. If the pH of a matrix appears to exceed regulatory limits (<2.0 or >12.5) in waste not documented as being regulated for this property, the container fails the test.

(5) Oxidizer screen:

Rationale: To determine if a waste exhibits oxidizing properties to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the shipping documentation. This test can be applied to waste liquids, solids, and semisolids.

Method: Acidified potassium iodide (KI) test paper is applied to solid or liquid waste. A darkening of the paper is a positive indication.

Tolerance: This method is very sensitive to oxidizing properties. A positive indication in a waste that can not be explained by documented constituents constitutes failure.

(6) Water reactivity screen:

Rationale: To determine if the waste has the potential to vigorously react with water, form gases, or other reaction products. This information is used to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the shipping documentation.

Method: Water is added to a sample of solid or liquid waste. The solution is observed for evidence or fuming, bubbling, spattering, or temperature change. These reactions are considered to be positive evidence that the waste is water reactive.

Tolerance: A positive indication in a waste that cannot be explained by documented constituents constitutes a failure.

(7) Cyanide screen:

Rationale: To indicate if waste could release hydrogen cyanide upon acidification near pH 2. This information is used to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the shipping documentation.

Method: To a test tube or watch dish containing approximately 2 milligrams of sample, an equal amount of freshly prepared ferrous ammonium citrate is added. 3 Normal hydrochloric acid is used to reduce the pH of the solution to near 2.0. A deep blue color indicates the presence of cyanide.

Tolerance: A positive indication in a waste that can not be explained by documented constituents constitutes a failure.

(8) Sulfide screen:

Rationale: To indicate if the waste could release hydrogen sulfide upon acidification near pH 2. This information is used to ensure safe segregation and storage of incompatible wastes, and to confirm consistency with the shipping documentation.

Method: Approximately 2 milligrams of sample is added to a watch dish or test tube and enough 3 Normal hydrochloric acid is added to bring the pH down to near 2.0. A sulfide test strip is placed in the solution. If the paper turns brown or silvery black, the presence of sulfides in the sample is indicated.

Tolerance: A positive indication in a waste that can not be explained by documented constituents constitutes a failure.

(9) HOC screen:

Rationale: To indicate whether PCBs or other chlorinated solvents are present in the waste. This information is used to ensure safe segregation and storage of incompatible waste, to confirm consistency with the shipping documentation, and to determine if the waste needs to be managed in accordance with the regulations prescribed in the *Toxic Substance Control Act of 1976.*

Methods: Field organic chlorine tests appropriate to the matrix, such as those offered by the Dexsil Corporation (e.g. Chlor-N-Oil, Chlor-N-Soil) are used. These screening tests are available with several detection limits. At a minimum, the 50 parts per million test is performed on oily matrices.

Tolerance: A positive indication of chlorinated organics in a waste not documented as having chlorinated organic content constitutes failure.

3.3 OTHER SAMPLE AND ANALYSIS PARAMETERS

Sampling and analysis parameters used to meet LDR requirements for waste stored and treated at CWC are detailed in Appendix A. Refer to Appendix A for parameters, methods, and rationale.

4.0 SELECTING SAMPLING PROCESSES FOR DESIGNATION

Specific sampling procedures and techniques depend on both the nature of the material and the type of packaging. This section describes the sampling methodology used to obtain representative samples.

4.1 SAMPLING STRATEGIES

Table 4-1 contains waste forms and sample equipment used to sample referenced waste. Sampling of these waste forms is performed in accordance with Table 4-1.

4.2 SAMPLING METHODS

The appropriate personnel are responsible for arranging all sampling and laboratory support for sample *analysis. Samples are processed at one of several laboratories qualified to perform analysis of waste* samples (refer to Section 5.0). Sampling methods are those described in WAC 173-303 110(2).

