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**PART III OPERATING UNIT GROUP 8**  
**222-S DANGEROUS & MIXED WASTE TREATMENT, STORAGE & DISPOSAL**  
**UNIT**  
**ADDENDUM F, PREPAREDNESS AND PREVENTION**

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4 **ADDENDUM F**  
5 **PREPAREDNESS AND PREVENTION**

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7 **F.1 PREPAREDNESS AND PREVENTION REQUIREMENTS**

8 The following sections document the preparedness and prevention measures used at the  
9 222-S Laboratory Complex.

10 **F.1.1 Equipment Requirements**

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

13 **F.1.1.1 Internal Communication**

14 At the 219-S Waste Handling Facility, 222-S DMWSA, and Rooms 2-B and 4-E storage areas,  
15 telephones capable of public address are used for internal communication. Telephones are  
16 located in close proximity to the 222-S DMWSA, and adjacent to Rooms 2-B and 4-E to provide  
17 communication capabilities. The telephone in the 219-S Waste Handling Facility is located in the  
18 operating gallery. All 219-S annunciator alarms are responded to immediately with appropriate  
19 action. In lieu of communication equipment in the 219-S Waste Handling Facility Sample  
20 Gallery, at least two people are required to be present so that one person will be able to supply  
21 notification to Room 3-B in case of an emergency.

22 The internal communication systems provide immediate emergency instruction to personnel. The  
23 onsite internal communication system may include any of the following: telephones, computers,  
24 facility address system, various alarms systems, and two-way radios. The telephone system,  
25 available at various locations, provides internal and external communication. Alarm systems  
26 exist at various locations to allow personnel to appropriately respond to various emergencies,  
27 including the following emergency situations: building evacuations, take-cover events, and fire  
28 and/or explosion.

29 **F.1.1.2 External Communication**

30 The 222-S Laboratory Complex is equipped with devices for summoning emergency assistance  
31 from the Hanford Fire Department, the hazardous materials response team, and/or Hanford Patrol,  
32 as necessary. External communication to summon emergency assistance is made through either  
33 the fire alarm or the normal telephone system as described in Permit Attachment 4, *Hanford*  
34 *Emergency Management Plan* (DOE/RL-94-02).

35 Telephones are located throughout the 222-S Laboratory Complex, including the 219-S Waste  
36 Handling Facility, in close proximity to the 222-S DMWSA and adjacent to Rooms 2-B and 4-E,  
37 to provide external communication capabilities.

38 **F.1.1.3 Emergency Equipment**

39 Emergency equipment is available for use throughout the 222-S Laboratory Complex. Examples  
40 of emergency equipment are:

- 41 • Portable fire extinguishers.
- Fire control equipment.
- Spill control equipment.
- Decontamination equipment.

1 The Hanford Facility relies primarily on the Hanford Fire Department to control fires. The  
2 Hanford Fire Department is capable of providing rapid response to fires within the 200 West  
3 Area.

4 The Hanford Fire Department tests and maintains the dry chemical fire protection system as  
5 necessary for the 222-S DMWSA.

6 The 219-S Waste Handling Facility relies on water at adequate volume and pressure to supply  
7 water hose streams.

8 Emergency eye washes and safety showers are distributed strategically throughout the 222-S  
9 Laboratory Complex for emergency situations involving waste managed in the dangerous waste  
10 management units. Respirators can be obtained for waste handling areas in case of emergencies.

#### 11 **F.1.1.4 Water for Fire Control**

12 The primary water supply for fire protection is supplied by the water system in the 200 West  
13 Area. Water is pumped to the 222-S Laboratory Complex through an underground pipeline that  
14 ties into existing water mains.

15 Additional water for fire control at the 222-S Laboratory Complex can be supplied by Hanford  
16 Fire Department trucks.

#### 17 **F.1.2 Aisle Space Requirements**

18 Aisle spacing requirements for the 222-S DMWSA and Rooms 2-B and 4-E are based on  
19 [WAC 173-303-340\(3\)](#) and [-630\(5\)](#).

20 For containers within the DMWSA with high radiation levels, removable shielding blankets may  
21 be used for ALARA purposes. Aisle spacing will be maintained to allow the unobstructed  
22 movement pursuant to [WAC 173-303-340\(3\)](#). (NOTE: Removable shielding blankets are  
23 typically a few inches thick and can be removed if necessary.)

### 24 **F.2 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT**

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

#### 26 **F.2.1 Loading and Unloading Operations**

27 Transfers to the 219-S Waste Handling Facility are made by way of underground piping, tank  
28 trailer, or other containers. Transfers from the 219-S Waste Handling Facility to onsite TSD units  
29 or shipments to an offsite TSD facility are made by similar means. Transfers to or from the  
30 219-S Waste Handling Facility are monitored by operations personnel. During unloading/loading  
31 operations at the 219-S Waste Handling Facility, procedures, structures, or equipment are used to  
32 prevent hazards and contain spills. Unloading/loading operations via underground piping use the  
33 secondary containment provided for the underground piping. Unloading/loading operations via  
34 tank trailer use a portable bermed containment area under the tank trailer and plastic-wrapped  
35 transfer lines. Spill equipment is available for unloading/loading operations associated with  
36 containers.

