

1
2
3
4

ADDENDUM H
CLOSURE

DRAFT

1
2
3
4

This page intentionally left blank.

DRAFT

1
2
3

4
5
6
7
8
9
10
11
12
13
14
15
16
17

ADDENDUM H
CLOSURE

Contents

H. CLOSURE H.1

H.1 Closure Plan H.1

H.1.1 Closure Performance Standard H.1

H.1.2 Closure Activities H.1

H.1.3 Maximum Extent of Operations H.2

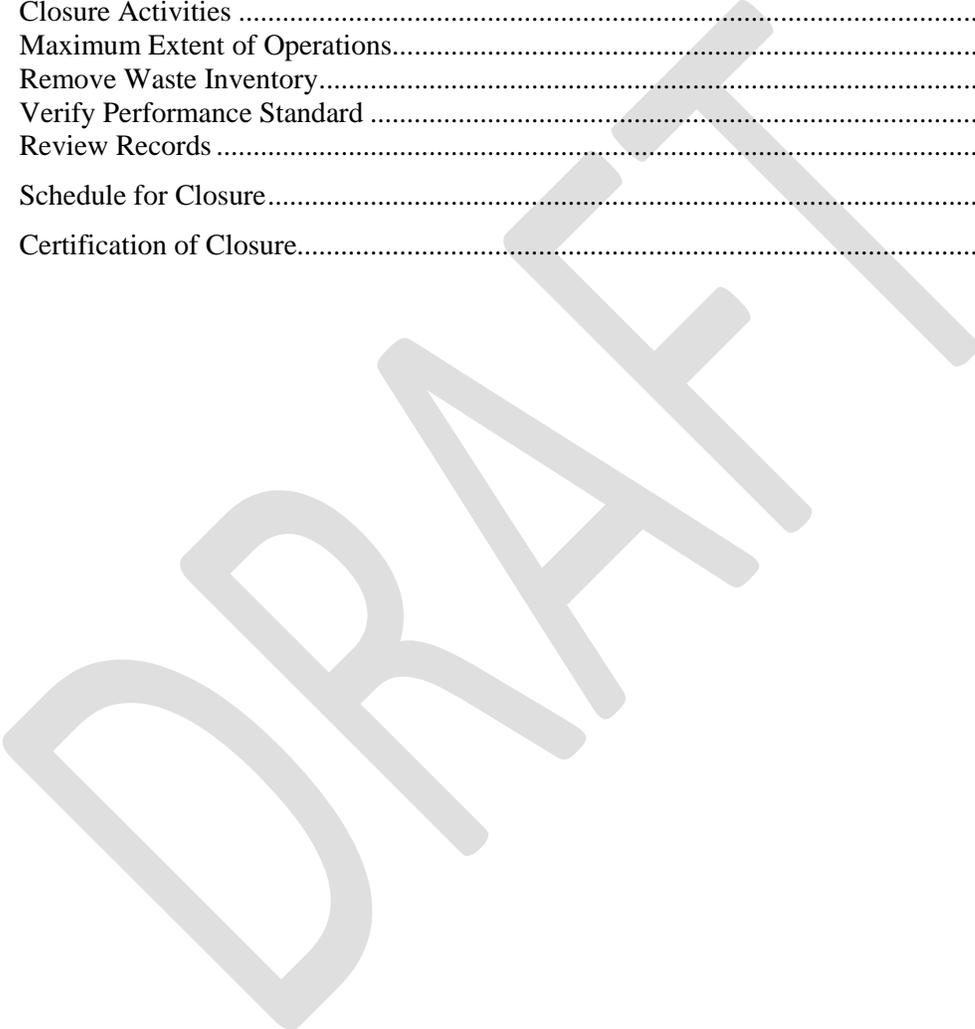
H.1.4 Remove Waste Inventory H.2

H.1.5 Verify Performance Standard H.2

H.1.6 Review Records H.2

H.2 Schedule for Closure H.3

H.3 Certification of Closure H.3



1
2
3
4
5
6

This page intentionally left blank.

