

**WASTE ENCAPSULATION AND STORAGE FACILITY
ADDENDUM F
PREPAREDNESS 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

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**WASTE ENCAPSULTION AND STORAGE FACILITY
ADDENDUM F
PREPAREDNESS AND PREVENTION**

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PREPAREDNESS AND PREVENTION

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1 **F.1 Preparedness and Prevention**

2 This addendum addresses preparedness and prevention measures at the Waste Encapsulation and Storage
3 Facility (WESF) Operating Unit Group (OUG) and demonstrates compliance with requirements set forth
4 in Washington Administrative Code (WAC) 173-303-340, Dangerous Waste Regulations, *Preparedness*
5 *and prevention* and WAC 173-303-806(4)(a)(viii), *Final facility permits*.

6 WESF is located in the western portion of the 200 East Area of the Hanford Facility, with the main 225-B
7 Building adjoining B Plant on the west end. The 225-B Building houses the WESF Dangerous Waste
8 Management Units (DWMUs), three of which are operating: Hot Cell G, Pool Cells, and Truckport.

9 WESF operations provide for continued safe storage, maintenance, and transfer operations for 1,936
10 capsules containing cesium and strontium radioactive mixed waste. The double-encapsulated cesium and
11 strontium salts are stored underwater in various pool cells. WESF operations are designed to protect
12 human health and the environment (HHE) from the encapsulated mixed waste.

13 For further details on WESF DWMUs and storage, maintenance, transfer operations, and design
14 information, refer to WESF Addendum C, "Process Information."

15 **F.2 Equipment Requirements**

16 WESF is designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or
17 any other unplanned natural phenomenon or manmade incident that could cause unintentional release of
18 dangerous waste or dangerous waste constituents to the air, soil, surface water, or groundwater, which
19 could threaten HHE. The following subsections describe preparedness and prevention measures to be
20 taken at WESF, which help avoid or mitigate such situations.

21 The following communications equipment and fire suppression systems and equipment are available for
22 use at WESF in accordance with the requirements of WAC 173-303-340(1). All communications, alarms
23 and notifications, and fire protection equipment and detection systems are tested and maintained to assure
24 proper operation in time of emergency [WAC 173-303-340(1)(d)].

25 **F.2.1 Internal Communication**

26 WESF is equipped with internal communications devices used to provide immediate emergency
27 instruction to onsite personnel. Communications devices described in this section meet the internal
28 communications requirements of WAC 173-303-340(1)(a), (1)(b), and (2)(a).

29 Onsite internal communication systems consist of alarms and notification systems, telephones,
30 hand-held two-way radios, and a public address system interfaced for voice paging throughout the facility
31 [WAC 173-303-340(1)(a)].

32 The following audible alarm systems are available to provide warnings to WESF personnel:

- 33 • A fire detection system with audible alarms is located throughout the 225-B Building providing
34 personnel notification to evacuate. For further details on fire detection systems refer to
35 Section F.2.3.1.
- 36 • Manual fire alarm pull boxes are located throughout WESF. Activation of manual fire alarm pull
37 boxes trigger an audible fire alarm.
- 38 • Manually actuated take cover alarms are located in the Operations Base (225-B Building) as well
39 as the Incident Command Post (MO232). Such alarms provide personnel notification to take
40 cover and are audible throughout WESF.
- 41 • Manually actuated evacuate alarms are located in the Operations Base (225-B Building) as well
42 as the Incident Command Post (MO232). Such alarms provide personnel notification to evacuate
43 and are audible throughout WESF.

1 Whenever mixed waste (capsule) handling operations occur at WESF, all personnel involved are required
2 to have immediate access to an emergency communication device (e.g., a hand-held two-way radio or
3 telephone) capable of directing emergency communications with another employee
4 [WAC 173-303-340(2)(a)].

5 **F.2.2 External Communications**

6 As required by WAC 173-303-340(1)(b), the communications equipment described in Section F.2.1 must
7 have the capability for contacting the Hanford Patrol Operations Center and Hanford Fire Department to
8 request the assistance of local emergency response organizations.

9 When activated, the fire detection system and manual fire alarm pull boxes will automatically transmit a
10 fire alarm signal to the 200 Area Central Fire Station.

