

**325 HAZARDOUS WASTE TREATMENT UNITS
ADDENDUM I
INSPECTION REQUIREMENTS
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
05/2014	

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**ADDENDUM I
INSPECTION REQUIREMENTS**

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**ADDENDUM I
INSPECTION REQUIREMENTS**

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1 **I. INSPECTION REQUIREMENTS**

2 **I.1 Inspection Plan**

3 The purpose and intent of implementing inspection procedures at the 325 Hazardous Waste Treatment
4 Units (HWTU) are to prevent malfunctions, deterioration, operator errors, and/or discharges that might
5 cause or lead to the release of regulated waste to the environment or threats to human health. This
6 Addendum describes the system of daily and weekly inspections involving various Pacific Northwest
7 National Laboratory (PNNL) departments and levels of management to meet this intent.

8 **I.1.1 General Inspection Requirements**

9 This section identifies the content and frequency of inspections required at the 325 HWTUs.

10 **I.1.1.1 Daily Inspections**

11 Types of Problems. Specific inspection points are:

- 12 • Container integrity.
- 13 • Mislabeled or opened containers.
- 14 • Improper storage (e.g., incompatible waste storage).
- 15 • Disorderliness or uncleanliness of storage unit.
- 16 • Accumulation of waste in containment systems.

17 Frequency of Inspection: The 325 HWTUs staff performs daily inspections whenever waste packaging,
18 transfer, shipping, or movement operations are conducted. Unit personnel monitor container condition
19 and integrity, the containment system, and other building areas daily where waste is handled.

20 Results of these daily inspections are documented as part of the 325 HWTUs operating record.

21 **I.1.1.2 Weekly Inspections**

22 The 325 HWTUs personnel conduct weekly inspections of both safety and operating equipment in the
23 325 HWTUs. Safety and emergency equipment are inspected for functionality and adequacy of supply.
24 The weekly and daily inspections are usually conducted on or before the last working day of each week,
25 and have the same inspection points. Results of these weekly inspections are documented as a part of the
26 325 HWTUs operating record.

27 **I.1.1.3 Quarterly, Once Every Four Months, and Annual Inspections**

28 The Hanford Facility 300 Area Fire Department performs a once-every-four-months inspection of fire
29 suppressant and notification systems (i.e., sprinkler system and fire alarm pull boxes). This inspection
30 includes flow tests of the sprinklers to ensure that there is no blockage in the system lines; the alarm
31 system is activated to ensure proper pull box operation. Annually, the Fire Department performs a full
32 inspection of the sprinkler system, smoke detectors, heat detectors, and pull boxes. A complete flow test
33 of the sprinkler system is performed from the furthest valve to ensure proper flow through the entire
34 system. Fire extinguishers also are checked for proper pressure and function. The Hanford Fire
35 Department retains these records.

36 Additional documented inspections are performed quarterly of the emergency eyewash/shower units, the
37 fume hoods, and other ventilation system components. Records of these safety equipment inspections
38 and the results, as well as documentation of any required corrective actions, are maintained by the
39 appropriate facilities and operations staff.

40 **I.1.1.4 Frequency of Inspections**

41 The frequency of inspections is based on specific regulatory requirements and on the rate of possible
42 deterioration of equipment and probability of environmental or human health incidents.

1 Areas where dangerous and mixed waste are actively handled, including all of the hot cells, the front and
2 back face of the SAL, and Rooms 520, 524 and 528 in the HWTU are considered to be areas subject to
3 spills. These areas are given daily inspections when in use as required by WAC 173-303-320(2)(c).

4 The primary and secondary containment systems (i.e., floors, troughs, and sumps) are inspected daily
5 when in use for accumulation of spilled material. The containment systems are inspected weekly for
6 structural integrity (i.e., no cracks, gaps, leaks that could result in environmental release of waste in the
7 event of a spill). This frequency is based on the need to perform timely corrective actions in the event
8 that problems are noted.

9 Aisle space between containers is inspected weekly when applicable. As the objective of the aisle space
10 requirements is to allow for unobstructed movement of personnel and equipment in case of an emergency,
11 the aisle space requirements do not apply to the hot cells, shielded cubicles, or storage cabinets. If
12 quantities of waste are packaged in large containers or drums, temporarily stored before a transfer, a
13 minimum aisle space of 76 centimeters is maintained in accordance with WAC 173-303-340(3), As-Low-
14 As-Reasonably-Achievable (ALARA) concerns, and with applicable standards of the Uniform Building
15 Code and Life Safety Code. Weekly inspections, where applicable, allow container spacing problems to
16 be identified and corrected.

17 Emergency and safety equipment and personal protective equipment are inspected weekly. Weekly
18 inspections will assure this equipment is available and in adequate supply.

