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ADDENDUM F
PREPAREDNESS AND PREVENTION

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1 **F. PREPAREDNESS AND PREVENTION**

2 **F.1 Preparedness and Prevention Requirements**

3 This addendum discusses preparedness and prevention measures for the PUREX Storage Tunnels.

4 **F.1.1 Equipment Requirements**

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

7 **F.1.1.1 Internal Communications**

8 The PUREX Storage Tunnels are not occupied and personnel entry is allowed only on a very limited basis
9 and under close supervision. Normal and emergency communications equipment (portable two-way
10 radios) is available for use.

11 **F.1.1.2 External Communications**

12 External communications equipment for summoning emergency assistance from the Hanford Fire
13 Department and/or emergency response teams are provided by two-way portable radios or other devices.

14 **F.1.1.3 Emergency Equipment**

15 Equipment included in the emergency plan for the PUREX Storage Tunnels is provided in Addendum J.

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

17 The fire hazard associated with the operation of the PUREX Storage Tunnels is considered to be very low
18 because of the minimal amount of combustibles stored within the tunnels and the lack of an ignition
19 source. In the event it is determined there is a fire in the storage area of the tunnels, the contingency plan
20 will be activated. Because of the potential of the mixed waste stored within the tunnels to leach, the use
21 of water for fire control will be avoided if possible. Reductions of the air supply to the storage area by
22 isolation of the tunnel exhaust system, if operating, should permit the fire to self-extinguish. Should the
23 fire continue to propagate, heavy equipment and cranes will be called to the scene to cover areas of the
24 tunnels that might collapse. Heavy equipment and cranes are readily available on the Hanford Facility at
25 all times and generally are available for deployment to the scene of an emergency within 1 hour. In the
26 event that a fire resulted in the collapse of the tunnels, a recovery plan will be developed in accordance
27 with emergency response procedures included in Addendum J. The recovery plan will take into
28 consideration plans, if any, for retrieval of the waste stored within the tunnel(s).

29 **F.1.2 Aisle Space Requirement**

30 Requirements for aisle space are not considered appropriate for the safe operation of the PUREX Storage
31 Tunnels and were not included in design documents.

32 **F.2 Preventive Procedures, Structures, and Equipment**

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

34 **F.2.1 Unloading Operations**

35 Operation of the PUREX Storage Tunnels does not involve the loading or unloading of dangerous waste.
36 All loading and unloading operations are conducted at the PUREX Facility or other onsite units.
37 Therefore, the requirements of [WAC 173-303-806\(4\)\(a\)\(viii\)\(A\)](#) are not applicable to the PUREX
38 Storage Tunnels.

1 **F.2.2 Runoff**

2 The design of the PUREX Storage Tunnels included consideration and provisions for the control of runoff
3 and run-on. Construction of both tunnels included the application of a moisture barrier before placement
4 of the soil overburden. On Tunnel Number 1, 40.8-kilogram mineral surface roofing was applied to the
5 external surfaces of the structural timbers (top and sides). The roofing material was nailed in place with
6 an overlap of approximately 10 centimeters at all joints and seams. All interior and exterior steel surfaces
7 of Tunnel Number 2 were coated with at least a 0.9-millimeter bituminous, solvent coal tar base, coating
8 compound. The coating was applied using a two coat system, with each coat not less than
9 0.45 millimeters, ensuring a total dry film thickness of not less than 0.9 millimeter.

10 The soil overburden covering the PUREX Storage Tunnels also is contoured to provide a side slope of
11 2 (horizontal) to 1 (vertical). This construction serves to divert any seasonal or unanticipated run-on
12 away from the storage area of the PUREX Storage Tunnels. For potential situations where a natural
13 catastrophic event occurs, inspections of the tunnel side slopes are conducted to ensure the contours
14 remain in a condition that ensures proper runoff and continues to divert run-on away from the tunnel
15 storage areas.

16 Run-on at the PUREX Storage Tunnels is controlled by the design features of the exterior of the tunnels
17 that serve to divert run-on away from the interior of the tunnels. Additionally, all waste within the tunnels
18 is stored well above the floor level on railcars. The control of run-on combined with the storage of all
19 waste above the floor elevation provides adequate assurance that runoff will not occur at the PUREX
20 Storage Tunnels.

21 **F.2.3 Water Supplies**

22 Water was supplied to the PUREX Storage Tunnels from the PUREX Plant. This water was used for the
23 sole purpose of filling the water-fillable doors should it have been determined necessary. There are no
24 other sources or uses of water at the PUREX Storage Tunnels. The line that supplied water to the
25 PUREX Storage Tunnels was blanked and emptied during deactivation activities. In the future, a
26 temporary source of water would be provided for filling the water fillable door.

27 **F.2.4 Equipment and Power Failures**

28 The procedures, structures, and equipment used to mitigate the effects of equipment failure and power
29 outage are described in the following sections.

30 **F.2.4.1 Mitigation of the Effects of Equipment Failure**

31 Maintaining safe storage of materials in the PUREX Storage Tunnels is not contingent on continued
32 operation of equipment. The operable equipment associated with the PUREX Storage Tunnels were the
33 remote controlled locomotive or waste placement and removal equipment, the railcars, and the water-
34 fillable door and ventilation system for both tunnels. No operable equipment is associated with either
35 tunnel, as these tunnels have been sealed and may no longer receive dangerous waste. Backup or
36 redundant systems are not provided for either tunnel, as failure of the equipment would not have the
37 potential to result in a release of dangerous waste to the environment. There are no hazards associated
38 with tunnel equipment failure.

39 **F.2.4.2 Mitigation of the Effects of Power Failure**

40 Maintaining safe storage of materials in the PUREX Storage Tunnels is not contingent on continued
41 supply of electrical power. Electrical power is required to operate the water-fillable door and the
42 ventilation fan in both tunnels. Backup or redundant ventilation systems are not provided as the system is
43 operated only to maintain air balance and provide secondary control of mixed waste airborne particulate.
44 Power failure to either tunnel would not have the potential to result in the release of dangerous waste or
45 mixed waste to the environment. There are no hazards associated with the shutdown of the tunnel
46 ventilation systems due to loss of electrical power.

1 **F.2.5 Personnel Protection Equipment**

2 Personnel entering the PUREX Storage Tunnels are required to wear special protective clothing and
3 respiratory protection at all times because of the material stored in the PUREX Storage Tunnels.
4 Protective clothing and full-face respirators with filters are considered to be sufficient protection from the
5 dangerous waste stored within the PUREX Storage Tunnels. Personnel are trained and qualified in using
6 the protective equipment and are checked routinely for mask fit.

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

8 There is no reactive or incompatible waste stored in the PUREX Storage Tunnels. The only ignitable
9 waste stored within the tunnels is silver nitrate. The silver nitrate is present within the silver reactors
10 (deposited on unglazed ceramic packing) stored in Tunnel Number 2.

11 Although silver nitrate exhibits the characteristic of ignitability, it is contained within stainless steel
12 vessels, stored on railcars above the floor level, and isolated from combustible materials and other
13 dangerous waste. Additional measures to prevent reaction of the ignitable waste are not considered
14 necessary.

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