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Class ~~1-3~~ Modification
~~June 30, 2009~~ May 4, 2014

WA7 89000 8967, Part III, Operating Unit Group 5
325 Hazardous Waste Treatment Units

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F. PREPAREDNESS AND PREVENTION

F.1 PREPAREDNESS AND PREVENTION REQUIREMENTS

The following section documents the preparedness and prevention measures taken at the 325 HWTUs.

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 approximately 46 meters northwest of the 325 Building on top of the 326 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 ~~to 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 PNNL's 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.~~
- ~~Differential pressure alarm in the glove box in Room 528~~
- 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~~

~~Air monitoring systems with alarms are located in the 325 HWTUs.~~ 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 ~~transmit~~ 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, Figures F.1 through F.3.~~ In addition to the telephone communication system, personnel have access to

Commented [HT1]: The area siren was relocated when the 326 building was demolished. Class 1, B.6.b.

Commented [HT2]: Descriptive text relocated from paragraph below. Instead of creating new figures to depict location of fire pull boxes in the newly added units, PNNL is deleting Figures F.1-F.3 and replacing them (along with adding the new units' pull box locations) with a reference to this information as presented in enforceable sections of Addendum J. This also deletes redundant information. Class 3, F.1.a. for new units and Class 1, B.6.b. for existing units.

Commented [HT3]: Descriptive text relocated from paragraph below and a sentence added to describe what the alarm means. Class 1, B.6.b. for existing units and Class 3, F.1.a. for new units.

Commented [HT4]: Combined with bullet above. Class 1, A.1.

Commented [HT5]: Added a sentence to describe what the alarm means. Class 1, B.6.b.

Commented [HT6]: Adds new system used for emergency communication with staff. Description taken from Appendix J. Class 1, B.6.b.

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Commented [HT7]: Noted these systems are not "emergency" systems (may not be available in all cases, e.g. power failure), but may be used in certain cases. They are secondary systems to the CNS. Also added hand-held radios to the list; the description has always existed but they weren't in the bullet list. Class 1, B.6.b.

Commented [HT8]: Moved to second bullet in the list above. Class 1, A.1.

Commented [HT9]: Modified structure of sentence, no change in meaning. Class 1, A.1.

Commented [HT10]: Instead of creating new figures to depict location of telephones in the newly added units, PNNL is deleting Figures F.1-F.3 and replacing them (along with adding the new units' phone locations) with a reference to this information as presented in enforceable sections of Addendum J. This also deletes redundant information. Class 3, F.1.a. for new units and Class 1, B.6.b. for existing units.

1 hand-held radios. The radios are available from the Building Manager. All of the radios transmit at the
2 same frequency and are capable of summoning the PNNL Single Point Contact in case of an emergency.

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

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

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

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

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

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

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

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

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

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

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

36 PA system speakers are located in Room 603.

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

39 PA system speakers are located in Room 610.

40 3714 Pad. No unit-specific equipment is located at the pad. In the event of an emergency, staff will
41 utilize cell phones or enter the 325 Building to notify 375-2400 and the BED. The BED will then
42 determine the need for 325 Building protective actions and/or use of the ONC to alert others nearby.

Commented [HT11]: Instead of creating new figures to depict location of fire pull boxes in the newly added units, PNNL is deleting Figures F.1-F.3 and replacing them (along with adding the new units' pull box locations) with a reference to this information as presented in enforceable sections of Addendum J. This also deletes redundant information. Class 1, B.6.b.

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1 **F.1.1.2 External Communications**

2 As mentioned in Section F.1.1.1, a fire alarm system and telephone network system are in place at the
3 325 HWTUs. Both systems can be used to summon emergency assistance. The fire alarm system
4 summons direct response from the 300 Area Fire Station. The telephone system can be used to access the
5 PNNL Single Point Contact directly by dialing 375-2400 or by dialing the emergency number 911. For
6 DOE-RL and other non-PNNL contractor personnel dialing 911 from onsite phones (373-0911 from cell
7 phones), the call goes directly to the Hanford Patrol, which calls the PNNL Single Point Contact.
8 Locations of fire alarm pull boxes and telephones are given in [Addendum J, Section 13, Attachment](#)
9 [Figures F.1 through F.3](#). Personnel on the premises have access to these external communication
10 devices.

Commented [HT12]: Conforming with change to DOE/RL-94-02 identifying 373-0911 as phone number to notify POC from cell phones. Class 1, B.6.b.

