Hanford Facility RCRA Permit Modification Notification Forms

Part III, Operating Unit 5

325 Hazardous Waste Treatment Units

Index

Page 2 of 3: Addendum F, Preparedness and Prevention
Addendum I, Inspection Requirements
Page 3 of 3: Revision instructions

Submitted by Co-Operator:

Michael J Stephenson Digitally signed by Michael J Stephenson Date: 2026.02.18 16:23:11 -08'00'

Michael J. Stephenson signing for Eric G. Damberg — Date

Reviewed by DOE Program Office:

DUANE CARTER Digitally signed by DUANE CARTER Date: 2026.02.23 10:57:04 -08'00'

Duane B. Carter — Date

Hanford Facility RCRA Permit Modification Form	
Unit: ***325 Hazardous Waste Treatment Units***	Permit Part ***Part III, Operating Unit Group 5***

Description of Modification:

Addendum F, Preparedness and Prevention:
Update Section F.1.1.2 and F.1.1.4 to remove specific references to the 300 Area Fire Station, and other editorial changes.

Addendum I, Inspection Requirements:
Update Section I.1.1.3 to clarify that PNNL performs and maintains records for fire system inspections.

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number:
A.1 Administrative and informational changes.

Modification Concurrence: [X] Yes [ ] No

Reviewed by Ecology:
2026.03.12 09:45:54 -07'00'
E.J. Holbrook Date

Revision Instructions:

Revise/replace the Addendums below to incorporate the attached changes:

- Addendum F, Preparedness and Prevention
- Addendum I, Inspection Requirements

325 HAZARDOUS WASTE TREATMENT UNITS
ADDENDUM F
PREPARDNESS AND PREVENTION

CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have its own change control log with a modification history table. The "**Modification Number**" represents Ecology's method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Modification History Table

Modification Date	Modification Number
05/2014	

This page intentionally left blank.

ADDENDUM F
PREPAREDNESS AND PREVENTION

This page intentionally left blank.

ADDENDUM F
PREPAREDNESS AND PREVENTION

TABLE OF CONTENTS

F. PREPARDENESS AND PREVENTION 5
F.1 Preparedness and Prevention Requirements 5
F.1.1 Equipment Requirements 5
F.1.2 Aisle Space Requirements 8
F.2 Preventive Procedures, Structures, and Equipment 8
F.2.1 Unloading Operations 8
F.2.2 Run-off 8
F.2.3 Water Supplies 9
F.2.4 Equipment and Power Failure 9
F.2.5 Personal Protection Equipment 9
F.3 Prevention of Reaction of Ignitable, Reactive, and/or Incompatible Waste 10
F.3.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste 10
F.3.2 Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste 11
F.3.3 Management of Incompatible Waste in Tank Systems 12
F.3.4 Management of Incompatible Waste in Containers or Tanks 12

FIGURES

Figure F.1. Locations of Emergency Equipment at the Hazardous Waste Treatment Units 13
Figure F.2. Locations of Emergency Equipment at the Shielded Analytical Laboratory (First Floor) 14
Figure F.3. Locations of Emergency Equipment at the Shielded Analytical Laboratory (Basement) 15

1
2
3
4 This page intentionally left blank.
5

F. PREPARDENESS AND PREVENTION

F.1 Preparedness and Prevention Requirements

The following section documents the preparedness and prevention measures taken at the 325 Hazardous Waste Treatment Units (HWTU).

F.1.1 Equipment Requirements

The following sections describe the internal and external communications and emergency equipment in use at the 325 HWTUs.

F.1.1.1 Internal Communications

Internal communication systems are used to provide immediate emergency instruction to personnel in the 325 HWTUs. Internal communications address general emergencies that might occur in the 300 Area and the 325 Building, as well as specific emergencies that might occur. Personnel have access to these internal communication devices whenever waste is handled.

Because of the nature of activities that occur in the 300 Area, the potential exists for emergencies outside of the 325 HWTUs that could impact operations and personnel. Fire alarm signals are located in each building throughout the 300 Area. The nearest emergency siren for 'area evacuation' and 'take cover' is located atop the 318 Building and is audible in all parts of the 325 Building. Numerous criticality howlers (horns) are located throughout the 325 Building and are audible in all parts of the building.

Internal communications that provide emergency instruction in the event of an emergency in the 325 HWTUs and in the 325 Building are listed below. Any alarm activation results in notification of the Building Emergency Director either directly or via Pacific Northwest National Laboratory's (PNNL) Operations Center (375-2400).

- Fire alarms: The fire alarms are used to provide notification for immediate evacuation of the 325 Building. The fire alarms are initiated on activation of the manual pull boxes, heat detectors, and the sprinkler system. Fire alarm pull boxes are located as indicated in Addendum J, Section 13, Attachments 1-3.
- Differential pressure alarms (for the SAL and the glove boxes in Room 528 and 604A): Air monitoring systems with alarms are located in the 325 HWTUs. These alarms sound when normal hot cell ventilation is disrupted.
- Leak detection alarms (for the SAL): Alarms sound when liquid is detected behind the hot cells in the SAL, in the space between the inner and outer shells of Tank TK-1 in the SAL, or when liquid is detected in the secondary containment drip pan underneath the tank.
- PNNL Communicator Notification System (CNS): This system allows emergency messages to be communicated quickly to staff via the PNNL phone system. When the phone is answered, a recorded message will provide event information and inform staff of actions they are expected to take.

The following non-emergency systems can also be used as appropriate and available:

- Building-wide public address (PA) system
- Intercom system (for the SAL)
- Telephones
- Hand-held radios provided by the BED

The PA system is used for building wide broadcasting of verbal emergency instructions to 325 Building personnel. The telephone system is used to provide verbal emergency instructions to 325 HWTUs personnel. The telephones also can be used to verbally transmit emergency information to personnel outside of the 325 HWTUs and to request emergency services. A network of telephones is provided throughout the 325 Building.