11 In the instance that just one employee is at WESF during operations, the individual is required to have
12 immediate access to a hand-held two-way radio capable of summoning external emergency assistance
13 [WAC 173-303-340(2)(b)].

14 The Hanford Patrol Operations Center Point Of Contact can be contacted for 24-hour emergency
15 communications and for information relays by landline telephone or two-way radio.

16 State and local response organizations are contacted through the Hanford Patrol Operations Center by
17 dialing emergency number 911 from site telephones or 509-373-0911 from cellular phones; for
18 non-emergencies, dial the main contact number for the Hanford Patrol Operations Center at
19 509-373-3800. Onsite responders are notified and/or dispatched through the Hanford Patrol
20 Operations Center.

21 **F.2.3 Emergency Equipment**

22 Portable fire extinguishers and fire control equipment are available for use throughout WESF
23 [WAC 173-303-340(1)(c)]. For a list of emergency equipment, refer to WESF Addendum J,
24 "Contingency Plan." For inspections on emergency equipment, refer to WESF Addendum I, "Inspection
25 Plan." WESF operations personnel are trained in the use of such emergency equipment. For details on
26 personnel emergency training requirements, refer to WESF Addendum G, "Personnel Training."

27 **F.2.3.1 Fire Detection Systems**

28 Two kinds of fire detectors are used either alone or in combination in the 225-B Building: ionization type
29 elements responsive to products of combustion and fixed temperature, rate compensated elements.
30 Electrical signals from the fire detectors are transmitted to a central fire alarm panel located in the main
31 entrance corridor. The central panel will initiate an audible alarm system throughout the building. The
32 alarm system can also be activated by flow alarm switches installed in the sprinkler system piping. The
33 fire alarm signals are transmitted to the 200 Area Central Fire Station. The fire detection and alarm
34 system is capable of electronically monitoring its own operation and providing trouble signals for loss of
35 electrical power, open circuits, or other problems that could affect the operation of the system. The
36 system provides battery power for approximately 60 hours of operation upon loss of electrical power.
37 After 60 hours, a fire watch will be implemented.

38 **F.2.3.2 Fire Suppression Systems**

39 Numerous areas of the 225-B Building are protected with a wet pipe automatic sprinkler system that
40 alarms when activated through the fire alarm panel to the Hanford Fire Department. These areas include:

- 41 • Support area.
- 42 • Heating, ventilation, and air conditioning room.
- 43 • Operating gallery.
- 44 • Service gallery.

- 1 • Manipulator shops.
- 2 • Aqueous Makeup Unit area.
- 3 • Truckport.

4 The Hot Cell G and Pool Cells DWMUs are not equipped with an automatic sprinkler system. However,
5 fire hazards are minimized in both areas by limiting combustible materials. Also, portable fire
6 extinguishers are located throughout the building as well.

7 **F.2.3.3 Water for Fire Control**

8 The raw water system provides water at adequate volume and pressure to supply WESF fire needs
9 [WAC 173-303-340(1)(d)]. In the event of loss of raw water pressure to WESF, a fire watch will be
10 implemented. Alternative water source equipment from the Hanford Fire Department may be deployed
11 for fire control. An underground fire water line also supplies water to the local fire hydrant.

12 **F.3 Preventive Procedures, Structures, and Equipment**

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

14 **F.3.1 Loading and Unloading Operations**

15 WESF stores 1,936 double-walled capsules containing cesium chloride and strontium fluoride salts.
16 WESF does not receive waste from another onsite or offsite facility; therefore, unloading operations are
17 not applicable.

18 To minimize potential for accidental release of mixed waste during loading activities for capsule transfer
19 operations, the following preventive measures are observed by WESF personnel:

- 20 • Capsules, canisters, and casks are handled by equipment appropriate for loading and movement
21 operations.
- 22 • Management approval must be obtained prior to conducting capsule transport operations.
- 23 • Pathways for loading operations must remain clear of obstructions.
- 24 • Transport vehicles are positioned in a manner that provides an unobstructed workspace to load
25 casks.

