

**1 Addendum H Closure Plan**

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Class ~~1-3~~ Modification  
~~June 30, 2009~~ May 2014

WA7 89000 8967, Part III, Operating Unit Group 5  
325 Hazardous Waste Treatment Units

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~~June 30, 2009~~ May 2014

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325 Hazardous Waste Treatment Units

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1 **H. CLOSURE PLAN**

2 ~~This addendum discusses the planned activities and performance standards for closure of T~~the 325  
3 HWTUs ~~will be clean closed~~ in accordance with the requirements of WAC 173-303-610. No post closure  
4 activities currently are applicable or required because the 325 HWTUs ~~are proposed to will~~ be clean  
5 closed.

6 ~~Units or portions of units making up the 325 HWTUs Operating Unit Group may be closed pursuant to~~  
7 ~~this Closure Plan individually, or more than one unit may be closed at the same time. [WAC 173-303-~~  
8 ~~610(1)(d)]~~

9 ~~To clean close the 325 HWTUs, it will be demonstrated that dangerous waste has not been left onsite at~~  
10 ~~levels above the closure performance standard for removal and decontamination. Regulations and laws~~  
11 ~~will be reviewed periodically and the closure plan modified as necessary. If it is determined that clean~~  
12 ~~closure is not possible or is environmentally impractical, the closure plan will be modified to address~~  
13 ~~required post closure activities.~~

14 **H.1 CLOSURE PLAN**

15 ~~The 325 HWTUs are planned to be clean closed.~~

16 **H.1.1 Closure Performance Standard**

17 The 325 HWTUs will be ~~clean~~ closed in a manner that ~~will~~:

- 18 • ~~minimizes~~ the need for further maintenance;
- 19 • ~~Controls, minimizes, or eliminates to the extent necessary to protect human health and the~~  
20 ~~environment, will eliminate~~ post closure ~~release escape~~ of dangerous waste, ~~or~~ dangerous waste  
21 constituents, ~~leachate, contaminated runoff, or~~ ~~This standard will be met by removing~~  
22 dangerous waste ~~decomposition products to the ground, surface water, ground water, or the~~  
23 ~~atmosphere; and any dangerous waste residues from the units.~~
- 24 • ~~Returns the land to the appearance and use of surrounding land areas to the degree possible,~~  
25 ~~given the nature of the previous waste management activities. [WAC 173-303-610(2)(a)]~~

26 ~~If the 325 Building ceases operations (i.e., utilities are disconnected and routine personnel access is not~~  
27 ~~allowed), a decision will be made whether to implement this closure plan, or if continued operating~~  
28 ~~authority will be sought.~~

29 ~~After closure, the building areas formerly occupied by the HWTUs will be in a condition suitable for use~~  
30 ~~in support of ongoing or future research and development activities. This use will be consistent with~~  
31 ~~other land use activities in the 300 Area.~~

32 ~~The 325 HWTUs operating record will be reviewed at the time of closure to determine whether there have~~  
33 ~~been releases from the dangerous waste management unit(s) being closed to the soil, groundwater, surface~~  
34 ~~water, or air. A physical walkdown of the unit(s) being closed will also be performed. If there is any~~  
35 ~~evidence of spills or leaks from the unit(s) into the environment, further remediation~~removal of  
36 ~~contamination will be deferred to~~integrated with the final disposition of the 325 Building ~~and underlying~~  
37 ~~soil contamination, as described in the 300-FF-2 final Record of Decision and the approved Remedial~~  
38 ~~Action Work Plan. [WAC 173-303-610(1)(e), WAC 173-303-610(3)(a)(ix)]~~A post closure monitoring  
39 ~~plan will then be developed.~~

40 Clean closure decontamination standards for structures, equipment, bases, liners, etc., ~~will bear~~ those  
41 specified for hazardous debris in 40 CFR 268.45, Table 1 per Ecology clean closure guidance (Ecology  
42 1994). [WAC 173-303-610(2)(b)(ii)]: The 'clean debris surface' ~~will be~~ the performance standard for  
43 metal and concrete surfaces. ~~This standard is consistent with Ecology guidance (Ecology 1994b) for~~  
44 ~~achieving clean closure.~~

**Commented [HT1]:** Restates these two sentences as a requirement to clean close. If landfill closure is necessary (highly unlikely), a major modification would be made to the permit. Class 1, A.1.

**Commented [A2]:** Adds provision to close portions of units, based on EPA's recent interpretation in the SWOC Agreed Order. Also needed due to addition of discrete DWMUs. D.1.b, Class 1.

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**Commented [HT3]:** Redundant information to Section H.1.1 and the preceding paragraph. Class 1, A.1.

**Commented [HT4]:** Redundant information removed. Class 1, A.1.

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**Commented [HT5]:** Revises this paragraph to match the referenced WAC language. Class 1, A.1.