Locations of telephones within the 325 HWTUs are shown in Addendum J, Section 13, Attachments 1-3. In addition to the telephone communication system, personnel have access to hand-held radios. The radios are available from the Building Manager. All of the radios transmit at the same frequency and are capable of summoning the PNNL Single Point Contact in case of an emergency.

Hazardous Waste Treatment Unit

There are two fire alarm pull boxes near the HWTU; one is located in the hall north of the entrance to Room 528, and one is in the hallway just east of the south entrance to Room 520. Rooms 520 and 528 are equipped with smoke detectors that, upon activation, initiate the fire alarm system and close dampers between the two rooms and the corridor. Heat detectors are provided in the glove box in Room 528. There are two fire alarm bells just outside the HWTU. These fire alarm bells are located north of the entrance to Room 528 in the hall and east of the south entrance to Room 520 in the hall.

Additionally, a fire alarm strobe is installed in Room 528. The locations of the fire pull boxes are shown in Addendum J, Section 13, Attachment 1.

The glove box in Room 528 is equipped with a differential air pressure alarm that monitors the glove box for loss of negative pressure. If a loss occurs, a local alarm is sounded.

The PA system speakers are located in Rooms 520 and 528.

Shielded Analytical Laboratory

There are four fire alarm pull boxes provided in the SAL; three are in Room 201, and one is in Room 203. Additionally, a fire alarm pull box is located just outside of Room 32. Heat detectors are provided in the six large interconnected hot cells in the SAL. Several fire alarm bells are located throughout the 325 Building, including two fire alarm bells within the SAL (one each in Rooms 201 and 203). These alarms are audible at all locations within the SAL.

The six interconnected hot cells in the SAL are equipped with a differential air pressure alarm that monitors the hot cells for loss of negative pressure. If a loss occurs, a local alarm is sounded.

A cable leak detection system is installed in Room 200. The cable runs behind the back wall of all six hot cells. Liquid escaping from the hot cells on the rear face (Room 200) would contact the cable and automatically sound an alarm device in Room 201. This conductivity cable runs from the hot cells to the secondary containment pan for the SAL tank in Room 32. Any release of the tank system contents to this pan, which contacts the cable, initiates the cable leak detection alarm.

The SAL tank is equipped with a conductivity probe for leak detection within the annulus of this double-shelled tank. The tank also is equipped with a high-liquid-level alarm. In the event of an interstitial leak or overfilling, audible alarms sound at the SAL tank's main control panel in Room 201.

The PA system speakers are located in Rooms 200, 201, and 203. An intercommunication system supplies two-way voice communications between Rooms 32, 200, 201, and 201a.

Cask Handling Area. Fire alarm pull boxes are located near each exit. The locations of the fire pull boxes are shown in Addendum J, Section 13, Attachment 1.

The glove box in Room 604A is equipped with a differential air pressure alarm that monitors the glove box for loss of negative pressure. If a loss occurs, a local alarm is sounded.

PA system speakers are located in Room 603.

Truck Lock. Fire alarm pull boxes are located near each exit. The locations of the fire pull boxes are shown in Addendum J, Section 13, Attachment 1.

PA system speakers are located in Room 610.

3714 Pad. No unit-specific equipment is located at the pad. In the event of an emergency, staff will utilize cell phones or enter the 325 Building to notify 509-375-2400 and the BED. The BED will then determine the need for 325 Building protective actions and/or use of the ONC to alert others nearby.

F.1.1.2 External Communications

As mentioned in Section F.1.1.1, a fire alarm system and telephone network system are in place at the 325 HWTUs. Both systems can be used to summon emergency assistance. The fire alarm system summons direct response from the ~~300 Area Fire Station~~fire department. The telephone system can be used to access the PNNL ~~Single Point Contact~~Security Operations Center directly by dialing 509-375-2400 or by dialing the emergency number 911. For DOE-~~RL~~ HFO and other non-PNNL contractor personnel dialing 911 from onsite phones (509-373-0911 from cell phones), the call goes directly to the Hanford Patrol, which calls the PNNL ~~Single Point Contact~~Security Operations Center. Locations of fire alarm pull boxes and telephones are given in Addendum J, Section 13, Attachment 1. Personnel on the premises have access to these external communication devices.

F.1.1.3 Emergency Equipment

Emergency equipment available for trained 325 HWTUs personnel includes portable fire extinguishers, a fire suppression system, spill response equipment, and decontamination equipment.

With the exception of the hot cells, the entire building also is equipped with automatic sprinkler protection consisting of Schedule 40 steel pipe per ASTM A120 (ASTM 1991) and 150-pound malleable iron fittings per ANSI B16.3 (ANSI 1992). All components are UL-listed or FM-approved. The fire sprinkler system was designed and installed in accordance with National Fire Protection Association (NFPA) 13 for 'ordinary hazard' (NFPA 1996).

Absorbent pillows are capable of absorbing small quantities of spilled inorganic and organic liquids and can be used to contain temporarily any spills of these materials. Their rated absorption capacities range from 250 to 4,000 milliliters.

Mercury spill kits are capable of cleaning up to 25 milliliters of spilled mercury. Acid, caustic, and solvent spill kits contain the materials necessary to clean up small spills of acids, bases, and organic solvents. The absorbent kits in the SAL contain absorbent pads and other materials needed to temporarily contain and clean up small chemical spills.

The appropriate spill kits can be applied, respectively, to small acid and base spills for neutralization during cleanup efforts. The caustic neutralizer has similar capabilities for neutralizing small quantities of spilled bases. If needed, the Hanford Fire Department provides additional emergency equipment.

Portable fire extinguishers (Class ABC, typically 4.5 Kg) and Class D) are located throughout the building. Eyewashes and safety showers are also located in numerous areas in or near the units. The locations of this equipment are noted in Addendum J, Section 13, Attachment 1-3.