DRAFT

1 H. CLOSURE

2 This chapter presents the closure plan for the Waste Encapsulation and Storage Facility (WESF). Closure
3 of WESF will comply with [WAC 173-303-610](#) regulations and requirements established pursuant to
4 [WAC 173-303-680](#) for miscellaneous units. As a miscellaneous storage unit managing mixed waste in
5 sealed capsules, the WESF is not anticipated to become contaminated by the dangerous waste component
6 of the mixed waste.

7 This chapter describes the performance standards that will be met and closure activities that will be
8 conducted to achieve closure by removal or decontamination (*clean closure*) for the WESF Pool Cell
9 Area and hot cells.

10 Detailed records are maintained of the materials stored at WESF according to Permit Condition
11 III.14.C.2. For closure, the unit will be divided into two components: (1) the WESF Pool Cell Area,
12 consisting of Pool Cells 1 through 8, and 12, and (2) WESF Hot Cell Area, Hot Cells F and G. WESF
13 dangerous waste management units are authorized as miscellaneous units, with a close resemblance to
14 container storage units. Therefore, for the Pool Cell Area and hot cells, the closure approach will be
15 closure by removal or decontamination. Consistent with the criteria that must be met to close a dangerous
16 waste management unit by removal or decontamination (“clean closure”), no waste will be closed in
17 place, and therefore no post-closure activities will be necessary. Clean closure will be based on process
18 knowledge and operating records indicating that there have been no releases of material from the capsules
19 during permitted storage, unless other information becomes available to indicate that releases of
20 dangerous waste may have occurred.

21 H.1 Closure Plan

22 The following sections address closure performance standards and activities.

23 H.1.1 Closure Performance Standard

24 This plan has been developed based on closure performance standards for the pool cells and hot cells that
25 satisfy the closure performance standards. Clean closure is based on confirmation of no spills or leaks of
26 mixed waste from the cesium and strontium capsules.

27 The clean closure performance standards are removal of all mixed waste capsules, and demonstration,
28 using process knowledge and operating records, that no releases of mixed waste from the capsules have
29 occurred. No new mixed waste streams or mixed waste volume will be generated during the process
30 since the wastes are in sealed capsules.

31 With no identified releases of mixed waste, no soil contamination could occur and therefore no soil
32 remediation is required. If monitoring or inspection of cesium and strontium capsules or of pool cell
33 water, or other information, indicates a release of mixed waste from one or more capsules, the Permittees
34 will seek a Permit modification to modify this closure plan. This permit modification request will be in
35 accordance with Permit Condition II.J.2, established pursuant to [WAC 173-303-610](#)(3)(b).

36 H.1.2 Closure Activities

37 Closure of the WESF pool cells and hot cells will ensure that the Pool Cell Areas and hot cell area are not
38 contaminated with mixed waste or waste residues (contamination is not expected). Closure activities will
39 entail the following.

- 40 • Remove inventory of cesium and strontium capsules from the pools and hot cell areas and
41 transfer of the capsules when an alternate management unit or final disposition option becomes
42 available.
- 43 • Verify that the water in the pools is not contaminated with mixed waste or mixed waste residues.
- 44 • Transfer pool water to the Treated Effluent Disposal Facility (TEDF) or other treatment and/or
45 disposal facility with necessary authorization and capability to treat pool water at time of closure,
46 if necessary.

- 1 • Perform an operating record document review and/or interview personnel to confirm that no leaks
2 have occurred from any cesium or strontium capsules while in storage.
- 3 • Visually examine capsules to verify their integrity and that no releases of mixed waste have
4 occurred from the capsules
- 5 • Obtain an independent professional engineer certification that closure activities were completed
6 in accordance with the approved closure plan.