**Commented [HT6]:** These two paragraphs are deleted. They are no longer relevant given the 300-FF-2 final Record of Decision and Tri-Party Agreement Milestone M-016-00B. Once PNNL occupancy ends, the facility will proceed to D&D. Class 1, A.8.

**Commented [A7]:** Revised to specify how evidence of spills or leaks will be determined; also provides the reference to the enforceable document to which the cleanup will be deferred (if necessary). Adds informational material. A.1, Class 1.

1 Attainment of a 'clean debris surface' will be verified by a visual inspection in accordance with the  
2 standard that states:

3 *A clean debris surface means the surface, when viewed without magnification, shall be free of*  
4 *all visible contaminated soil and hazardous waste except residual staining from soil and waste*  
5 *consisting of light shadows, slight streaks, or minor discolorations and soil and waste in cracks,*  
6 *crevices, and pits may be present provided that such staining and waste and soil in cracks,*  
7 *crevices and pits shall be limited to no more than 5 percent of each square inch of surface area.*  
8 ([40 CFR 268.45, Table 1](#))

9 ~~Some unit equipment such as pumps, cartridge filters, and pipes may not be sufficiently visible for in-~~  
10 ~~place contamination evaluation and waste designation. Equipment that cannot be designated in place~~  
11 ~~must be removed and then designated.~~

12 ~~Equipment and structures will be decontaminated using the procedures in Sections H.2.3 and H.3.3. If~~  
13 ~~decontamination is impracticable, components will be removed, designated, and disposed of. All residues~~  
14 ~~resulting from decontamination will be sampled and analyzed as described in Sections H.2.4 and H.3.6 to~~  
15 ~~determine whether they are dangerous waste. Residues containing listed waste, having dangerous waste~~  
16 ~~characteristics, or exceeding dangerous waste designation limits will be managed in accordance with all~~  
17 ~~applicable requirements of WAC 173-303-170 through WAC 173-303-230. [WAC 173-303-610(5)].~~

## 18 H.1.2 Closure Activities

19 ~~This closure plan describes the steps necessary to perform final closure of the 325 HWTUs. Closure~~  
20 ~~activities will involve removing/dangerous waste from the units each unit being closed, and~~  
21 ~~decontaminating/relocate for continued use, decontaminate, or dispose associated structures and~~  
22 ~~equipment in the units as necessary. These activities, which are discussed in subsequent sections, could~~  
23 ~~be implemented at any point during the life of the 325 HWTUs. [WAC 173-303-610(3)(a)(i)]~~

24 Partial closure could involve closing ~~the SAL or the HWTU individually or closing~~ a portion of a unit,  
25 ~~such as the SAL tank system, which includes the tank, associated piping, valves and pumps, and the~~  
26 ~~secondary containment or an entire unit. Except for the timing of the closure activities, these partial~~  
27 ~~closure activities would remain identical to conducted in the same way as those described in this closure~~  
28 ~~plan for closure of the entire 325 HWTUs OUG, i.e. final closure. [WAC 173-303-610(3)(a)(ii)]~~

29 ~~H.1.3—The hot cells are connected to the SAL tank by means of the drains in the trough in the front of~~  
30 ~~the hot cells. The only way to introduce waste into the SAL tank is via the hot cell drains. Similarly, the~~  
31 ~~only way to retrieve waste from the SAL tank is to pump it into containers in Cell 6 (northernmost cell in~~  
32 ~~the hot cell gallery) for storage and/or treatment. Decontamination in conjunction with closure is~~  
33 ~~expected to introduce liquid waste into the SAL tank from the hot cells, and rinsate from the SAL tank~~  
34 ~~closure will need to be treated and containerized in the hot cell. As a result, the SAL tank cannot begin~~  
35 ~~closure until storage and treatment in the hot cells is concluded. Similarly, the hot cells cannot begin~~  
36 ~~closure until the SAL tank is ready to close. Due to this mutual dependency, storage and treatment in the~~  
37 ~~hot cells and in the SAL tank will begin closure only when the last of these two units begin closure.~~  
38 ~~[WAC 173-303-610(3)(a)(i); WAC 173-303-610(4)(a)(i); WAC 173-303-610(4)(b)(ii)]~~

39

## 40 H.1.4 H.1.3 Maximum Extent of Operation

41 ~~The 325 HWTUs consist of two units within the 325 Building, located in the 300 Area on the Hanford~~  
42 ~~Facility. The SAL is located in Rooms 32, 200, 201, 202, and 203. The HWTU is located in Rooms 520,~~  
43 ~~524 and 528, and the firewater containment tank located in the basement beneath Room 520. The SAL~~  
44 ~~represents the maximum extent of operations for the 325 HWTUs as indicated in Addendum A, Part A~~  
45 ~~Form. If additional operations are added to the unit, the closure plan will be modified to reflect closure of~~  
46 ~~the new areas. The physical boundaries of the 325 HWTUs' individual units are shown in Addendum A.~~

**Commented [HT8]:** Removal of redundant material and unnecessary detail. Methods for conducting clean closure are given in subsequent sections; this section merely describes the clean closure standard to be met. Class 1, A.1.

