

**WASTE ENCAPSULATION AND STORAGE FACILITY
PART III, OPERATING UNIT GROUP 14
UNIT-SPECIFIC PERMIT CONDITIONS
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
11/16/2020	8C.2020.10F

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PART III, OPERATING UNIT GROUP 14
UNIT-SPECIFIC PERMIT CONDITIONS**

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2 **PART III, OPERATING UNIT GROUP 14, UNIT-SPECIFIC PERMIT CONDITIONS**
3 **WASTE ENCAPSULATION AND STORAGE FACILITY**
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6 **UNIT DESCRIPTION**

7 The Waste Encapsulation and Storage Facility (WESF) Operating Unit Group (OUG) 14 contains active
8 Dangerous Waste Management Units (DWMUs) dedicated to storage, packaging, and transfer of capsules
9 containing mixed waste. This mixed waste is cesium chloride and strontium fluoride salts with metal
10 contaminants separated from Hanford tank waste from 1969 through 1984. This waste is contained
11 encapsulated in 1,936 capsules which are being stored underwater in pool cells, but will be loaded into
12 Cask Storage Systems (CSSs) prior to being shipped to dry storage at the Capsule Interim Storage (CIS),
13 OUG 19.

14 Each CSS consists of a Vertical Concrete Cask (VCC) housing a stainless steel Transportable Storage
15 Canister (TSC). The TSC contains a TSC Basket holding up to 22 Universal Capsule Sleeves (UCSs).
16 Each UCS can hold up to six standard capsules or two of the larger Type W overpacks. Each CSS can
17 hold a maximum of 132 standard capsules, but spacers and inventory knowledge will be used to ensure
18 each VCC is loaded to a specified heat generation level.

19 OUG 14 contains the following three DWMUs, all of which are considered X99 miscellaneous units due
20 to the unique characteristics of the capsules and stored waste:

- 21 • Pool Cells 1 through 8 and 12 are dedicated to safe storage and cooling of the capsules prior to
22 packaging into a UCS. Pool Cells 1 and 3 through 7 contain storage racks which are the primary
23 storage location for capsules.
- 24 • Hot Cell G provides a shielded location for packaging of capsules into a UCS, inspection and
25 storage of individual capsules, and capsule maintenance or repairs which might be necessary.
- 26 • The Truckport serves as the final assembly location for CSSs prior to being shipped out of the
27 WESF.

28 The WESF itself also contains Closing Unit Group 6 for Hot Cells A through F which are undergoing
29 initial closure activities and therefore are no longer part of OUG 14. Hot Cells A through F are not
30 addressed by the Part III conditions below. Addendum A, Attachment A, contains maps and diagrams of
31 the WESF layout.

32 **LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 14**

33 Addendum A Part A Form

34 Addendum B Waste Analysis Plan

35 Addendum C Process Information

36 Addendum D Groundwater Monitoring – Reserved

37 Addendum E Security

38 Addendum F Preparedness and Prevention

39 Addendum G Personnel Training

40 Addendum H Closure Plan

41 Addendum I Inspection Plan

42 Addendum J Contingency Plan

1 **DEFINITIONS**

2 The terms **capsule(s)**, **cesium and strontium capsule(s)**, and **cesium capsule(s)** are assumed to include
3 both **standard capsules** and **Type W overpacks** unless the type is specified.

4 **Standard capsules** are the 1,913 double-walled capsules containing cesium chloride and strontium
5 fluoride mixed waste constructed at WESF from 1974 through 1985 which have not been overpacked.
6 These capsules have an approximate inner capacity of 1 liter.

7 **Type W overpacks** are the 23 larger capsules produced from 1997 through 1999 to encapsulate bulging
8 cesium **standard capsules** and loose cesium chloride mixed waste. There are no **Type W overpacks**
9 containing strontium fluoride mixed waste.

10 A **Vertical Concrete Cask** or “**VCC**” is the passively-ventilated outer concrete shell of a **Cask Storage**
11 **System** or “**CSS**.” A single **Transportable Storage Canister** or “**TSC**” can be inserted into the storage
12 space inside the VCC.

13 A **Transportable Storage Canister** or “**TSC**” is the combination of a sealed stainless steel shell and
14 Transportable Storage Canister Basket. Twenty-two Universal Capsule Sleeves or “**UCSs**” can be
15 inserted into the storage space inside a TSC.

16 A **Universal Capsule Sleeve** or “**UCS**” is a sealed stainless steel shell capable of holding up to six
17 standard capsules or two Type W overpacks. Stainless steel capsule spacers may be loaded into a UCS to
18 take the place of a capsule.