The basic sampling sequence is as follows:

- Obtain a unique sample number and complete the sample tag before sampling
- *Obtain a precleaned sampler and sample bottles*
- Attach sample label to sample bottles
- For sampling liquid waste, a sampler or pipet will be used to sample for two phase liquids. Homogeneous liquids in small containers will be poured into a sample bottle
- *For sampling solid waste, use a scoop, trier, or hand auger to obtain a sample of the waste. For large* containers of waste, composite several augers or scoops to ensure samples are representative
- Fill sample containers in the following sequence: volatile organics, semivolatile organics, metals, ignitability, pH (corrosivity)
- For solid waste, wipe the exterior surfaces of the sample bottles with a dry rag
- Attach sample labels to outer plastic bags
- Place samples in an appropriate receptacle for transfer to the laboratory
- Complete the chain-of-custody forms
- Seal and mark the receptacle in accordance with WAC 173-303-071(3)(1)
- Transfer receptacle to the analytical laboratory as appropriate to meet sample holding times
- Properly clean and decontaminate nondisposable sampling equipment or package for return to central sampling equipment decontamination area according to onsite requirements.

4.3 SELECTING SAMPLING EQUIPMENT

Sampling equipment selection is detailed in Table 4-1. Sampling equipment needed to sample waste is maintained and decontaminated as necessary by the CWC operating organization.

4.4 SAMPLE PRESERVATION

Sample preservation follows SW-846 protocol or other approved sample preservation method for waste in accordance with 62 FR 62079.

4.5 ESTABLISHING QUALITY AND QUALITY CONTROL FOR SAMPLING

The sampling team ensures all samples are labeled with a unique identifier.

Sample collectors prepare a permanent log of sampling activities. Log entries include as appropriate: date of collection, time of collection, location, batch number, sample number, tank number, copy of the chain-of-custody form, sampling methodology, container description, waste matrix (liquid), description of generating process (e.g., decontamination activities), number and volume of samples, field observations, field measurements (e.g., pH, percent lower explosive limit), laboratory destination and laboratory number, and signature. These logs entries are made by the appropriate personnel while the sampling is performed. The logs or copies of logs are maintained by the appropriate personnel after completion of sampling activities.

A chain-of-custody record accompanies samples at all times. The record contains a unique sample number for each sample, date and time of collection, sample type, sample location, methods of transfer, and signatures (or electronic equivalent, e.g., signature password) of the collector and all subsequent custodians.

During all sampling activities, strict compliance with applicable industrial hygiene and safety standards is mandatory. If samplers accidentally contact waste material and sampling personnel, decontamination of sampling personnel is performed immediately. Transportation of samples is performed in accordance with all applicable Hanford Site and U.S. Department of Transportation requirements.

The following QA/QC elements are used by the CWC operating organization to ensure sampling activities for designation purposes result in acceptable laboratory data:

- Representative sampling methods as defined by WAC 173-303-110(2), 40 CFR 261 Appendix I, and/or SW-846 Chapter 9
- Appropriate sample containers and equipment
- Samples numbered
- Traceable labeling system
- Field QA/QC samples (applicable sampling and analysis plan)

- Equipment calibration (current as appropriate)
- Chain of custody.

Table 4-1. Central Waste Complex Chemical Screening Sampling Equipment.

Waste form	Reference in SW-846	
	Waste type	Equipment*
Liquids	Free-flowing liquids and slurries	COLIWASA, SW-846, Chapter 9, glass thief or pipet
Solidified liquids	Sludges	Trier, SW-846, Chapter 9, scoops and shovels
Sludges	Sludges	Trier, SW-846, Chapter 9, scoops and shovels
Soils	Sand or packed powders and granules	Auger, SW-846, Chapter 9, scoops and shovels
Absorbents	Large-grained solids	Large trier, SW-846, Chapter 9, scoops and shovels
Wet absorbents	Moist powders or granules	Trier, SW-846, Chapter 9, scoops and shovels
Process solids and salts	Moist powders or granules	Trier, SW-846, Chapter 9, scoops and shovels
	Dry powders or granules	Thief, SW-846, Chapter 9, scoops and shovels
	Sand or packed powders and granules	Auger, SW-846, Chapter 9, scoops and shovels
	Large-grained solids	Large trier, SW-846, Chapter 9, scoops and shovels
Ion exchange resins	Moist powders or granules	Trier, SW-846, Chapter 9, scoops and shovels
	Dry powders or granules	Thief, SW-846, Chapter 9, scoops and shovels
	Sand or packed powders and granules	Auger, SW-846, Chapter 9, scoops and shovels

COLIWASA = composite liquid waste sampler.
* other ASTM approved equipment could be used to collect samples.