26 **F.3.2 Aisle Spacing Requirements**

27 During storage in the Pool Cells DWMU, the capsules are underwater in a designated pool cell storage
28 rack location. A capsule(s) may be transferred to Hot Cell G for temporary storage as deemed necessary.
29 During capsule transfer operations, capsules are transferred to Hot Cell G for packaging. The capsules
30 will then be moved to the Truckport DWMU for placement in a Cask Storage System. While in the
31 truckport, only one vertical concrete cask will be accommodated. See WESF Addendum C and
32 Appendix C-A for further details on WESF operations and configuration. Aisle spacing requirements in
33 WAC 173-303-630(5)(c), *Use and management of containers*, are not needed for WESF storage,
34 maintenance, and transfer operations. However, the mixed waste capsules are stored in a manner that
35 allows for unobstructed movement of personnel and emergency equipment to any area of the operating
36 facility in the event of an emergency.

37 **F.3.3 Prevention of Run-On, Run-Off, and Contamination to Water Supplies**

38 Mixed waste capsules are stored underwater in pool cells within the 225-B Building and pool cell water
39 levels are controlled as described in WESF Addendum C. Run-on is not considered a relevant factor in
40 evaluating the protectiveness of waste storage activities in the Pool Cells DWMU. However, normal
41 building design and construction practices at WESF, as described in Addendum C, address precipitation
42 control. The WESF roof, walls, and foundation prevent precipitation run-on from entering the pool cells,
43 hot cell, and truckport area. In addition, only the Truckport DWMU is equipped with a sprinkler system.

1 During transfer of capsules, the Cask Storage System prevents run-on from entering the capsules. Based
2 on WESF design, no precipitation can contact the waste. Because no precipitation can enter the building
3 to contact the waste, no run-off can occur.

4 **F.3.4 Equipment and Power Failure**

5 A temporary loss of electrical power does not constitute an emergency and would not result in a release of
6 mixed waste. The Bonneville Power Administration grid is the primary power source which supplies
7 WESF. Upon loss of power, alternate actions are taken. Water level will be visually checked by manual
8 gauge. Raw water will be added to the pool cells, as necessary.

9 In the event of power loss during capsule loading operations, equipment will remain in a safe
10 configuration. The WESF OUG will not be occupied during power outages except for personnel
11 providing a response action. Rechargeable battery powered lighting units will provide illumination.
12 Communication equipment will be available to summon assistance in the event of power loss.

13 **F.3.5 Personal Protection Equipment**

14 WESF minimizes personnel exposure to occupational injury, dangerous wastes, and hazardous chemicals
15 by ensuring the availability and use of adequate personal protective equipment (PPE) during normal
16 operations and emergencies. All personnel are required to wear PPE specified by work authorization
17 documentation and in accordance with training, posted requirements, and administrative instructions.
18 PPE requirements will vary depending on the form, content, and waste handling activities. When
19 possible, engineering and/or administrative controls are first implemented to minimize the possibility of
20 exposure.

21 **F.3.6 Ventilation**

22 The prevention of radioactive atmospheric releases are managed by means of engineered controls through
23 the design and operation of WESF. As WESF does not contain or require the associated components of
24 WAC 173-303-690, *Air emission standards for process vents*, through WAC 173-303-692, *Air emission*
25 *standards for tanks, surface impoundments, and containers*, the dangerous waste air emission
26 requirements do not apply. For details on ventilation controls and requirements, see Addendum C.

27 **F.4 Prevention of Reaction of Ignitable, Reactive, and Incompatible Waste**

28 WESF does not and will not store ignitable waste, reactive waste, or waste found incompatible with the
29 mixed waste capsules.

30 **F.5 Arrangements with Local Authorities**

31 Written emergency assistance agreements exist with local authorities that include arrangements to
32 familiarize and furnish local hospitals, police departments, fire departments, and city and county
33 emergency response teams with Hanford Facility information [WAC 173-303-340(4)(a) through (c)].
34 Refer to WA7890008967, Hanford Facility Resource Conservation and Recovery Act Permit (hereinafter
35 referred to as the Hanford RCRA Permit), Attachment 4, *Hanford Emergency Management Plan*, for a
36 description of coordination agreements. The response agreements designate primary emergency authority
37 [WAC 173-303-340(4)(d)]. If state or local authorities decline to enter into a response agreement or
38 familiarization arrangement with the Hanford Facility, the Permittees will record the refusal in the WESF
39 portion of the Hanford Facility Operating Record as required by the Hanford RCRA Permit, Condition
40 II.I.1.g [WAC 173-303-340(5)].