

**LOW-ACTIVITY WASTE PRETREATMENT SYSTEM
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 |
|--------------------------|----------------------------|
| 01/29/2021 | 8C.2020.12F |

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**ADDENDUM F
PREPAREDNESS AND PREVENTION**

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PREPAREDNESS AND PREVENTION

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1 **F. PREPAREDNESS AND PREVENTION**

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

3 The following sections document the preparedness and prevention measures taken at the Low-Activity
4 Waste Pretreatment System (LAWPS) Operating Unit Group (OUG), which includes the Tank Side
5 Cesium Removal (TSCR) Process Enclosure, waste transfer lines, Ion Exchange Column (IXC) staging
6 area, and IXC storage pad.

7 **F.1.1 Equipment Requirements**

8 The following sections describe the internal and external communications systems and the emergency
9 equipment that could be activated by the Tank Farm Operations Building Emergency Director(s) (BEDs)
10 or other responsible personnel as necessary. Personnel have immediate access to communications
11 systems and emergency equipment during waste processing operations.

12 **F.1.1.1 Internal Communications**

13 Communication systems are used to provide immediate emergency instruction to personnel involved with
14 waste treatment operations at the TSCR and IXC staging and storage areas. Communication systems
15 include both personal equipment, such as two-way radios and cell phones, and facility alarms.

16 When operators are present at TSCR or either IXC storage area, they carry two-way radios to maintain
17 contact with personnel. The operators are informed of emergencies (e.g., building and/or area
18 evacuations, take-cover events, high airborne contamination, fire, and/or explosion), and are provided
19 with emergency instructions by mobile two-way radios and telephones.

20 TSCR alarms provide immediate notice of emergency conditions to facility personnel and include alarms
21 for fire, leak detection, and process abnormal conditions (e.g. automatic shutdown). Fire alarms are
22 located on the TSCR Process Enclosure and Control Enclosure. Alarms associated with process
23 operations annunciate in the TSCR Control Enclosure. Certain alarm activation results in notification to
24 the Building Emergency Director. Additional detail regarding emergency response can be found in
25 Addendum J, "Contingency Plan."

26 **F.1.1.2 External Communications**

27 Operations personnel are equipped with devices for summoning emergency assistance from the Hanford
28 Fire Department, the Hazardous Materials Response Team, and/or Hanford Patrol, as necessary. External
29 communication to summon emergency assistance is made by cellular telephones or two-way radios. The
30 Process Enclosure and Control Enclosure are equipped with fire alarm pull boxes and personnel utilize
31 cellular telephones for external communication, which would be necessary for an emergency at either
32 IXC storage area.

33 **F.1.1.3 Emergency Equipment**

34 LAWPS facilities, including TSCR and the IXC storage areas, rely primarily on the Hanford Fire
35 Department to respond to fires and other emergencies as described in Hanford Facility Permit
36 Attachment 4, *Hanford Emergency Management Plan*, (DOE/RL-94-02). The Hanford Fire Department
37 provides all the necessary equipment and personnel to respond to emergencies. Operators are familiar
38 with the LAWPS Contingency Plan (Addendum J) and are trained in the use of emergency systems,
39 response to fires, and use of communications equipment.

40 Spill control equipment, and decontamination equipment are available at locations identified in the
41 LAWPS Contingency Plan. Addendum J provides additional detail on specific emergency equipment
42 types and capabilities. The type of dangerous waste managed in the TSCR Process Enclosure and IXC
43 storage areas do not require use of specialized extinguishing equipment.

1 Hazardous material protective gear and special work procedure clothing for operations personnel are kept
2 in change rooms. A safety shower is located near the TSCR Process Enclosure, and emergency
3 eyewashes are available for use. Water for these devices are replenished from the delivery of sanitary
4 water.

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

6 TSCR is not connected to the 200 East Area fire water supply system, but will be equipped with a skid
7 mounted fire suppression system that will provide a nitrogen driven water mist to the Process Enclosure
8 in the event of a fire. In addition, the Hanford Fire Department is equipped with fire engines for control
9 of fires requiring high water volume and pressure.

10 **F.1.2 Aisle Space Requirement**

11 The IXC storage pad is subject to aisle spacing requirements of Washington Administrative Code
12 (WAC) 173-303-630(5)(c). It is designed to be readily accessible to emergency response personnel and
13 vehicles [WAC 173-303-340(3)]. This allows access by emergency responders by several means of
14 approach. The IXC staging area is limited to three columns; therefore, aisle spacing is not applicable.
15 This location is readily accessible to emergency response personnel as well.

16 Layout of LAWPS facilities also establishes equipment spacing that is sufficient to allow the movement
17 of personnel and fire protection equipment in and around all portions of the facility. The facility general
18 arrangement and layout also meets the requirements of the National Fire Protection Association for the
19 protection of personnel.