5.0 SELECTING A LABORATORY, LABORATORY TESTING, AND ANALYTICAL METHODS

The following sections discuss selecting a laboratory for analyzing samples for QA/QC elements.

5.1 SELECTING A LABORATORY

The following laboratory QA/QC requirements apply to laboratory analyses of generator waste.

- The daily quality of analytical data generated in contracted analytical laboratories is controlled by the implementation of an analytical laboratory QA plan.

- Before commencement of the contract for analytical work, the laboratory submits their QA plan for approval. At a minimum, the plan documents the following:
  - Sample custody and management practices
  - Sample preparation and analytical methods
  - Instrument maintenance and calibration methods
  - Internal QA/QC measures, including the use of method blanks
  - Sample preservatives used
  - Analyses requested.

When required, replicate testing usually is accomplished by analyzing two samples, one by the generator and another by the CWC operating organization.

5.2 *SELECTING TESTING AND ANALYTICAL METHODS*

CWC identifies the type of testing and analytical method to be used at the laboratory (e.g., for metals analysis, the type of determination method will be stated, such as inductively coupled plasma metals by atomic absorption).

CWC identifies the decision level necessary for each analytical parameter. If the decision level is found in a regulation, the generator references the regulation.

6.0 SELECTING WASTE RE-EVALUATION FREQUENCIES

The re-evaluation (repeat and review) frequency to review profile information is yearly, or more often if the waste generation process changes.

CWC re-evaluates a waste profile if:

- A generator notifies CWC operating organization that the generating process has changed
- Inspection or analysis indicates that the waste received at CWC does not match the profile and/or shipping documentation.

When a waste profile is re-evaluated, the CWC operating organization could request the generator to do one of the following:

- Verify the current waste profile is accurate
- Supply a new waste profile
- Submit a sample for parameter analysis.

7.0 SPECIAL PROCEDURAL REQUIREMENTS

This section discusses any special process requirements for receiving mixed waste at CWC.

7.1 PROCEDURES FOR RECEIVING WASTE GENERATED ONSITE

In general, mixed waste received from onsite generator units is managed the same as waste received from offsite generators. Differences include, but not limited to, verification rates, shipping documentation, and LDR requirements.

7.2 PROCEDURES FOR RECEIVING WASTE GENERATED OFFSITE

Waste received from offsite is handled in the same manner as mixed waste received from onsite except as denoted in Section 7.1.

7.3 PROCEDURES FOR IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE

CWC accepts ignitable, reactive, or incompatible waste (refer to Section 1.2). The following precautions are taken before ignitable, reactive, or incompatible waste is accepted at CWC.

- Pre-shipment review and/or chemical screening identifies whether the waste is ignitable, reactive, or incompatible.

- CWC waste acceptance criteria identifies storage requirements for ignitable, reactive, and incompatible waste, ensuring the waste is stored in a safe manner.

The types of prohibited waste not accepted at CWC are listed in Section 1.2.

7.4 PROVISIONS FOR COMPLYING WITH FEDERAL AND STATE LAND DISPOSAL RESTRICTION REQUIREMENTS

Although CWC does not treat LDR waste, sampling could be performed at CWC to support LDR certification. The following sections are required for treatment of LDR waste.

