

**WASTE ENCAPSULATION AND STORAGE FACILITY
ADDENDUM I
INSPECTION PLAN
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

This page intentionally left blank.

DRAFT

1
2
3
4
5
6

**WASTE ENCAPSULATION AND STORAGE FACILITY
ADDENDUM I
INSPECTION PLAN**

DRAFT

1
2
3
4
5

This page intentionally left blank.

DRAFT

**ADDENDUM I
INSPECTION PLAN**

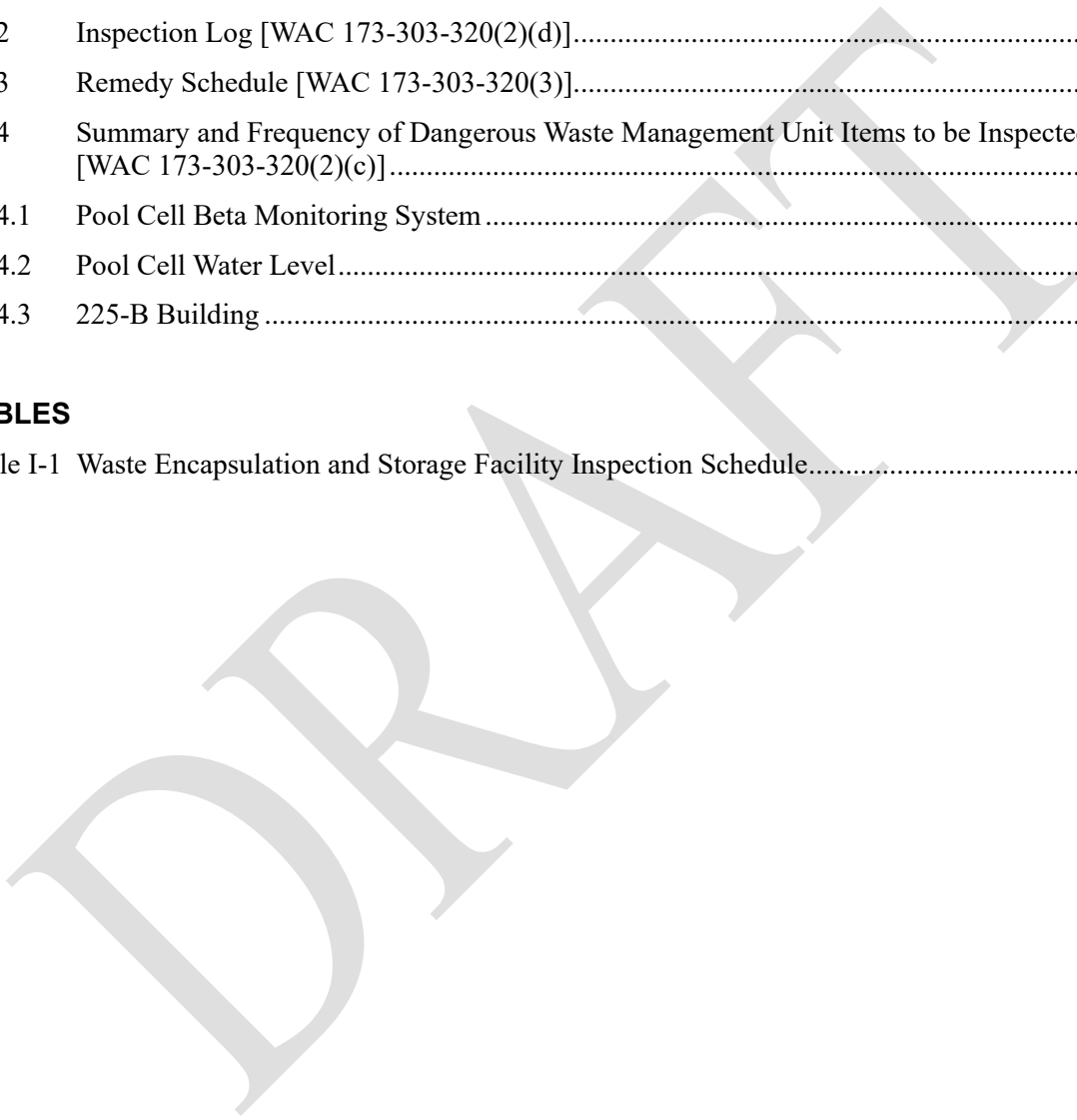
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