Any contaminated water will be contained and cleaned up in accordance with the Addendum J, Contingency Plan.

Shielded Analytical Laboratory

Four 9.0-kilogram ABC portable fire extinguishers are located in the SAL. A portable fire extinguisher is located in Room 201 and Rooms 200 and 203 each have one portable fire extinguisher. The fourth is located just outside Room 32. Additionally, ABC dry chemical fire extinguishers are provided for each of the six large interconnected hot cells in Room 201. These extinguishers are mounted on the outside of each cell with the distribution system within the cells. The cell manipulator arms are used to direct the discharge at a fire within the cell.

F.1.1.4 Water for Fire Control

The five water pipelines that service the 325 Building for fire protection supply adequate water volume and pressure. Each of these lines is 15.2 centimeters in diameter.

Three fire hydrants are located in immediate proximity to the 325 Building; one is approximately 30.4 meters east of the southeast corner of the 325 Building; one is approximately 21.3 meters directly north of the northwest corner of the 325 Building, and one is 33.5 meters west of the southwest corner of the 325 Building. ~~In addition, the 300 Area Fire Station is located within 0.4 kilometer of the building.~~

F.1.2 Aisle Space Requirements

Aisle spacing is sufficient to allow the movement of personnel and fire protection equipment in and around the containers. This storage arrangement also meets the requirements of the National Fire Protection Association and the Life Safety Code (NFPA 1994) for the protection of personnel and the environment. A minimum 76.0-centimeter aisle space is maintained between rows of containers as required by WAC 173-303-630(5)(c).

F.2 Preventive Procedures, Structures, and Equipment

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

F.2.1 Unloading Operations

Procedures have been developed to prevent hazards and to minimize the potential for breakage, punctures, or the accidental opening of containers during the transfer of waste to the 325 HWTUs. All waste is inspected before acceptance to ensure that the waste is in appropriate containers and that the containers are in good condition (see Addendum B, Section B.2.1). Inspection of containers before acceptance minimizes the potential for spills during unloading operations. The potential for spills during waste handling also is minimized using appropriate container handling equipment; small waste items can be unloaded by hand.

The volumes of dangerous waste entering and exiting the SAL are in relatively small containers (Addendum C, Process Information) and, have secondary containment because of the packaging requirements for the mixed waste materials. Any spill from such containers will be contained and not released to the environment.

F.2.2 Run-off

The 325 HWTU, SAL, Cask Handling Area, and Truck Lock were designed to eliminate the likelihood of waste migration via run-off. Because these units are enclosed completely (i.e., complete roof and no open walls), run-off of precipitation is not a factor. The following paragraphs address additional design features provided to eliminate the likelihood of run-off.

Hazardous Waste Treatment Unit. The concrete floor in Rooms 520 and 528 of the HWTU is provided with a chemical resistant polypropylene coating. The coating covers the entire floor and extends approximately 10 centimeters up on each perimeter wall in each room. The rooms also are provided with floor drains and floor trenches at each entrance. The trenches and floor drains flow into the firewater containment tank located in the basement of the 325 Building. The management of any mixed waste that might accumulate in the tank because of a fire is discussed in Addendum C, Process Information.

Shielded Analytical Laboratory. The secondary containment in the SAL is divided into three systems based on three designated areas of the SAL. These areas are the six large, interconnected hot cells, the front face (Room 201), and the back face (Rooms 200, 202, and 203).

The secondary containment system for the six large, interconnected hot cells consists of the stainless steel base of the cell. All waste requiring it is stored in secondary containment consisting of larger containers (e.g. “paint cans” as noted in Addendum C, Section C.1.2.2) and/or pans/trays.

Typically, the use of the secondary containment system is enough to ensure that waste is safely contained. If there were to be a larger scale failure of secondary containment, however, the cell base and trough would collect any spilled waste within the cell. The trough drains by gravity through openings in the bottom of the trough and stainless steel piping to the SAL tank.

Overpack containers and/or spill pallets/drip pans are used as the secondary containment system for the back face of the SAL. The back face of the SAL is used to store mainly solid mixed waste in cans, which are packed in the containers. Any liquids stored here are placed in compatible secondary containment (see Addendum C, Section C.1.4.2). The secondary containment system for the front face of the SAL, which is only used minimally to store mixed waste, consists of the same practice.

Cask Handling Area and Truck Lock. The floor is coated with an epoxy paint. Large waste containers that contain bulk liquids are stored inside Department of Transportation (DOT) approved containers providing secondary containment, or managed on spill containment pallets or drip pans. For compatible wastes consolidated into lab-pack containers, the DOT approved outer container serves as secondary containment – such outer containers will be stored directly on the floor. Containers holding waste not subject to containment system requirements pursuant to WAC 173-303-630(7)(c) will be stored on the floor.

3714 Pad. The 3714 Pad is made of concrete and is not coated. Unimproved adjacent soil areas may also be used for storage. Waste stored at the 3714 Pad unit must therefore:

- Not contain free liquids
- Not exhibit the characteristic of ignitability or reactivity.
- Not designate as F020, F021, F022, F023, F026, or F027.

Containers stored outdoors will be kept closed and inspected weekly for signs of damage or potential leakage. These precautions are adequate to prevent contamination from run-off from the 3714 Pad to surrounding areas.

The secondary containment system for each unit is described in detail in Addendum C.

F.2.3 Water Supplies

The 325 Building is designed and operated to contain safely waste and to prevent any contamination of water supplies. The secondary containment systems and operational limits described in Addendum C, prevent releases to the environment and infiltration of waste that could contaminate groundwater. The containment systems also prevent waste run-off that could contaminate surface water. The nearest water supply is the 300 Area water intake located on the Columbia River, which is less than 0.8 kilometers from the 325 HWTUs.