State-only and federal LDR requirements restrict the land disposal of certain types of waste subject to *Resource Conservation and Recovery Act* (RCRA) *of 1976* and the *Hazardous Waste Management Act*. Waste managed on the Hanford Facility falls within the purview of these LDRs per 40 CFR 268 and WAC 173-303-140. Waste constituents that are subject to LDRs are identified in 40 CFR 268.40 and referenced by WAC 173-303-140. Waste must meet certain treatment standards, as specified in 40 CFR 268.40 and WAC 173-303-140, if the waste is to be land disposed.

Generators (as defined in the regulation and not per Section 1.1.1.1) determine if LDRs apply to the waste based on knowledge or testing [40 CFR 268.7(a)]. Each waste is analyzed for those LDR constituents contained in the listed and characteristic waste numbers identified by the generator, if the generator's knowledge is not sufficient to make a determination. If the LDR waste does not meet the applicable treatment standards, the generator (Section 1.1.1.1) provides with each shipment of waste

information stating so, in accordance with WAC 173-303-380(1)(j)(k)(n) or (o). If the waste meets the standards, the generator must send a certification that the waste meets the treatment standards.

7.4.1 Waste Treatment

Retrieved and newly generated waste is treated to meet LDR as specified in 40 CFR 268.40 and WAC 173-303-140 with the exception of transuranic mixed waste. Transuranic mixed waste is treated to the applicable standards required by Waste Isolation Pilot Plant or other generator requirements. An onsite TSD unit potentially can pretreat certain waste before shipment to a permitted offsite facility that could perform full treatment of the specific waste to meet full LDR. Waste requiring treatment other than what an onsite TSD unit can provide is repackaged, labeled, and transferred to a TSD unit for storage pending identification or development of an appropriate treatment.

LDR requirements apply to all mixed waste except a small class of state-only waste. When evaluating the treatability of certain characteristic waste, consideration must be given to any additional underlying hazardous constituents that might be found in the waste. The treatment standards, for the most part, are concentration-based. If the constituent concentrations for the waste fall below those specified in 40 CFR 268.40 and/or 268.48 for underlying hazardous constituents and in WAC 173-303-140, the waste can be land disposed without being treated. If the concentrations exceed these limits, the waste must be treated before disposal.

Specific treatments performed onsite include, but are not limited to, deactivation, encapsulation, stabilization, and amalgamation.

Deactivation is used to remove the hazardous characteristics of the waste due to its ignitability (D001), corrosivity (D002), solid corrosive acid (WSC2), and/or reactivity (D003). Treatment techniques include neutralization, cementing, absorption, controlled reaction with water, and macroencapsulation.

- Neutralization is the primary method of treatment for corrosive waste that has a pH $\leq$2 and/or $\geq$12.5. Examples of bases that could be used as neutralizing agents include sodium hydroxide, calcium hydroxide, or calcium carbonate. Examples of acids that could be used to neutralize bases are hydrochloric acid and sulfuric acid.

- Absorption is the primary method of treatment for ignitable waste, which include waste that is liquid and has a low total organic carbon content (<10 percent). Absorbent material that could be used includes polyacrylates, polypropylene, polymer type, superabsorbent polymer, cellulose, or other absorbent materials meeting various disposal requirements.

- Cementing or grouting is the primary method of treatment for ignitables consisting of metal fines or other corrosive materials. These types of waste are deactivated by mixing and binding it with an inert cementacious material.

- Controlled reaction with water is the primary method of treatment for reactive materials such as sodium metal. This process will deactivate the material and allow for further disposition.

- Macroencapsulation with polyethylene plastic containers is the primary treatment for debris. For elemental lead, macroencapsulation is performed in accordance with Table 1 of 40 CFR 268.42.

Stabilization methods used include cementing or grouting, sealing, and absorption. Particulates and/or liquid waste containing hazardous constituents could be cemented or grouted to meet either RCRA LDR, Waste Isolation Pilot Plant waste acceptance criteria, and/or the disposal criteria of future TSD units. These types of waste are stabilized by mixing and binding the waste with an inert material. The inert material generally used is Portland cement. When dealing with some waste streams such as sludges that might contain an inconsistent or excess liquid content, absorbent could be added to the waste to provide a drier matrix to allow identification of the proper combination of ingredients to ensure a successful stabilization effort.