Commented [HT13]: Instead of creating new figures to depict location of fire pull boxes and phones in the newly added units, PNNL is deleting Figures F.1-F.3 and replacing them (along with adding the new units' information) with a reference to this information as presented in enforceable sections of Addendum J. This also deletes redundant information. Class 1, B.6.b.

11 **F.1.1.3 Emergency Equipment**

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

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

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

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

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

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

Commented [HT14]: Instead of creating new figures to depict location of fire pull boxes and phones in the newly added units, PNNL is deleting Figures F.1-F.3 and replacing them (along with adding the new units' information) with a reference to this information as presented in enforceable sections of Addendum J. This also deletes redundant information. Class 1, B.6.b.

32 [Hazardous Waste Treatment Unit. Two portable 4.5 kilogram ABC fire extinguishers are available](#)
33 [adjacent to the HWTU as shown in Figure F.1. The portable fire extinguishers are located in the hall](#)
34 [outside the entrance to Room 524 and in the hall south of the south entrance to Room 520.](#)

35 [For chemical contamination needs, an emergency shower is located in the hall outside the entrance to](#)
36 [Room 524 \(Figure F.2\). Emergency eyewashes are located in Rooms 520 and 528. Any contaminated](#)
37 [water will be contained and cleaned up in accordance with the Addendum J, Contingency Plan.](#)

Commented [HT15]: Consolidated with other units' descriptions above. Class 1, A.1.

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

44 [Two emergency eye wash/showers are located in Rooms 200 and 201 \(Figure F.2\). Any contaminated](#)
45 [water will be contained and cleaned up in accordance with the Addendum J, Contingency Plan.](#)

Commented [HT16]: Redundant with consolidated information above; no change in equipment. Class 1, A.1.

1 **F.1.1.4 Water for Fire Control**

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

4 Three fire hydrants are located in immediate proximity to the 325 Building; one is approximately
5 30.4 meters east of the southeast corner of the 325 Building; one is approximately 21.3 meters directly
6 north of the northwest corner of the 325 Building, and one is 33.5 meters west of the southwest corner of
7 the 325 Building. In addition, the 300 Area Fire Station is located within 0.4-kilometer of the building.

8 **F.1.2 Aisle Space Requirements**

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

14 **F.2 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT**

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

16 **F.2.1 Unloading Operations**

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

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

28 **F.2.2 Run-off**

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

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

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

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

Commented [HT17]: Added a reference to the specific process for evaluating containers prior to transfer referred to here. Class 1, A.1.

Commented [HT18]: Revised language to deal with the addition of new units. Class 3, F.1.a.

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

5 ~~Specially designed, shielded, 208-liter Overpack~~ containers ~~and/or spill pallets/drip pans~~ are used as the
6 secondary containment system for the back face of the SAL. The back face of the SAL is used to store
7 mainly solid mixed waste in cans, which are packed in the containers. Any liquids stored here are placed
8 in compatible secondary containment (see Addendum C, Section C.1.4.2). The secondary containment
9 system for the front face of the SAL, which is only used minimally to store mixed waste, consists of the
10 same practice ~~of using the plastic, pan type containers described previously.~~

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

17 3714 Pad. The 3714 Pad is made of concrete and is not coated. Unimproved adjacent soil areas may also
18 be used for storage. Waste stored at the 3714 Pad unit must therefore:

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

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

25 The secondary containment system for the HWTU and SAL each unit is described in detail in Addendum
26 C.

27 F.2.3 Water Supplies

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

34 F.2.4 Equipment and Power Failure

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

40 F.2.5 Personal Protection Equipment

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

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

Commented [HT19]: Paragraph revised to reflect secondary containment description for SAL in Addendum C, as revised. Size and shielding of containers may vary, and portable engineered secondary containment devices such as spill pallets may also be used. Class 1, A.3.

Commented [HT20]: Added information to address runoff from each unit being added. Class 3, F.1.a.

Commented [HT21]: Addresses the fact that the 3714 Pad is outdoors, hence controls potential contamination of potential sources of drinking water by administrative means rather than location inside the building. Class 3, F.1.a.

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

3 Shielded Analytical Laboratory and High-Level Radiochemistry Facility

- 4 • Safety glasses (Rooms 201, 603 and 610)
- 5 • Chemical protective suits (Rooms 200, ~~and 201~~ and 603) (part of absorbent kits)
- 6 • Goggles (Rooms 200, ~~and 201~~ and 603) (part of absorbent kits)
- 7 • Gloves (Rooms 200, ~~and 201~~ and 603) (part of absorbent kits).