F.2.4 Equipment and Power Failure

The 325 Building is provided with an emergency power system that initiates upon failure of the primary power system, thereby minimizing the likelihood of the release of dangerous waste or mixed waste during a power failure or equipment failure. The 325 HWTUs have emergency lighting systems that operate automatically during power failure incidents. For actions to be taken in the event of power failure to unit systems or equipment, refer to Addendum J, Contingency Plan.

F.2.5 Personal Protection Equipment

Protective clothing and equipment are provided to employees during normal and emergency operations. Protection levels for emergencies are determined either in consultation with an industrial hygienist, or applicable control work permits or applicable operating procedure.

Per the identified work requirements, protective clothing and equipment is available for all staff working at the SAL and the High-Level Radiochemistry Facility (including the Cask Handling Area and the Truck

Lock). Protective clothing and equipment available at the SAL and HLRF include, but are not limited to, the following:

Shielded Analytical Laboratory and High-Level Radiochemistry Facility

- Safety glasses (Rooms 201, 603 and 610)
- Chemical protective suits (Rooms 200, 201 and 603) (part of absorbent kits)
- Goggles (Rooms 200, 201 and 603) (part of absorbent kits)
- Gloves (Rooms 200, 201 and 603) (part of absorbent kits)

Storage and treatment of dangerous waste can occur in Room 520, 524, and 528 of the HWTU. Personal protective equipment is required for personnel working these areas of the HWTU. Protective clothing and equipment available at the HWTU include, but are not limited to, the following:

Hazardous Waste Treatment Unit

- Laboratory coats (325 Building – Men's/women's change room)
- Shoe covers (325 Building – Men's/women's change room)
- Surgeon gloves (Rooms 520, 524 and 528)
- Chemical resistant gloves (Rooms 520, 524 and 528)
- Chemical resistant aprons (Rooms 520, 524 and 528)
- Face shields (Rooms 520, 524 and 528)
- Hard hats (Room 528)
- Safety glasses (Rooms 520, 524 and 528)

Protective equipment for the 3714 Pad is taken from the stock in the HWTU and/or HLRF.

The protective equipment storage areas are well stocked at all times. This equipment is replaced periodically as it is used. The above inventory reflects each type of personal protective equipment that typically is present at the 325 HWTUs. Additional personal protective equipment can be obtained, as needed, from storage locations and sources outside of the 325 HWTUs. These areas include the personal protective equipment storage area in the 700 hall men's and women's change rooms, Room 529, and the men's and women's change rooms in the south end (first floor) of the 325 Building. This personal protective equipment also can be obtained from onsite suppliers for the 325 HWTUs.

Respiratory protective equipment (air purifying, full-face/negative pressure respirators) that can be used by personnel is managed by the 325 Building Manager and must be checked out. This equipment is stored within the 325 Building. In addition, the 700 hall men's and women's change rooms normally contain a 1-week supply of coveralls, laboratory coats, hoods, skull caps, cloth shoe covers, rubber shoe covers, and gloves (canvas, surgeon's, and canner's).

F.3 Prevention of Reaction of Ignitable, Reactive, and/or Incompatible Waste

The following sections describe prevention of reaction of ignitable, reactive, and incompatible waste.

F.3.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste

The 325 HWTUs are used to store a variety of ignitable waste. Precautions to prevent ignition of ignitable waste involve separation of waste from sources of ignition and use of procedures to minimize the potential for accidental ignition. There are no routine sources of ignition or open flame in the 325 HWTUs. Work with ignition or heat sources, if required, is limited and controlled in the following ways by management and is performed in compliance with internal requirements for elimination of ignition sources.

- Use of open flame equipment when working with flammable liquids is prohibited.
- Smoking is prohibited around flammable liquids (no smoking is allowed in the 325 Building).

- Electrical equipment used in flammable or explosive atmospheres is required to comply with the National Electrical Code, NFPA 70.
- Use of equipment with automatic, adjustable temperature controls and high temperature limit switches is required to prevent overheating.
- Placement of flammable liquids on hot surfaces is prohibited.
- All static electricity sources require grounding in areas where ignitable vapors might be present.
- Bonding of conductive containers is required when transferring flammable liquids.
- Use of nonsparking tools is required in flammable waste storage areas.

All maintenance or modifications in the 325 HWTUs that require work with ignition sources must receive prior approval by a safety engineer. This approval is documented in the Hanford Facility Operating Record, 325 HWTUs File. Smoking is not allowed in the 325 Building at any time, and the interior and exterior of the building are clearly posted with 'No Smoking' signs. Waste storage areas are not heated by any radiant heat source. All tools used to open ignitable waste containers are constructed of nonsparking materials.

A fire safety engineer familiar with the Uniform Fire Code inspects ignitable waste storage areas annually. This inspection is documented in the Hanford Facility Operating Record, 325 HWTUs File. There also are storage restrictions at the 325 HWTUs for combustible waste as part of fire safety requirements. The storage restrictions defined in Article 50 of the International Fire Code apply to ignitable and reactive waste storage in the 325 Building.

F.3.2 Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste

As described in Section F.3.1, ignitable waste is managed to protect the waste from sources of ignition or open flame. Ignitable waste containers are maintained in good condition and inspected weekly to minimize the potential for releases that could result in fire. Containers of ignitable waste are protected from high temperatures to prevent the potential for pressurization and buildup of ignitable vapors. Containers of ignitable waste are stored in flammable material storage cabinets within waste storage areas (Addendum C). Limitations on sizes of containers and amount of storage in cabinets are discussed in Addendum C.

Small quantities of reactive waste are accepted for storage in the 325 HWTUs. Information on all reactive and other waste accepted by the HWTU and SAL is documented on a waste tracking form, which is reviewed carefully by personnel before accepting the waste. This form contains information on the unique handling requirements of the waste. Any reactive waste requiring special handling and storage to prevent unwanted reactions is appropriately packaged before arriving at the 325 HWTUs. This packaging safeguards against reactions resulting from air or water contact, shock, and other causes. Reactive waste is handled and stored in a manner commensurate with the specific reaction hazards posed by the waste. This includes segregating the waste from other waste and reagent chemicals with which the waste potentially could react.