TABLE OF CONTENTS

I.1 Inspection Plan 5
I.1.1 General Inspection Requirements [WAC 173-303-320]..... 5
I.1.2 Inspection Log [WAC 173-303-320(2)(d)]..... 8
I.1.3 Remedy Schedule [WAC 173-303-320(3)]..... 9
I.1.4 Summary and Frequency of Dangerous Waste Management Unit Items to be Inspected
[WAC 173-303-320(2)(c)]..... 9
I.1.4.1 Pool Cell Beta Monitoring System..... 10
I.1.4.2 Pool Cell Water Level..... 10
I.1.4.3 225-B Building 10

TABLES

Table I-1 Waste Encapsulation and Storage Facility Inspection Schedule..... 5



1
2
3
4
5

This page intentionally left blank.

DRAFT

1 **I.1 Inspection Plan**

2 In accordance with Washington Administrative Code (WAC) 173-303-806(4)(a)(v), Dangerous Waste
3 Regulations, *Final facility permits*; WAC 173-303-320, *General inspection*; and WAC 173-303-340,
4 *Preparedness and prevention*; this inspection plan is designed to prevent malfunctions, deterioration,
5 operator errors, and discharges at the Waste Encapsulation and Storage Facility (WESF) Operating Unit
6 Group. These events may cause or lead to the release of dangerous waste constituents to the environment
7 or a threat to human health. This inspection plan is also designed to provide early warning of the
8 potential for such events in order to make timely corrections or take preventative actions.

9 **I.1.1 General Inspection Requirements [WAC 173-303-320]**

10 Inspections within the schedule are performed by qualified personnel according to a frequency that has
11 been developed through both regulatory requirements and operating experience (Table I-1). For
12 frequencies not defined by specific regulatory requirements, a justification for the frequency will be
13 documented and maintained in the Hanford Facility Operating Record (WESF portion) in accordance
14 with WA7890008967, Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit,
15 (hereinafter referred to as Hanford Facility RCRA Permit). During an inspection, inspectors evaluate
16 each inspection item against its associated acceptance criteria, defined in the schedule (Table I-1). The
17 results of the inspections are documented in inspection logs that are dated and signed by the inspector,
18 and retained in the Hanford Facility Operating Record (WESF portion) for at least 5 years.

19

Table I-1 Waste Encapsulation and Storage Facility Inspection Schedule

Inspection Item / Area	Frequency	Types of Problems and Evaluation Criteria
General Facility		
Posted Warning Signs ^a Location specified in Addendum E	A	Problem: Dangerous waste warning signs missing, not in proper location, not visible, or not in good condition. Check condition of dangerous waste warning signs. Ensure signs are visible, in good condition, and verify the location of the signs.
225-B Automatic Sprinkler System Valves and Riser Pressure Gauges Facility-wide system	M	Problem: Valve seals not intact. Pressure below operable range. Check that equipment is in good condition, valve seals are intact, and water pressure is available.
225-B Automatic Sprinkler System Valve Functional Test Facility-wide system	A	Problem: Valve and alarms are not operational. Verify that valves and associated alarms are functional.
Fire Extinguishers Location specified in Addendum J	M	Problem: Missing fire extinguisher, improper type of fire extinguisher, or inaccessible fire extinguisher. Ensure that fire extinguishers are visible, in proper location, the proper type, easily accessible, and adequately pressurized for use (i.e., gauge reading).