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

11 Hazardous Waste Treatment Unit

- 12 • Laboratory coats (325 Building – Men’s/women’s change room)
- 13 • Shoe covers (325 Building – Men’s/women’s change room)
- 14 • Surgeon gloves (Rooms 520, 524 and 528)
- 15 • Chemical resistant gloves (Rooms 520, 524 and 528)
- 16 • Chemical resistant aprons (Rooms 520, 524 and 528)
- 17 • Face shields (Rooms 520, 524 and 528)
- 18 • Hard hats (Room 528)
- 19 • Safety glasses (Rooms 520, 524 and 528).

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

Commented [HT22]: Adds protective clothing availability in the units being added. Class 3, F.1.a.

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

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

33 **F.3 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND/OR INCOMPATIBLE** 34 **WASTE**

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

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

37 The 325 HWTUs are used to store a variety of ignitable waste. Precautions to prevent ignition of
38 ignitable waste involve separation of waste from sources of ignition and use of procedures to minimize
39 the potential for accidental ignition. There are no routine sources of ignition or open flame in the
40 325 HWTUs. Work with ignition or heat sources, if required, is limited and controlled in the following
41 ways by management and is performed in compliance with internal requirements for elimination of
42 ignition sources.

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

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

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

15 A fire safety engineer familiar with the Uniform Fire Code inspects ignitable waste storage areas
16 annually. This inspection is documented in the Hanford Facility Operating Record, 325 HWTUs File.
17 There also are storage restrictions at the 325 HWTUs for combustible waste as part of fire safety
18 requirements. The storage restrictions defined in [the Uniform Building Code for Class B](#)
19 [Occupancy Article 50 of the International Fire Code](#) apply to [ignitable and reactive waste storage in the](#)
20 [325 Building \(ICBO 1991\)](#).

21 **F.3.2 Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible** 22 **Waste**

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

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

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

- 47 • Store acids on a low storage shelf or in acid storage cabinets

Commented [HT23]: Updated reference to applicable requirements in WAC 173-303-630(8)(b). Also clarifies applicability per WAC. Class ¹, A.8.

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

12 The potential for waste ignition or reaction at the 325 HWTUs also is minimized through storage
13 restrictions on hazardous materials quantities. The storage restrictions defined in the [Uniform](#)
14 [International Fire Building Code, Article 50](#) for Class B Occupancy apply to [ignitable and reactive waste](#)
15 [storage in the 325 HWTUs \(ICBO 1994\)](#). The weekly inspection of the 325 HWTUs includes checking
16 to see if waste inventories are below these limits. These inspections are documented in the Hanford
17 Facility Operating Record, 325 HWTUs File.

Commented [HT24]: Updated reference to applicable requirements in WAC 173-303-630(8)(b). Also clarifies applicability per WAC. Class 1, A.8.