Amalgamation of liquid elemental mercury (D009) is achieved using inorganic reagents such as copper, zinc, nickel, gold, and sulfur. The resultant matrix is a nonliquid, solid, or semi-solid visually inspected to verify compliance.

Treatment of state-only extremely hazardous waste (WT01, WP01, and WP03) will be performed in accordance with RCW 70.105.050(2) and/or WAC 173-303-140(4)(a) as applicable.

7.4.2 Sampling and Analytical Methods

If waste is sampled and analyzed to demonstrate an LDR has been met, only U.S. Environmental Protection Agency or equivalent methods are used. Waste is analyzed using the methods outlined in 40 CFR 268.40 and WAC 173-303-140(4)(b) or any other reliable method allowed by regulations.

Samples of waste are transferred to the sample management area for packaging and transferred to an onsite laboratory or shipped offsite to a laboratory for analysis. Samples are collected and analyzed in accordance with SW-846 or any other method allowed by regulations. Storage is provided for waste containers while waiting for laboratory analysis results.

7.4.3 Land Disposal Restriction Certification of Treatment

When LDR treatment has been completed and sample results (if applicable per 40 CFR 268.40 and WAC 173-303-140) have verified the LDR treatment is successful, certification of the LDR treatment is required. The certification statement is prepared by the onsite TSD unit in accordance with 40 CFR 268.7.

Where a LDR waste does not meet the applicable treatment standards set forth in 40 CFR 268.40 and WAC 173-303-140, or exceeds the application prohibition levels set forth in 40 CFR 268.32 or Section 3004(d) of RCRA, this information is placed in the CWC operating record, in accordance with WAC 173-303-380(1)(k) and (o).

8.0 RECORDKEEPING

Recordkeeping requirements that are applicable to this WAP are described in Chapter 12.0, Table 12-1, *Hanford Facility Dangerous Waste Permit Application, General Information Portion* (DOE/RL-91-28) and within this WAP.

9.0 REFERENCES

DOE/RL-91-17, *Hanford Facility Dangerous Waste Permit Application, Central Waste Complex*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-91-28, *Hanford Facility Dangerous Waste Permit Application, General Information Portion*, U.S. Department of Energy, Richland Operations Office, Richland, Washington, revised periodically.

EPA SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, Third Edition, as amended, U.S. Environmental Protection Agency, Washington, D.C.

EPA-600/4-7-020, *Methods for Chemical Analysis of Water and Wastes*, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.

62 FR 62079, *Mixed Waste Testing Guidance*, November 20, 1997.

APPENDIX A

ANALYTICAL PARAMETERS, METHODS, AND RATIONALE FOR WASTE RECEIVED AT CENTRAL WASTE COMPLEX

Analytical Parameters, Methods, and Rationale for Waste Received at Central Waste Complex

Parameter		Analytical method[a]	Media type	Rationale for selection of waste acceptance parameters	Rationale for analysis
General chemistry					
Flashpoint		1010/1020	Liquid	To provide documentation for safe storage conditions	To determine regulatory status as D001 waste, to provide proper waste designation and applicability of LDR requirements
pH	Liquid	9040	Liquid, sludge	To indicate the degree of corrosivity for safe handling; to provide for proper waste designation; and to identify waste that might compromise container integrity	To determine regulatory status as D002 waste, to provide proper waste designation, applicability of LDR requirements and state-only requirements.
	Solid	9045c	Solid		
Hydroxide		9040	Liquid	To provide documentation for safe treatment and storage conditions; and to comply with CWC waste acceptance criteria.	To provide proper waste designation and applicability of LDR requirements.
Water reactivity		Field method	Liquid, sludge	To determine whether the waste has a potential to violently react with water to form gases or generate heat; to provide documentation for safe treatment and/or storage conditions for waste designation; and to comply with CWC waste acceptance criteria.	To provide proper waste designation; safe storage and management.
Free liquids		9095A	Liquid, sludge, solid	To determine applicability of LDRs and for characterization of appropriate treatment	To determine appropriate state-only LDR status of the waste.