Because a wide variety of waste can be accepted at the 325 HWTUs, the potential exists for storage of incompatible waste. Mixing of incompatible waste is prevented through waste segregation and storage procedures. Chemical waste stored in the 325 HWTUs is separated by compatibility and hazard class and stored in separate storage areas. Separate storage shelves and cabinets are used within the storage areas (Addendum C) to provide further waste segregation. Before accepting waste from generating units, waste management staff determines the DOT hazard class for each waste (see Addendum B) so that waste can be stored with compatible materials. The following general guidance is used to segregate and separate chemicals:

- Store acids on a low storage shelf or in acid storage cabinets.
- Separate acids from bases and alkaline metals such as potassium or sodium.

- Separate oxidizing acids from organic acids and flammable or combustible materials.
- Store bases away from acids and store solutions of inorganic hydroxides in polyethylene containers.
- Store oxidizers away from flammable or combustible materials and reducing agents such as zinc, alkaline metals, and formic acid.
- Store peroxide forming chemicals in air-tight containers in a dark, cool, and dry place (inside of cabinets).
- Store flammable materials in approved containers or cabinets.
- Separate flammable materials from oxidizing acids and oxidizers and keep them away from sources of ignition.
- Clearly, mark cabinets to identify the hazards associated with their contents.

The potential for waste ignition or reaction at the 325 HWTUs also is minimized through storage restrictions on hazardous materials quantities. The storage restrictions defined in the International Fire Code, Article 50 for Class B Occupancy apply to ignitable and reactive waste storage in the 325 HWTUs. The weekly inspection of the 325 HWTUs includes checking to see if waste inventories are below these limits. These inspections are documented in the Hanford Facility Operating Record, 325 HWTUs File.

In the unlikely event the fire sprinkler system in Rooms 520, 524, and 528 is activated, the resulting run-off will be contained in the firewater collection tank located in the basement of the 325 Building. This tank is described in detail in Addendum C.

F.3.3 Management of Incompatible Waste in Tank Systems

Waste discharged to the SAL tank from the hot cells typically consists of the same type of waste managed in the hot cells. Sampling and analysis would be used if sufficient process knowledge were not available to characterize the waste for waste acceptance criteria purposes. The waste is treated in the SAL tank, if necessary.

F.3.4 Management of Incompatible Waste in Containers or Tanks

Incompatible waste and other materials are handled as described in Section F.3.2 and in accordance with established operating methods. Storage restrictions that ensure proper separation of containers of incompatible material in the 325 HWTUs are described in Section F.3.2.

Ignitable or reactive waste is not placed in the tank systems unless the waste has been treated, rendered, or mixed so that the waste no longer meets the definition of ignitable or reactive waste under WAC 173-303-090 (Addendum B).

Drawings of the 325 HWTUs are available to ensure that ignitable and/or reactive waste is located at least 15 meters from the unit's property line.