19 **ACRONYMS**

20	CIS	Capsule Interim Storage
21	CSS	Cask Storage System
22	DWMU	Dangerous Waste Management Unit
23	LDR	Land Disposal Restrictions
24	OUG	Operating Unit Group
25	TSC	Transportable Storage Canister
26	VCC	Vertical Concrete Cask

- 1 **III.14.A COMPLIANCE WITH UNIT-SPECIFIC PERMIT CONDITIONS**
- 2 **III.14.A.1** The Permittees will comply with all Permit Conditions in this Chapter and its Addenda
3 with respect to dangerous waste management and DWMUs in OUG 14, WESF, in
4 addition to requirements in Permit Part I and II.
- 5 **III.14.B GENERAL WASTE MANAGEMENT**
- 6 **III.14.B.1** The Permittees are authorized to store mixed wastes identified in Addendum C,
7 Section C.2.1, in three DWMUs: Pool Cells 1 through 8 and 12, Hot Cell G, and the
8 Truckport. These mixed wastes will be stored according to the requirements of this
9 Chapter.
- 10 **III.14.C WASTE ANALYSIS**
- 11 **III.14.C.1** If sampling or analysis of capsule waste associated with the WESF OUG is to be
12 conducted, the Permittees will submit to Ecology a permit modification request in
13 accordance with Washington Administrative Code (WAC) 173-303-830 to incorporate an
14 appropriate Sampling and Analysis Plan and a Quality Assurance Plan into the Permit.
15 [WAC 173-303-300(2)]
- 16 **III.14.C.2** The Permittees will have an accurate and complete description for each capsule waste
17 stream managed at the WESF OUG as necessary to document designation according to
18 WAC 173-303-070, applicable Land Disposal Restriction Treatment Standards pursuant
19 to WAC 173-303-140, and any other information necessary to ensure management of the
20 waste streams in accordance with requirements of this Permit. [WAC 173-303-380(1)(a)]
- 21 **III.14.C.2.a** For the specific mixed wastes identified in Addendum C, Section C.2.1, the description of
22 waste streams will consist of, at a minimum, the supporting references cited in
23 Addendum B, Section B.2.
- 24 **III.14.C.2.b** This description of waste streams will be maintained in the Hanford Facility Operating
25 Record, WESF File required by Permit Condition II.I.1 and must be available upon
26 request. [WAC 173-303-380(1)(a)]
- 27 **III.14.D RECORDKEEPING AND REPORTING**
- 28 **III.14.D.1** The Permittees will place the following into the Hanford Facility Operating Record,
29 WESF File, required by Permit Condition II.I.1. (WAC 173-303-380)
- 30 **III.14.D.1.a** The quantity and description of each capsule waste stream managed at the WESF OUG.
31 [WAC 173-303-380(1)(a) and (b)]
- 32 **III.14.D.1.b** Records documenting the packaging of capsules into CSSs, including records identifying
33 the capsules loaded into each CSS and the location of any capsules suspected or known to
34 be compromised.
- 35 **III.14.D.1.c** Summary reports and details of all incidents that require implementation of the
36 Contingency Plan according to the requirements of Permit Condition II.A.1.
37 [WAC 173-303-380(1)(d)]
- 38 **III.14.D.1.d** Records of compromised or suspected compromised capsules, as well as actions taken in
39 response to discovery of such capsules, for Permit Condition III.14.L.4. [WAC 173-303-
40 380(1)(d)-(f)]
- 41 **III.14.D.1.e** Records documenting stalled loading or transport operations for Permit Condition
42 III.14.L.5, if operations have stalled.
- 43 **III.14.D.1.f** Records required by WAC 173-303-380(1)(o), incorporated by reference.