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

21 **F.3.3 Management of Incompatible Waste in Tank Systems**

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

26 **F.3.4 Management of Incompatible Waste in Containers or Tanks**

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

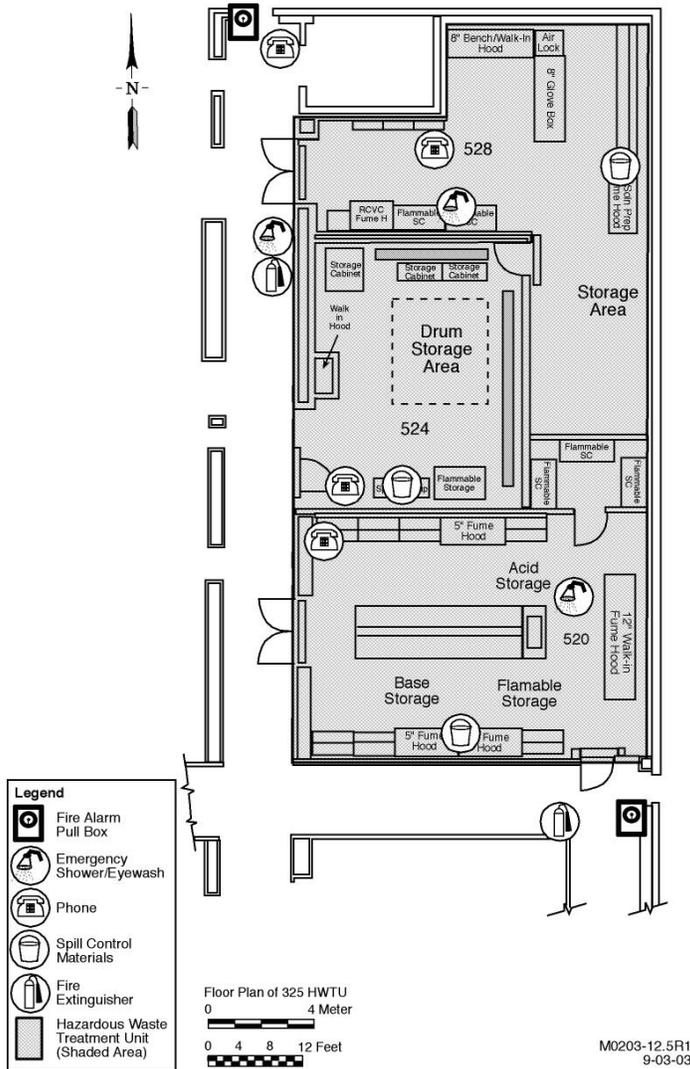
30 Ignitable or reactive waste is not placed in the tank systems unless the waste has been treated, rendered, or
31 mixed so that the waste no longer meets the definition of ignitable or reactive waste
32 under [WAC 173-303-090](#) (Addendum B).

33 Drawings of the 325 HWTUs are available to ensure that ignitable and/or reactive waste is located at least
34 15 meters from the unit's property line.

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

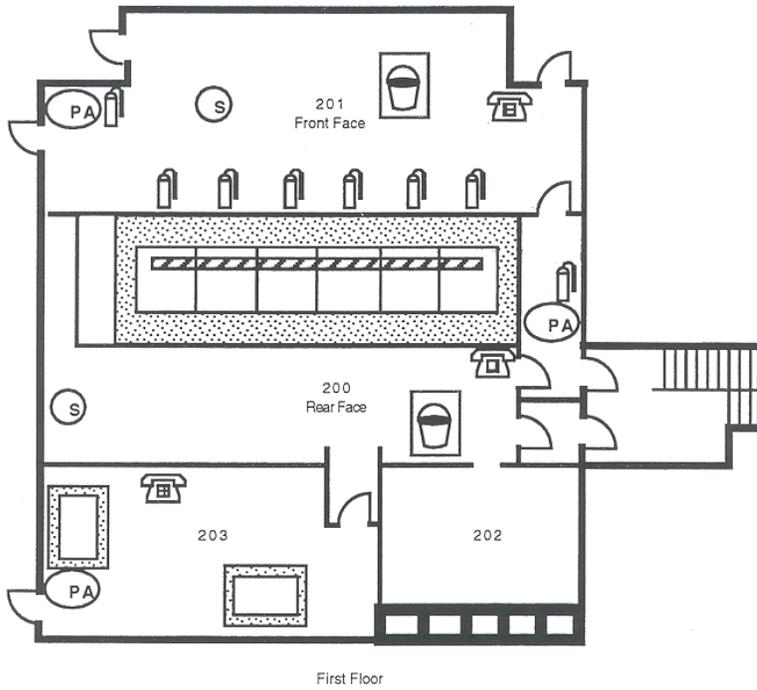
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Commented [HT25]: Figures 1-3 are deleted and the information moved to Addendum J, Section 14.0, Attachments 1-3, Class 1, B.6.b.



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



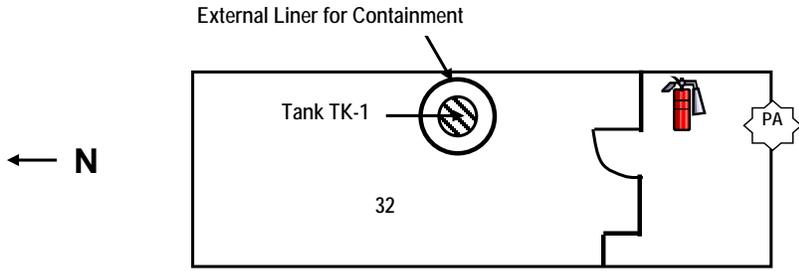
-  Emergency Shower/Eyewash
-  Fire Alarm Pull Box
-  Spill Control Materials
-  Phone
-  Fire Extinguisher

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

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 Fire Alarm Pull Box

 Fire Extinguisher