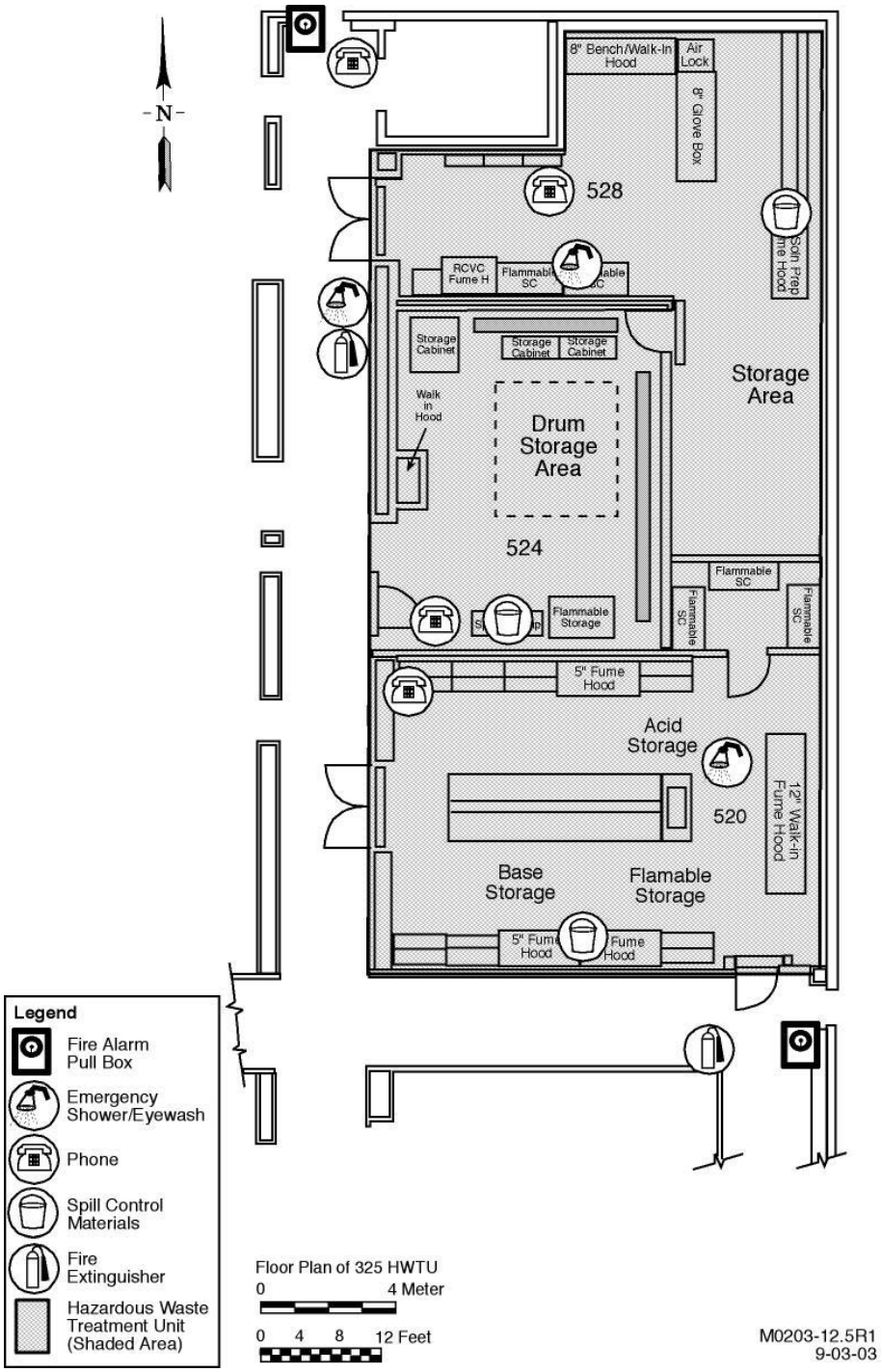

Figure F.1. Locations of Emergency Equipment at the Hazardous Waste Treatment Units

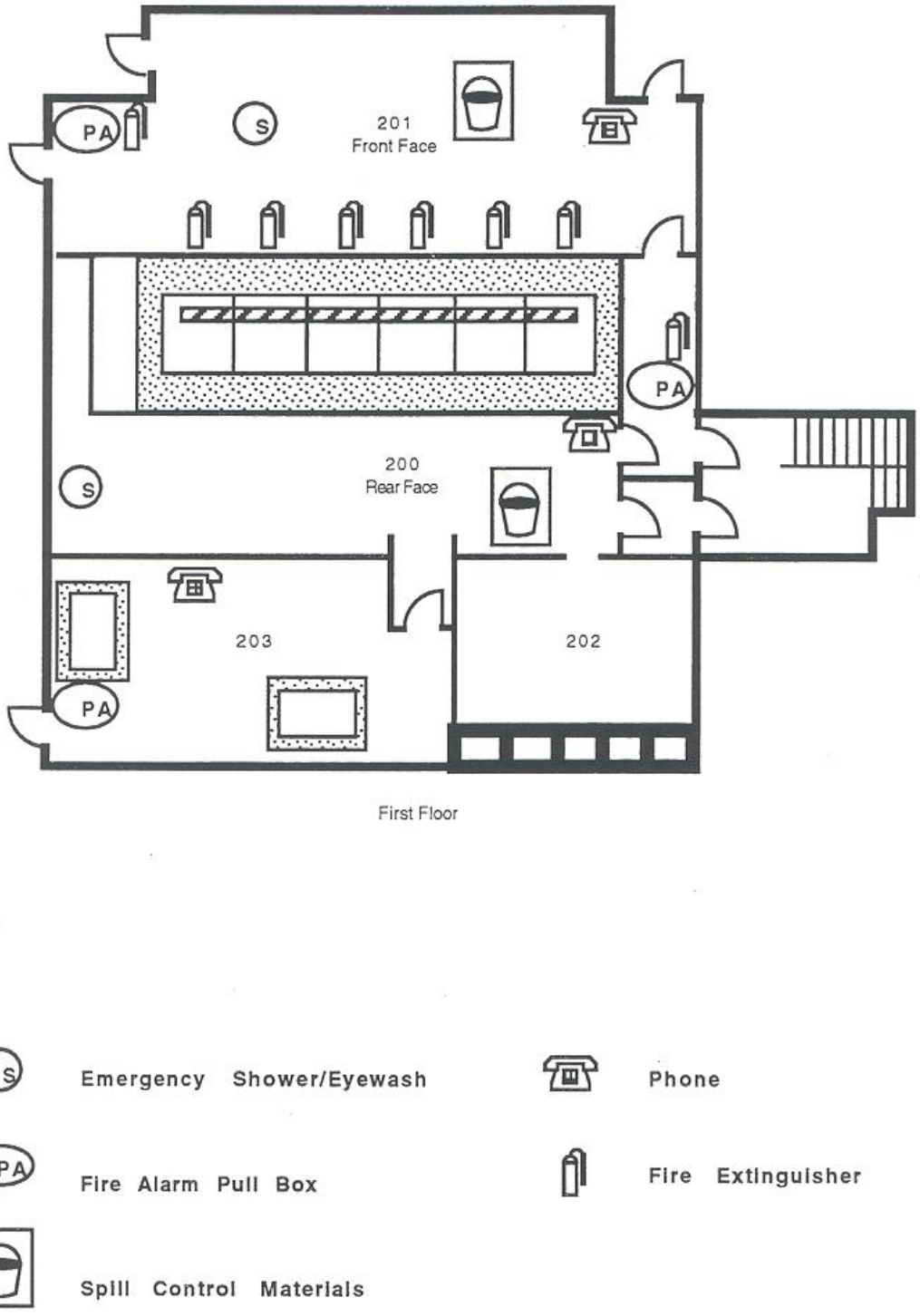

Figure F.2. Locations of Emergency Equipment at the Shielded Analytical Laboratory (First Floor)