Table I-1 Waste Encapsulation and Storage Facility Inspection Schedule

Inspection Item / Area	Frequency	Types of Problems and Evaluation Criteria
Fire Alarm/Pull Boxes Location specified in Addendum J	A	Problem: Fire alarms/pull boxes are not operational. Hanford Fire Department verifies that fire alarms/pull boxes are operational by performing functional test.
Emergency Lighting Facility-wide system	M	Problem: Lighting is not present or operational. Verify that equipment is present and functional.
Communications Equipment Facility-wide system	A	Problem: Equipment is not operational. Check that equipment is present and operating.
Safety Shower Location specified in Addendum J	M	Problem: Shower is not present or operational. Check that equipment is present and functional.
Spill Kits Location specified in Addendum J	M	Problem: Seal is broken and required spill response equipment/supplies missing from the spill kit. Check the tamper seal on the spill kit. If the spill kit has been opened since the last inspection, inventory the spill kit contents. Affix seal after inventory check/restocking.
	A	Problem: Required spill response equipment/supplies missing from the spill kit or are expired. Perform a physical inventory of spill kit. Replace missing and expired items.
Eyewash Stations Portable	SA	Problem: Missing or empty equipment. Check for proper function and operation.
Exterior Surfaces and Surrounding Area ^a 225-B Building	A	Problem: Cracks, gaps, or other degradation of the building, which could compromise the integrity of the storage system and cause leaking of the pool cells. Check for structural damage to the building. Check outside the building for liquid accumulation or signs of hazardous waste releases.

Table I-1 Waste Encapsulation and Storage Facility Inspection Schedule

Inspection Item / Area	Frequency	Types of Problems and Evaluation Criteria
Storage		
Pool Cell Beta Monitoring System: Data from Leak Detection Equipment Monitors (i.e., leakage of the capsules, NOT pool cell water)	D ^b	Problem: Monitor readings are not within range. Verify that beta monitors for applicable pool cells are within acceptable range.
Pool Cells Sump Leak Detector Alarms ^c	A	Problem: Alarms not operational. Verify alarms are functional.
Pool Cell Beta Alarms	M	Problem: Alarms not functional. Verify that equipment is functional.
Pool Cell Water Level	D ^b	Problem: Water level not within range. Check that water level is within acceptable range.
Pool Cell Low Water Level Alarm	Q	Problem: Alarms not functional. Verify that equipment is functional.
Hot Cell G	W	Problem: Evidence of spills, cracks, gaps, or other degradation on the visible areas of the floor and sump. Check for evidence of spills, leaks, or cracks on the visible areas of the floor and sump.
Truckport	Before Vertical Concrete Cask (VCC) is placed in Truckport and after transfer	Problem: Evidence of spills, cracks, gaps, or other degradation. Check for evidence of spills, leaks, or cracks.
Exterior of Vertical Concrete Cask	Before capsule loading and before transfer from WESF	Problem: Degradation or damage to the cask. Missing or obscured labels on the casks. Check for deterioration and damage on the VCC exterior. Verify that cask labels are visible, unobscured, and in good condition.
Truckport Apron	Before VCC is placed on apron and after transfer	Problem: Evidence of spills, cracks, gaps, or other degradation. Check for evidence of spills, leaks, or cracks.
Waste Handling Equipment^e		
Canyon Crane	D	Problem: Crane is not operational. Check for proper function and operation.
Manipulators	D	Problem: Manipulator is not operational. Check for proper function and operation.

Table I-1 Waste Encapsulation and Storage Facility Inspection Schedule

Inspection Item / Area	Frequency	Types of Problems and Evaluation Criteria
Air Pallet ^d	D	Problem: Air pallet is not operational. Check for proper function and operation.
Loading and Sealing Equipment ^d	TBD	
Dry Transfer System ^d	A	Problem: Hoist is not functioning properly. Visually inspect hoist components for proper function and operation.

^aAfter initiation of closure, see Addendum H, “Closure Plan,” for required inspections.

^bInspections will be on scheduled work days, excluding Hanford Facility closure days.

^cApplies to Pool Cells 1-4, 6-8, and 12.