37 For Rooms 2-B and 4-E and the 222-S DMWSA, the following methods are used to minimize the  
38 potential for breaching containers during waste unloading.

- 39 • Containers are inspected for damage before being unloaded.
- 40 • Containers are handled with appropriate equipment during unloading. Organizations  
41 generating onsite waste or offsite generators are required to provide adequate information  
42 to develop instructions for unloading packages requiring special handling.
- 43 • Spill equipment is available.

1 **F.2.2 Run-On and Run-Off**

2 Run-off may occur as a result of run-on due to either flooding (i.e., storm events or water pipe  
3 failure) or as the result of a liquid waste spill. Section C.3.2.3 of Addendum C describes how  
4 run-on due to storm events or water pipe failure is managed through either diverting water to a  
5 nearby catch basin, or in the event that run-on enters the 219-S Waste Handling Facility, it is  
6 contained within secondary containment and pumped into one of the 219-S tanks.

7 Any liquid waste that might spill during transfer to the tank trailer is prevented from running off  
8 by the use of a portable berm that surrounds the tank trailer during transfers. The storm drain  
9 located in the 219-S loading area will also be sealed during a tank trailer transfer. Spills are  
10 cleaned up according to applicable methods (Section 7.2.5 of the Building Emergency Plan).  
11 Any liquid waste spilled from the 219-S Tank System will be contained with secondary  
12 containment and pumped back into one of the 219-S tanks.

13 The 222-S DMWSA has completely roofed structures that rest on an elevated platform. The  
14 platform raises the 222-S DMWSA about 25.4 centimeters above ground level, minimizing the  
15 likelihood of overland run-on reaching the 222-S DMWSA. The roof prevents precipitation from  
16 entering the storage structures. The containment basins within each storage structure prevent run-  
17 off of any release within the 222-S DMWSA.

18 Containers holding free liquids within Room 2-B and Room 4-E are stored in secondary  
19 containment to prevent spills from reaching other portions of the 222-S Laboratory.

20 **F.2.3 Water Supplies**

21 Potential contamination of the raw water supply at the 222-S Operating Unit Group is prevented  
22 through the use of reduced pressure backflow devices, which ensure that contaminated water  
23 cannot flow back into the raw water system. The backflow preventer at 219-S Waste Handling  
24 Facility is installed on the raw water line and inspected annually by a state certified inspector.

25 Operating methods, structures, and equipment are used to prevent contamination of water  
26 supplies. The structures and equipment designed to prevent contamination of water supplies are  
27 the same structures and equipment used to prevent run-off from dangerous and/or mixed waste  
28 handling areas (Section F.2.2).

29 **F.2.4 Equipment and Power Failure**

30 Loss of electricity results in the loss of power to sump pumps, exhaust pumps, agitators, and  
31 automated indicators and alarms at the 219-S Waste Handling Facility. In the event of a loss of  
32 electricity, all pH adjustments, neutralizations, and transfer operations are stopped. The  
33 remaining waste in the pipelines gravity flows to the tank system. In the 222-S Laboratory,  
34 Room 3-B, the panel alarm annunciator notifies the 222-S Laboratory Complex personnel of a  
35 power outage at 219-S Waste Handling Facility. The annunciators can be reset only in the 219-S  
36 Waste Handling Facility when power is restored. Backup mechanical gauges are available onsite  
37 if the existing gauges fail or in the event of a power failure.

38 Loss of electricity does not affect the operation of the 222-S DMWSA. Electricity is not required  
39 to power the ventilation, because it is passively ventilated. Backup power is not required for the  
40 222-S DMWSA.

41 Loss of electricity to Room 2-B and Room 4-E does not affect operations. Backup power is not  
42 required for operations. The effects of a power failure are mitigated by the use of a diesel-  
43 powered ventilation system and by battery-operated emergency lighting.

1 **F.2.5 Personnel Protection Equipment**

2 The 222-S Laboratory Complex procedures, structures, and equipment are used to prevent undue  
3 exposure of personnel to dangerous waste and hazardous chemicals. Protective clothing and  
4 equipment are prescribed for personnel handling chemicals or dangerous waste. Whenever  
5 possible, exposures to hazards are controlled by accepted engineering and/or administrative  
6 controls. Protective gear is used where effective engineering or administrative controls are not  
7 feasible or sufficient.

8 **F.3 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND**  
9 **INCOMPATIBLE WASTE**

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

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

13 At the 222-S DMWSA, Room 2-B and Room 4-E, waste is managed to prevent the reaction of  
14 ignitable or reactive waste in the following ways.

- 15 • Waste is packaged in containers in accordance with Addendum B and C. Incompatible  
16 waste, as defined in [WAC 173-303-040](#), is not placed within the same outer container.
- 17 • Storage within the locked 222-S DMWSA, container storage area in Room 2-B, and  
18 Room 4-E prevents exposure of the containerized waste to sources of ignition or reaction  
19 such as open flames, smoking, or welding operations.

20 The 219-S Waste Handling Facility is permitted to accept ignitable and reactive waste into the  
21 storage/treatment tanks. Ignitable and reactive waste is managed pursuant to Addendum B and C.

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

24 The 222-S Operating Unit Group accepts ignitable, reactive, or incompatible waste. The  
25 precautions for handling these waste types can be found in Addendum B.

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