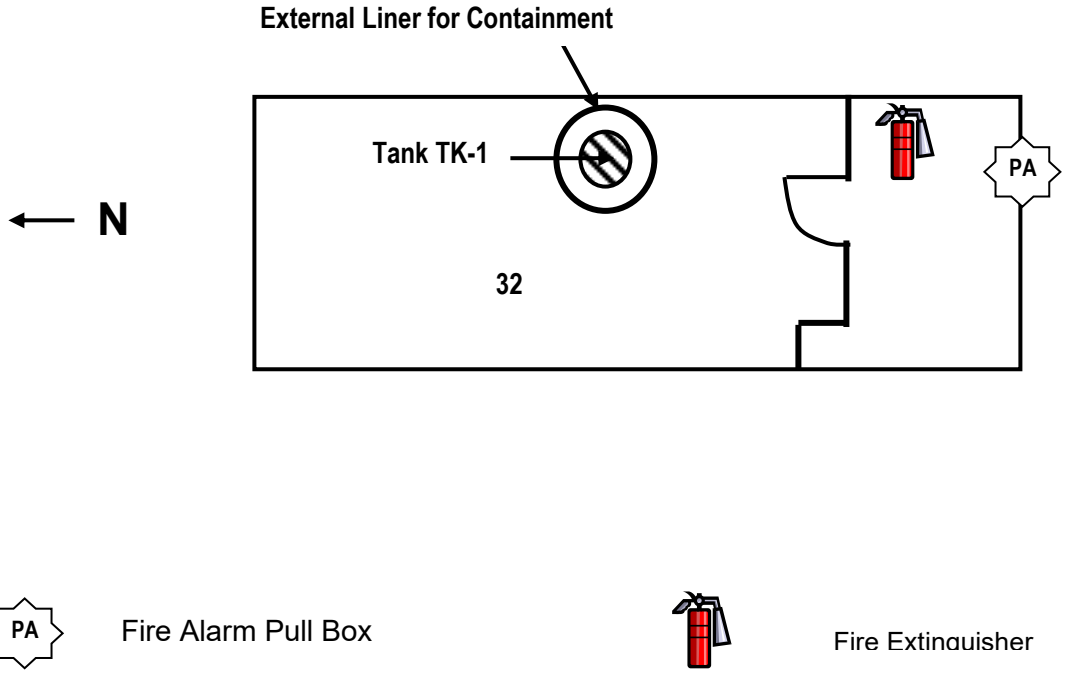

Figure F.3. Locations of Emergency Equipment at the Shielded Analytical Laboratory (Basement)

This page intentionally left blank.

325 HAZARDOUS WASTE TREATMENT UNITS
ADDENDUM I
INSPECTION REQUIREMENTS

CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have its own change control log with a modification history table. The "**Modification Number**" represents Ecology's method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Modification History Table

Modification Date	Modification Number
05/2014	

This page intentionally left blank.

ADDENDUM I
INSPECTION REQUIREMENTS

This page intentionally left blank.

ADDENDUM I
INSPECTION REQUIREMENTS

TABLE OF CONTENTS

I. INSPECTION REQUIREMENTS 5
I.1 Inspection Plan 5
I.1.1 General Inspection Requirements 5
I.1.2 Specific Process Inspection Requirements 6
I.1.3 Inspection Log 7

TABLE

Table I.1. Remedial Actions for Major Problems 8

1
2
3
4 This page intentionally left blank.
5

I. INSPECTION REQUIREMENTS

I.1 Inspection Plan

The purpose and intent of implementing inspection procedures at the 325 Hazardous Waste Treatment Units (HWTU) are to prevent malfunctions, deterioration, operator errors, and/or discharges that might cause or lead to the release of regulated waste to the environment or threats to human health. This Addendum describes the system of daily and weekly inspections involving various Pacific Northwest National Laboratory (PNNL) departments and levels of management to meet this intent.

I.1.1 General Inspection Requirements

This section identifies the content and frequency of inspections required at the 325 HWTUs.

I.1.1.1 Daily Inspections

Types of Problems. Specific inspection points are:

- Container integrity.
- Mislabeled or opened containers.
- Improper storage (e.g., incompatible waste storage).
- Disorderliness or uncleanliness of storage unit.
- Accumulation of waste in containment systems.

Frequency of Inspection: The 325 HWTUs staff performs daily inspections whenever waste packaging, transfer, shipping, or movement operations are conducted. Unit personnel monitor container condition and integrity, the containment system, and other building areas daily where waste is handled.

Results of these daily inspections are documented as part of the 325 HWTUs operating record.

I.1.1.2 Weekly Inspections

The 325 HWTUs personnel conduct weekly inspections of both safety and operating equipment in the 325 HWTUs. Safety and emergency equipment are inspected for functionality and adequacy of supply. The weekly and daily inspections are usually conducted on or before the last working day of each week, and have the same inspection points. Results of these weekly inspections are documented as a part of the 325 HWTUs operating record.

I.1.1.3 Quarterly, Once Every Four Months, and Annual Inspections

~~The Hanford Facility 300 Area Fire Department~~PNNL performs a once-every-four-months inspection of fire suppressant and notification systems (i.e., sprinkler system and fire alarm pull boxes). This inspection includes flow tests of the sprinklers to ensure that there is no blockage in the system lines; the alarm system is activated to ensure proper pull box operation. Annually, ~~the Fire Department~~PNNL performs a full inspection of the sprinkler system, smoke detectors, heat detectors, and pull boxes. A complete flow test of the sprinkler system is performed from the furthest valve to ensure proper flow through the entire system. Fire extinguishers also are checked for proper pressure and function. ~~The Hanford Fire Department retains these records~~Results of these inspections are documented as part of the 325 HWTUs operating record.

Additional documented inspections are performed quarterly of the emergency eyewash/shower units, the fume hoods, and other ventilation system components. Records of these safety equipment inspections and the results, as well as documentation of any required corrective actions, are maintained by the appropriate facilities and operations staff.

I.1.1.4 Frequency of Inspections

The frequency of inspections is based on specific regulatory requirements and on the rate of possible deterioration of equipment and probability of environmental or human health incidents.

Areas where dangerous and mixed waste are actively handled, including all of the hot cells, the front and back face of the SAL, and Rooms 520, 524 and 528 in the HWTU are considered to be areas subject to spills. These areas are given daily inspections when in use as required by WAC 173-303-320(2)(c).