^dInspections will occur upon initiation of capsule transfer operations.

^eInspections are applicable only during equipment use. If the facility equipment has been inactive and inspections have been suspended, then an initial inspection will be conducted prior to use.

Unless otherwise noted, inspection frequencies are defined by the following periodicities:

Daily (D) = Once per calendar day.

Weekly (W) = Once per calendar week with a period that runs from Sunday to Saturday.

Monthly (M) = Once per calendar month.

Quarterly (Q) = Once per calendar quarter.

Semiannually (SA) = Once per 6-month calendar period.

Annually (A) = At least once per 12-month period ±30 days.

1

2 This inspection plan addresses the following unit group specific items:

- 3 • General facility.
- 4 • Storage areas.
- 5 • Waste handling equipment.

6 Management-level staff are responsible for developing the individual training plans for personnel
7 performing inspections. These staff may include the Facility Director or Facility Manager personnel.
8 Inspections may be performed by either facility operations personnel or Hanford Fire Department
9 personnel. All inspectors shall have the appropriate training as outlined in WESF Addendum G,
10 “Personnel Training.”

11 **I.1.2 Inspection Log [WAC 173-303-320(2)(d)]**

12 Inspections implemented through operating requirements will be documented on inspection checklists or
13 log sheets in accordance with WAC 173-303-320(2)(d). Inspection checklists or log sheets will note the
14 date and time of the inspection and which items will be assessed during each inspection. Any identified
15 problems or discrepancies (e.g., spills or discharges), and the date and nature of any repairs or remedial
16 actions taken, will be recorded on the inspection checklist or log sheet, reported to the operating
17 organizations, and prioritized and addressed in a timely fashion as described in Section I.1.3.

18 When the inspection is completed, the inspector’s full name is printed and signed on the inspection
19 checklist or log sheet. The schedule and inspection records will be maintained and stored in the Hanford
20 Facility Operating Record (WESF portion) in accordance with the record retention requirements set forth
21 in WAC 173-303-320(2)(a) and (d) and WAC 173-303-380(1)(e), *Facility recordkeeping*. The schedule
22 will be electronically available at 225-B.

1 **I.1.3 Remedy Schedule [WAC 173-303-320(3)]**

2 Problems and unanticipated substandard conditions identified by the inspector are documented on the
3 inspection log and reported to facility management for prioritization and scheduling of remedial actions to
4 minimize environmental or human health incidents. Problems identified during inspections are
5 categorized into three general areas and addressed accordingly. The areas include imminent hazards to
6 human health and the environment, problems that can be easily remedied with little or no planning, and
7 maintenance items that require planning and coordination to correct:

- 8 • When an identified problem poses an imminent risk to human health or the environment, actions
9 are taken immediately to mitigate the hazard. This may include activation of the Building
10 Emergency Plan for WESF (located in WESF Addendum J, Contingency Plan) and the Hanford
11 Emergency Management Plan (located in Hanford Facility RCRA Permit Attachment 4) when
12 contingency plan action levels are exceeded. Examples of problems that warrant immediate
13 action include active releases of dangerous waste to the environment (e.g., capsule leak) and
14 failure of systems that mitigate potential releases (e.g., building ventilation, pool cell system).
- 15 • Problems identified during an inspection that are easily corrected (e.g., no maintenance planning
16 required) such as sign replacement will be corrected within 24 hours or tracked until completion.
- 17 • Other problems that cannot be easily corrected are addressed on a prioritized schedule. Actions to
18 assess and remedy such problems are assigned, and a schedule for completion is determined.

19 Inspections are completed by using either inspection logs or through a job control database. Problems
20 identified using an inspection log are noted on the inspection log and either corrected during the time of
21 the inspection or tracked on each subsequent inspection log until corrected. Problems identified using the
22 job control database are noted on the inspection form and either corrected during the time of the
23 inspection or the problem is added to the job control database to be addressed according to a remedy
24 schedule.