Analytical Parameters, Methods, and Rationale for Waste Received at Central Waste Complex

Parameter	Analytical method[a]	Media type	Rationale for selection of waste acceptance parameters	Rationale for analysis
Cyanide	9010B/9012A	Liquid, sludge, solid	For safe storage; for proper waste designation; applicability of LDR; and characterization of appropriate treatment	To provide proper waste designation and applicability of LDR requirements.
Sulfide	9030B	Liquid, sludge, solid	For safe storage; for proper waste designation; applicability of LDR; and characterization of appropriate treatment	To provide proper waste designation and applicability of LDR requirements.
Organic analyses				
PCBs	8081A/8082	Liquid, sludge, solid	To determine proper waste designation for management of waste in accordance with the *Toxic Substance Control Act of 1976 (TSCA)* and WAC 173-303.	To provide proper waste designation and to meet TSCA and LDR requirements.
Total organic carbon	9060	Liquid, sludge, solid	To determine applicability of LDR and applicability to state-only requirements.	To provide proper waste designation and applicability to state-only requirements, to meet LDR requirements, and comply with CWC waste acceptance criteria.
Total organic halides	9020B/9021/9022	Liquid, sludge	To determine proper waste designation and applicability to state-only requirements.	To provide proper waste designation and applicability to state-only requirements.
Persistent constituents	9075/9076/9077/ 9211/9212/9214/ 9250/9251/9253			
Total suspended solids	160.2[b]	Liquid, sludge	To determine applicability of LDR and status as a wastewater	To provide applicability of LDR and status as a wastewater.

Analytical Parameters, Methods, and Rationale for Waste Received at Central Waste Complex

Parameter	Analytical method[a]	Media type	Rationale for selection of waste acceptance parameters	Rationale for analysis
Volatile organic compounds	1311/8260B	Liquid, sludge, solid	To determine proper waste designation, applicability of LDRs, and characterization of appropriate treatment.	To provide proper waste designation, regulatory status, and applicability of LDR requirements.
Semivolatile organic compounds	1311/8270A	Liquid, sludge, solid	To determine proper waste designation, applicability of LDRs, and characterization of appropriate treatment.	To provide proper waste designation, regulatory status, and applicability of LDR requirements.
Chlorinated herbicides	8151A	Liquid	Not applicable	To provide proper waste designation and applicability to state-only requirements.
Inorganic analyses				
Arsenic	1311/6010B	Liquid, sludge, solid	To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment.	To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements.
Barium	1311/6010B	Liquid, sludge, solid	To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment.	To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements.
Cadmium	1311/6010B	Liquid, sludge, solid	To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment.	To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements.

Analytical Parameters, Methods, and Rationale for Waste Received at Central Waste Complex

Parameter	Analytical method[a]	Media type	Rationale for selection of waste acceptance parameters	Rationale for analysis
Chromium	1311/6010B	Liquid, sludge, solid	To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment.	To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements.
Lead	1311/6010	Liquid, sludge, solid	To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment.	To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements.
Mercury	1311/7470	Liquid, sludge, solid	To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment.	To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements.
Silver	1311/6010	Liquid, sludge, solid	To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment.	To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements.
Selenium	1311/6010	Liquid, sludge, solid	To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment.	To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements.
Nickel	6010	Liquid, sludge, solid	To determine applicability of LDRs, and for characterization of appropriate treatment.	To meet LDR requirements.

[a] EPA SW-846, unless otherwise noted.
[b] EPA-600/4-7-020, unless otherwise noted.
LDR = land disposal restriction.
PCB = polychlorinated biphenyls.

APPENDIX 4A

DESIGN DRAWINGS