The primary and secondary containment systems (i.e., floors, troughs, and sumps) are inspected daily when in use for accumulation of spilled material. The containment systems are inspected weekly for structural integrity (i.e., no cracks, gaps, leaks that could result in environmental release of waste in the event of a spill). This frequency is based on the need to perform timely corrective actions in the event that problems are noted.

Aisle space between containers is inspected weekly when applicable. As the objective of the aisle space requirements is to allow for unobstructed movement of personnel and equipment in case of an emergency, the aisle space requirements do not apply to the hot cells, shielded cubicles, or storage cabinets. If quantities of waste are packaged in large containers or drums, temporarily stored before a transfer, a minimum aisle space of 76 centimeters is maintained in accordance with WAC 173-303-340(3), As-Low-As-Reasonably-Achievable (ALARA) concerns, and with applicable standards of the Uniform Building Code and Life Safety Code. Weekly inspections, where applicable, allow container spacing problems to be identified and corrected.

Emergency and safety equipment and personal protective equipment are inspected weekly. Weekly inspections will assure this equipment is available and in adequate supply.

I.1.2 Specific Process Inspection Requirements

The following sections detail the inspections to be performed at the 325 HWTUs.

I.1.2.1 Container Inspection

Dangerous and mixed waste containers stored in the 325 HWTUs are inspected daily where waste handling activities are performed for leakage, evidence of damage or deterioration, proper and legible labeling, and proper lid and bung closure. Any observations made during the inspections, including any repairs or remedial actions taken, are documented in the logbook with the date, time, and printed name and signature of the inspectors. This logbook is maintained in the 325 HWTUs for at least 5 years from the dates of the inspections. All areas subject to spills are inspected daily when in use. Structural integrity of the containment systems is checked weekly.

I.1.2.2 Tank System Inspection

The Shielded Analytical Laboratory (SAL) tank located in Room 32 is used to store mixed waste generated because of waste treatment activities. Routine inspections of the SAL tank system are conducted in accordance with WAC 173-303-640. Inspections involve a combination of visual, mechanical, and electronic means. Due to ALARA considerations, visual inspections of the tank system are conducted by remotely operated cameras mounted in Room 32. These visual inspections are limited to areas of the tank system that can be observed by the camera. In the event of a camera system malfunction, the tank system will be visually inspected from the doorway of Room 32 until the malfunction has been corrected. A mirror is mounted on the back wall of Room 32 to allow viewing the rear of the tank from the window in the door. A logbook or inspection sheet of all inspections is maintained in the operating record for at least 5 years from the date of the inspection.

I.1.2.2.1 Tank System External Corrosion and Releases

Aboveground portions of the SAL tank are inspected each operating day to detect corrosion or releases of waste.

I.1.2.2.2 Tank System Construction Material and Surrounding Area

The SAL tank is double walled and constructed of corrosion resistant stainless steel, with a capacity of 1,218 liters. The outer wall is a cylindrical stainless steel tank that provides containment sufficient to contain 100 percent of the inner tank volume.

The construction materials of the tank and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment systems, are inspected during use to detect erosion or signs of releases of mixed waste (e.g., wet spots).

Any deteriorations or malfunctions observed during inspection of the tank system will be corrected. Any release to the environment is reported immediately to Ecology, as required by WAC 173-303-640(7)(d)(i), and to the National Response Center as required by 40 CFR 302.

I.1.2.2.3 Tank System Overfilling Control Equipment

The tank controls for the SAL tank include two high-level alarm systems that respond to overfill conditions. The initial tank high-level alarm is activated by a conductivity probe, the second by a capacitance probe. The conductivity probe high-level alarm and associated functions can be tested electrically by depressing a button on the main control panel in Room 201. Activation of this alarm results in a visible red light and audible alarm on the main control panel in Room 201, an alarm condition on the annunciator panel on the second floor of the 325 Building, and closure of electric solenoid valves on all inlet water supply lines to the hot cell area and tank system. Activation of the capacitance probe alarm results in a red light and audible alarm.

I.1.2.2.4 Tank System Monitoring and Leak Detection Equipment

The leak detection conductivity probe for the SAL tank is located between the primary and secondary shells of the double walled tank. The leak detection probe signal activates if any liquids collect in the annulus between the two walls of the tank. The leak detection probe can be functionally tested electrically by depressing a test button on the main control panel in Room 201. A leak detection sensor is also installed in the secondary containment pan underneath the SAL tank and activates if liquids are detected in the pan.

I.1.3 Inspection Log

Copies of the completed inspection checklists are provided to operations personnel and maintained in the 325 HWTUs files. Any corrective actions noted or deterioration or malfunctions in equipment discovered by the inspector are delegated to responsible individuals in the operations group. Corrective actions identified must be completed within 2 weeks unless there is documentation and reason for further delay. Examples of problems that could be identified and the corresponding remedial action are listed in Table I.1. Inspection reports and corrective action response documentation are retained at the 325 HWTUs for a minimum of 5 years.

Table I.1. Remedial Actions for Major Problems

Major Problems	Remedial Actions
Containment system failures	
Cracks in floor of container storage area	Remove containers from area and cease use until cracks are repaired.
Cracks in floor of SAL cell liner	Remove containers from area and cease use until cracks are repaired, or provide secondary containment for containers holding liquid waste.
Leaking container in container storage area	Transfer waste to another container. Clean up spill.
Leaking tank or ancillary equipment	For minor leaks or drips, conduct inspection of affected equipment every 12 hours. For major leaks, immediately remove all waste from tank system. Prevent addition of waste to tank system until repaired. Notify Building Emergency Director. Initiate contingency plan if appropriate.
Spills	
Minor spills in container storage area	Clean up spill according to contingency plan.
Major spills in container storage areas	Notify Building Emergency Director. Initiate contingency plan if appropriate.