25 An overall schedule for remedying problems would include time to develop a maintenance instruction in
26 conjunction with any schedule constraints such as parts availability, fabrication, environmental, and
27 facility access limitations. The time to develop a maintenance instruction depends on a number of factors,
28 including nuclear, radiological, and industrial safety hazards associated with the task, complexity of the
29 task; human factors and performance considerations; skill of worker(s); and risk to the worker(s), public,
30 or the environment.

31 The inspection problem resolution process may include an inspection data sheet that identifies the criteria
32 for the inspection, relays identified problems onto an action tracking list, and develops maintenance
33 instructions for problems based on the actions tracking list. The remedies for problems identified are
34 developed using maintenance instructions and prioritized on a schedule as described above. Problems
35 pending resolution and their associated tracking designation will be noted until the remedy is complete.

36 Information from the inspection checklist or log sheet will be maintained in the Hanford Facility
37 Operating Record (WESF portion) in accordance with the Hanford Facility RCRA Permit Condition II.I.

38 **I.1.4 Summary and Frequency of Dangerous Waste Management Unit Items to be**
39 **Inspected [WAC 173-303-320(2)(c)]**

40 Due to the highly radioactive nature of the mixed waste capsules and the underwater storage
41 configuration, weekly inspection of the capsules (in accordance with WAC 173-303-630(6), *Use and*
42 *management of containers*) would require removal of each capsule. Capsule removal is a highly complex
43 operation that is only performed due to emergencies or required maintenance. Removing capsules on a
44 weekly basis from the pool water would increase the risk for physical capsule damage, thermal cycling
45 failure, and unnecessary radiation exposure to personnel. The cesium and strontium salts are contained in
46 double-walled capsules that have been designed, welded, undergone various performance tests, and stored

1 in a manner to ensure that capsule integrity is maintained (see WESF Addendum C, “Process
2 Information,” for further information on WESF capsule properties and storage operations).

3 **I.1.4.1 Pool Cell Beta Monitoring System**

4 Even though a capsule leak is highly unlikely, the pool cells use a beta monitoring system to continuously
5 monitor the pool cell water for radioactivity from cesium and strontium. The pool cell beta monitors are
6 inspected to ensure that values are within 5 to 50 counts per minute (cpm). At values outside the
7 acceptable range, an alarm will sound. Pool cell beta monitors can be used for capsule leak detection
8 because the dangerous and radioactive components of mixed waste are inseparable; therefore, a release of
9 dangerous waste or dangerous waste constituents that does not exhibit radioactivity is not possible. The
10 pool cell beta monitors are the primary method to detect a capsule malfunction. Inspection of beta range
11 and the functionality of the alarms ensures capsules are stored within an acceptable range and the alarms
12 are operating properly.

13 **I.1.4.2 Pool Cell Water Level**

14 The pool cells are monitored to ensure that water levels are within acceptable range. Pool Cells 1 through
15 8 are inspected to ensure that water levels are between 381 and 399 cm (150 and 157 in.). Pool Cell 12 is
16 inspected to ensure that water levels are between 305 and 323 cm (120 and 127 in.). A low water level
17 alarm will sound at 351 cm (138 in.) and 274 cm (108 in.) in Pool Cells 1-8 and Pool Cell 12,
18 respectively.

19 **I.1.4.3 225-B Building**

20 The 225-B Building, which houses the WESF dangerous waste management units, will be inspected on an
21 annual basis. This inspection will include a walkdown of the outside of the 225-B Building, with
22 emphasis on the pool cells portion of the facility. The inspector will check for signs of structural damage
23 and deterioration (i.e., subsidence around the foundation, unusual settling, or major cracks in the
24 structure) of the building. These types of structural damage or deterioration may cause or could
25 potentially lead to the release of mixed waste to the environment or threat to human health. The
26 surrounding area will also be inspected to check for liquid accumulation and signs of release of hazardous
27 waste.

28 The items subject to inspection and their respective evaluation criteria are identified in Table I-1.