19 **I.1.2 Specific Process Inspection Requirements**

20 The following sections detail the inspections to be performed at the 325 HWTUs.

21 **I.1.2.1 Container Inspection**

22 Dangerous and mixed waste containers stored in the 325 HWTUs are inspected daily where waste
23 handling activities are performed for leakage, evidence of damage or deterioration, proper and legible
24 labeling, and proper lid and bung closure. Any observations made during the inspections, including any
25 repairs or remedial actions taken, are documented in the logbook with the date, time, and printed name
26 and signature of the inspectors. This logbook is maintained in the 325 HWTUs for at least 5 years from
27 the dates of the inspections. All areas subject to spills are inspected daily when in use. Structural
28 integrity of the containment systems is checked weekly.

29 **I.1.2.2 Tank System Inspection**

30 The Shielded Analytical Laboratory (SAL) tank located in Room 32 is used to store mixed waste
31 generated because of waste treatment activities. Routine inspections of the SAL tank system are
32 conducted in accordance with WAC 173-303-640. Inspections involve a combination of visual,
33 mechanical, and electronic means. Due to ALARA considerations, visual inspections of the tank system
34 are conducted by remotely operated cameras mounted in Room 32. These visual inspections are limited
35 to areas of the tank system that can be observed by the camera. In the event of a camera system
36 malfunction, the tank system will be visually inspected from the doorway of Room 32 until the
37 malfunction has been corrected. A mirror is mounted on the back wall of Room 32 to allow viewing the
38 rear of the tank from the window in the door. A logbook or inspection sheet of all inspections is
39 maintained in the operating record for at least 5 years from the date of the inspection.

40 **I.1.2.2.1 Tank System External Corrosion and Releases**

41 Aboveground portions of the SAL tank are inspected each operating day to detect corrosion or releases of
42 waste.

43 **I.1.2.2.2 Tank System Construction Material and Surrounding Area**

44 The SAL tank is double walled and constructed of corrosion resistant stainless steel, with a capacity of
45 1,218 liters. The outer wall is a cylindrical stainless steel tank that provides containment sufficient to
46 contain 100 percent of the inner tank volume.

1 The construction materials of the tank and the area immediately surrounding the externally accessible
2 portion of the tank system, including the secondary containment systems, are inspected during use to
3 detect erosion or signs of releases of mixed waste (e.g., wet spots).

4 Any deteriorations or malfunctions observed during inspection of the tank system will be corrected. Any
5 release to the environment is reported immediately to Ecology, as required by
6 WAC 173-303-640(7)(d)(i), and to the National Response Center as required by 40 CFR 302.

7 **I.1.2.2.3 Tank System Overfilling Control Equipment**

8 The tank controls for the SAL tank include two high-level alarm systems that respond to overflow
9 conditions. The initial tank high-level alarm is activated by a conductivity probe, the second by a
10 capacitance probe. The conductivity probe high-level alarm and associated functions can be tested
11 electrically by depressing a button on the main control panel in Room 201. Activation of this alarm
12 results in a visible red light and audible alarm on the main control panel in Room 201, an alarm condition
13 on the annunciator panel on the second floor of the 325 Building, and closure of electric solenoid valves
14 on all inlet water supply lines to the hot cell area and tank system. Activation of the capacitance probe
15 alarm results in a red light and audible alarm.

16 **I.1.2.2.4 Tank System Monitoring and Leak Detection Equipment**

17 The leak detection conductivity probe for the SAL tank is located between the primary and secondary
18 shells of the double walled tank. The leak detection probe signal activates if any liquids collect in the
19 annulus between the two walls of the tank. The leak detection probe can be functionally tested
20 electrically by depressing a test button on the main control panel in Room 201. A leak detection sensor is
21 also installed in the secondary containment pan underneath the SAL tank and activates if liquids are
22 detected in the pan.

23 **I.1.3 Inspection Log**

24 Copies of the completed inspection checklists are provided to operations personnel and maintained in the
25 325 HWTUs files. Any corrective actions noted or deterioration or malfunctions in equipment discovered
26 by the inspector are delegated to responsible individuals in the operations group. Corrective actions
27 identified must be completed within 2 weeks unless there is documentation and reason for further delay.
28 Examples of problems that could be identified and the corresponding remedial action are listed in
29 Table I.1. Inspection reports and corrective action response documentation are retained at the
30 325 HWTUs for a minimum of 5 years.

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Table I.1. Remedial Actions for Major Problems

Major Problems	Remedial Actions
Containment system failures	
Cracks in floor of container storage area	Remove containers from area and cease use until cracks are repaired.
Cracks in floor of SAL cell liner	Remove containers from area and cease use until cracks are repaired, or provide secondary containment for containers holding liquid waste.
Leaking container in container storage area	Transfer waste to another container. Clean up spill.
Leaking tank or ancillary equipment	For minor leaks or drips, conduct inspection of affected equipment every 12 hours. For major leaks, immediately remove all waste from tank system. Prevent addition of waste to tank system until repaired. Notify Building Emergency Director. Initiate contingency plan if appropriate.
Spills	
Minor spills in container storage area	Clean up spill according to contingency plan.
Major spills in container storage areas	Notify Building Emergency Director. Initiate contingency plan if appropriate.

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