7 **H.1.3 Maximum Extent of Operations**

8 The closure plan addresses the dangerous waste management units authorized by this permit, which
9 include pool cells 1 through 8 and 12 and hot cells in the 225B building. The waste is stored in capsules
10 in the pool cells 1, 3 through 7 and 12. The capsules are stainless steel with maximum outer height of
11 approximately 53 centimeters (~21 inches) and maximum diameter of approximately 8 centimeters
12 (~3 inches). Some of the cesium capsules are over packed. There are 1,936 capsules, 601 are strontium
13 fluoride and 1,335 are cesium chloride. The dangerous waste constituents are barium, cadmium,
14 chromium, lead, and silver.

15 **H.1.4 Remove Waste Inventory**

16 The capsules will be removed from the pool cells and hot cells at the time of closure, no waste will
17 remain at (in) WESF. The capsules will be relocated to a permitted dangerous waste management unit or
18 to a national repository.

19 The capsules are stored in 13 feet of shielding water in Pool Cells 1 and 3 through 7. To move a capsule
20 into G Cell, it is first moved through transfer ports into pool cell 12. The transfer ports connect pool cells
21 1 through 8 to pool cell 12. A transfer port has a ball valve that can be opened and closed to transfer
22 capsules or water between each of the pool cells and pool cell 12. The transfer port is located
23 approximately 1 meter (3 feet) above the pool cell floor. Once in Pool Cell 12, the capsule is moved
24 down Pool Cell 12 with tongs towards G Cell and placed on a capsule transfer cart equipped with a trolley
25 device for raising the capsules into G Cell. Capsules are transferred individually to G Cell through the
26 capsule transfer chute between G Cell and pool cell 12.

27 **H.1.5 Verify Performance Standard**

28 Verification of no releases to the pool cell and hot cell areas will be determined by evaluation of the
29 operation records, logbooks, and personnel interviews to verify if there have been any leaking capsules.
30 If, based on the findings during the reviews a determination has been made that no releases have
31 occurred, the pool cells and hot cell areas will have met the performance standards. If information from
32 evaluation of the operation records, logbooks, personnel interviews, or other sources indicates that
33 contamination is possible from TSD unit activities, this closure plan will be amended with an approved
34 Permit modification in accordance with Permit Condition II.J.2, to incorporate steps and requirements (to
35 potentially include sampling) to achieve clean closure.

36 **H.1.6 Review Records**

37 WESF records of the operating life of the dangerous waste management units covered by this plan,
38 including the contents of the Hanford Facility Operating Record, WESF file (WESF became active in
39 July 1997) will be reviewed to ensure that there is no documentation indicating a leak of a capsule while
40 in the pool cells. The records to be reviewed include the following:

- 41 • Results from monitoring activities
- 42 • Visual examinations of the capsules conducted throughout the storage period.
- 43 • Records of inspections conducted pursuant to permit requirements.

1 **H.2 Schedule for Closure**

2 Closure activities will begin after a determination is made on disposition of the cesium and strontium
3 capsules. The Permittees will provide a notice to Ecology of the date at which closure is expected to
4 begin pursuant to [WAC 173-303-610\(3\)\(c\)](#). The Permittees will provide a notice to Ecology of the date at
5 which closure is expected to begin pursuant to [WAC 173-303-610\(3\)\(c\)](#). The schedule for closure of
6 WESF will be 180 days and will begin after the last capsule is transferred from the unit group. If
7 additional time is needed, a permit modification will be processed when notification of closure is
8 provided.

9 **H.3 Certification of Closure**

10 Within sixty days of completion of closure activities according to this plan, the Permittees will submit to
11 Ecology by registered mail a certification that the WESF dangerous waste management units have been
12 closed in accordance with the specifications in this plan. The certification will be signed by the
13 Permittees and by an independent registered professional engineer.

14

DRAFT

1
2
3
4
5

This page intentionally left blank.

DRAFT