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

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

22 **F.2.1 Unloading Operations, Spill Prevention, and Control**

23 Below-grade and above-grade portions of hose-in-hose transfer lines (HIHTLs) that convey tank waste to
24 and from the TSCR Process Enclosure include secondary containment. If a leak is detected in a HIHTL,
25 process operations will be stopped and the cause of the leak investigated and remediated. A more
26 complete discussion of secondary containment is found in Addendum C, "Process Information."

27 The TSCR systems are monitored continuously during processing operations and filling and/or processing
28 is stopped immediately if leaks or other upset occurs.

29 Care is taken to ensure that even minor leaks are cleaned up immediately and disposed of in accordance
30 with approved procedures. Any release of a material that is determined to be a dangerous waste will be
31 managed according to the requirements of WAC 173-303.

32 Traffic and personnel access controls are employed during IXC change-out and transfer to the storage
33 pad. The travel path is secured during transfers to ensure unimpeded and safe transfer of the spent
34 columns from the Process Enclosure to placement on the storage pad. The IXC staging area is located
35 within the fenced TSCR Process Enclosure area and does not require traffic control to place columns in
36 this location.

37 **F.2.2 Run-on**

38 As a tank storage and treatment system equipped with secondary containment and leak detection systems,
39 the TSCR Process Enclosure is designed and operated to prevent run-on from infiltration of precipitation
40 into the secondary containment systems in accordance with WAC 173-303-640(4)(e)(ii). Because the
41 LAWPS IXC storage areas (both staging and storage areas) do not store waste with free liquids,
42 prevention of run-on in accordance with WAC 173-303-630(7)(b) is not required. The spent IXC staging
43 area and storage pad are sloped to remove accumulation of precipitation in accordance with
44 WAC 173-303-630(7)(c)(i).

1 **F.2.3 Water Supplies**

2 The TSCR design, operating practices, structures, and equipment prevent the contamination of natural
3 water supplies (i.e., groundwater and surface water). The TSCR Process Enclosure is monitored
4 continuously during liquid waste transfers and processing to detect abnormal conditions (e.g., leaks). In
5 addition, inspections are performed according to Addendum I, "Inspection Plan," to detect equipment and
6 structural deteriorations that could allow possible water supply contamination. Addendum J,
7 "Contingency Plan," provides information on procedures that are implemented if a release is detected.

8 There are no drinking water wells near the TSCR Process Enclosure and IXC storage areas, and waste
9 transfer lines. Therefore, a release would not immediately contaminate drinking water supplies. The
10 LAWPS OUG uses operating practices, structures, and equipment to prevent the contamination of natural
11 water supplies (i.e., groundwater and surface water).

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

13 The storage function of the TSCR tank system and IXC are not affected by the loss of power and a loss of
14 power would not pose a threat to the environment. Loss of electrical power would not cause the storage
15 of the waste in either the Process Enclosure or IXC storage areas to be compromised. During loss of
16 power, the affected pumps and subsystems will be shut down, including TSCR process operations.

17 If power at TSCR is lost, the Process Enclosure valves assume a fail-safe open position allowing waste to
18 drain back to the 241-AP Tank Farm. This ensures the Process Enclosure remains in a safe shutdown
19 mode until restoration of power. This action allows the operators to investigate and confirm that there are
20 no safety related issues as a result of shut down.

21 A combination of reliability, redundancy, maintenance, and repair features are used in the TSCR
22 equipment and systems to minimize random failure of equipment. Spare parts are maintained for
23 essential production operations and safety equipment.

24 **F.2.5 Personnel Exposure**

25 Operating practices, structures, and equipment are used to prevent undue exposure of operations
26 personnel to dangerous and/or mixed waste. All operations are conducted so that exposure to dangerous
27 and/or mixed waste and hazardous materials are maintained As Low as Reasonably Achievable.

28 Protective clothing and equipment are prescribed for personnel handling chemicals or dangerous waste.
29 Before the start of any operation that could expose personnel to the risk of injury or illness, a review of
30 the operation is performed to ensure that the nature of hazards that might be encountered is considered
31 and appropriate protective gear is selected. Personnel are instructed to wear personal protective
32 equipment in accordance with training, postings, and work instructions.

33 Whenever possible, exposures to hazards are controlled by accepted engineering and/or administrative
34 controls. Protective gear is used where effective engineering or administrative controls are not feasible.

35 **F.3 Prevention of Reaction of Ignitable, Reactive, and Incompatible Waste**

36 LAWPS OUG does not accept or manage ignitable, reactive, or incompatible waste. Therefore, the
37 requirements of WAC 173-303-806(4)(c)(x), WAC 173-303-640(9) and (10), and WAC 173-303-395(1)
38 do not apply.

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