- 1 **III.14.D.1.g** An inspection log, summarizing inspections conducted pursuant to Permit Condition
2 III.14.H.1.
- 3 **III.14.E SECURITY**
- 4 **III.14.E.1** The Permittees will comply with the Security requirements specific to WESF OUG in
5 Addendum E and Permit Attachment 3 as required by Permit Condition II.M.
6 [WAC 173-303-310(2)(c)]
- 7 **III.14.F PREPAREDNESS AND PREVENTION**
- 8 **III.14.F.1** The Permittees will comply with the Preparedness and Prevention requirements specific
9 to the WESF OUG in Addendum F and Permit Condition II.B. (WAC 173-303-340)
- 10 **III.14.G CONTINGENCY PLAN**
- 11 **III.14.G.1** The Permittees will comply with Contingency Plan requirements specific to the WESF
12 OUG in Addendum J in addition to the requirements of Permit Condition II.A when
13 applicable. (WAC 173-303-350)
- 14 **III.14.H INSPECTIONS**
- 15 **III.14.H.1** The Permittees will comply with the Inspection Plan requirements specific to the WESF
16 OUG in Addendum I and Permit Condition II.O. [WAC 173-303-320(2)]
- 17 **III.14.I TRAINING PLAN**
- 18 **III.14.I.1** The Permittees will comply with the Personnel Training requirements specific to the
19 WESF OUG in Addendum G and Permit Condition II.C. (WAC 173-303-330)
- 20 **III.14.J OTHER GENERAL REQUIREMENTS**
- 21 Reserved
- 22 **III.14.K CLOSURE**
- 23 **III.14.K.1** The Permittees will comply with the Closure Plan requirements specific to the WESF
24 OUG in Addendum H and Permit Condition II.J. [WAC 173-303-610(3)(a)]
- 25 **III.14.L MISCELLANEOUS UNITS**
- 26 **III.14.L.1** The Permittees will maintain the physical structure of the WESF DWMUs as documented
27 in Addendum C, Section C.1. This includes the historical slow leak identified in
28 Addendum C, Section C.1.1.2.2, unless this leak is repaired. [WAC 173-303-680(2)]
- 29 **III.14.L.1.a** Water collected in the pool cell sumps, other than that intentionally introduced for leak
30 detection testing or other purposes, shall be monitored to determine if the leak rate for
31 any pool cell changes from the expected baseline leak rate. The baseline leak rate is
32 listed in Addendum C, Section C.1.1.2.2.
- 33 **III.14.L.1.b** For each physical water removal from a sump, water measurement(s) shall be taken and
34 used to estimate the water collection rate.
- 35 **III.14.L.1.c** Water shall be removed from sumps often enough to prevent overflow, but removal does
36 not need to occur at any specific frequency.
- 37 **III.14.L.1.d** If the water collection rate for Pool Cell 5 increases or decreases by more than 25% from
38 the baseline leak rate for two consecutive measurements the Permittees will notify
39 Ecology immediately and evaluate whether repair or other intervention is necessary to
40 address the issue.

- 1 **III.14.L.1.e** If the water collection rate for Pool Cell 5 increases or decreases by more than 75% from
2 the baseline leak rate for any single measurement or any other pool cell sump begins
3 collecting water, the Permittees will notify Ecology immediately and evaluate whether
4 repair or other intervention is necessary to address the issue.
- 5 **III.14.L.2** The Permittees will manage capsules in a manner that ensures they will not rupture or
6 caused to leak. This includes capsules which are currently being, or have already been,
7 packaged into a CSS. [WAC 173-303-680(2)]
- 8 **III.14.L.3** The Permittees will repackage or over-pack any capsule which lacks structural integrity,
9 or shows signs of damage or corrosion that may reasonably result in a spill or release of
10 the contents, or from which a spill or release has occurred. When such criteria are met,
11 the Permittees will repackage or over-pack as soon as practicable and in a manner
12 consistent with worker safety and protection of human health and the environment. If
13 appropriate, a UCS may serve as an overpack. [WAC 173-303-680(2)]
- 14 **III.14.L.3.a** Records of capsules which have leaked or which are suspected of being compromised
15 will be placed in the Hanford Facility Operating Record, WESF OUG File.
16 [WAC 173-303-380(1)(d)-(f)]
- 17 **III.14.L.4** The Permittees will construct and maintain each CSS as documented in Addendum C,
18 Section C.2.2, including maintaining CSS physical structure and the integrity of each
19 mixed waste containment. [WAC 173-303-680(2)].
- 20 **III.14.L.5** If loading operations in Hot Cell G and the Truckport are stalled or transport operations
21 from the Truckport apron are stalled, as defined in III.14.L.5.b and III.14.L.5.c, the
22 Permittees will notify Ecology and provide a description of what has caused the delay
23 and when it is estimated operations will resume. Stalled operations are not a violation of
24 this permit. [WAC 173-303-680(3)].
- 25 **III.14.L.5.a** Notifications for stalled operations only apply to a TSC or CSS which holds at least one
26 waste-containing capsule.
- 27 **III.14.L.5.b** Loading operations are considered stalled if the Truckport contains at least one capsule in
28 an unsealed TSC (i.e., a TSC that has not yet been completely welded shut) and seven
29 calendar days pass without the permittees conducting any activity described in
30 Addendum C, Section C.2.2.2.2, which advances production of that TSC. Production
31 activities include, but are not limited to, the following: adding a capsule to a UCS,
32 operations for sealing a UCS, transfer of a filled UCS, loading a UCS into the TSC, and
33 final sealing activities for the TSC and VCC. Activities conducted for other purposes
34 (e.g., transferring a capsule to Hot Cell G without loading it into a TSC) are excluded
35 from production activities.
- 36 **III.14.L.5.c** Transport from the Truckport apron is considered stalled if a loaded CSS sits on the
37 Truckport apron for seven calendar days without being transferred to OUG 19, CIS, or
38 other appropriate facility.
- 39 **III.14.L.6** The Permittees will comply with any requirements of Hanford Federal Facility
40 Agreement and Consent Order Milestone M-092 which are applicable to activities at the
41 WESF OUG, including those pertaining to transfer of capsules to dry storage and
42 acquisition or modification of facilities for treatment, storage, and/or disposal of the
43 capsules.

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