**Commented [HT9]:** This sentence is no longer relevant. The closure plan may be used to conduct either partial or final closure per WAC 173-303-610(1)(d). Class 1, A.1.

**Commented [A10]:** Reworded to articulate how partial closure of a unit might take place. Deleted SAL tank example since the hot cell closure is dependent on the tank system, and vice versa. D.1.b, Class 1.

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**Commented [A11]:** Added to clarify that the SAL tank cannot close until the hot cells do, and vice versa, due to the process involved in achieving the clean closure standard (see Section H.3.). This means the tank or hot cells might be idle for an extended period of time (years) while the other continues to operate. D.1.b, Class 1.

1 **H.2 CLOSURE OF THE HAZARDOUS WASTE TREATMENT UNIT CONTAINER STORAGE**  
2 **AND TREATMENT AREAS (NON-HOT CELL)**

3 The following sections address the activities required to conduct closure of the HWTU.

4 **H.2.1 Removing of Dangerous Waste, Disposal, or Decontamination of Equipment,**  
5 **Structures, and Soils**

6 Steps for inventory removal, decontamination, and disposal of all dangerous waste containers, residues,  
7 and contaminated equipment are described in the following sections.

8 **H.2.2H.2.1 Removing Dangerous Waste**

9 Closure or partial closure activities will be initiated by removal of the dangerous waste inventory present  
10 at the HWTU at the time of closure or partial closure. Inventory removal procedures from the container  
11 storage/treatment unit(s) being closed will be identical to the waste handling, treating, packaging, and  
12 manifesting activities associated with normal permitted operations at the HWTU given in Addendum B  
13 and C of this permit.

14 All dangerous waste will be placed in containers that meet specifications stated in Addendum C. To the  
15 extent possible, waste will be bulked into larger containers. If waste is bulked, containers will be emptied  
16 in compliance with WAC 173 303 160 so that the containers can be considered a solid nondangerous  
17 waste. Small quantity laboratory chemicals that can't be bulked will be packaged in lab pack containers  
18 in compliance with the requirements of WAC 173 303 161. All containers of dangerous waste will be  
19 manifested and transferred to the custody of a dangerous waste transporter having a proper dangerous  
20 waste identification number. All containers of dangerous waste will be transferred to an appropriate  
21 onsite unit permitted to manage the waste and that will ensure proper handling and disposal.

22 Equipment and structural components in the HWTU requiring decontamination will be decontaminated  
23 using the methods described in Section H.2.3. All waste residues resulting from decontamination will be  
24 sampled and analyzed as described in Section H.2.4 to determine whether the residue is mixed waste,  
25 dangerous, or nonhazardous waste and to discern how to dispose of the waste properly. All residues will  
26 be removed from the units and transferred to a TSD unit having the necessary permits for proper  
27 treatment, storage, and/or disposal. Residues containing listed waste, having dangerous characteristics, or  
28 exceeding dangerous waste designation limits will be managed in accordance with all applicable  
29 requirements of WAC 173 303 170 through WAC 173 303 230. [Reference WAC 173 303 610(5)].

30 During closure, wastes will simply be relocated to other, unclosed portions of the 325 HWTUs (in the  
31 case of partial closure) or transferred to other Hanford Permit operating units for subsequent management.  
32 Offsite treatment and/or storage facilities may be used if appropriate.

33 **H.2.3H.2.2 Decontaminating Structures, Equipment, and Soil**

34 All At the time of partial or final closure of the unit(s) being closed, equipment and structures in  
35 dangerous waste storage and treatment areas the unit(s) being closed will either be removed and disposed  
36 of, or be decontaminated, at the time of closure or partial closure except equipment. Equipment and  
37 structures that exhibit a 'clean debris surface' before starting closure activities. These will be considered  
38 decontaminated and receive no further decontamination. Initial closure activities will entail  
39 decontamination of all piping and equipment that is known to have contacted the waste. Equipment and  
40 structures to be decontaminated include the following:

- 41 • Waste handling and treatment equipment
- 42 • Glove boxes
- 43 • Open face hoods
- 44 • Storage cabinets
- 45 • Floors, walls, and ceilings of Rooms 520, 524 and 528

Commented [HT12]: Retitled to be inclusive of all container storage/treatment units (or portions thereof) that may undergo closure, except for the SAL hot cells. Class 1, A.1.

Commented [HT13]: Removes redundant language from application. Class 1, A.1.

Commented [HT14]: Identifies the process for inventory removal as the same as is used during current operations, i.e. waste analysis (per Addendum B) and packaging and shipping (per Addendum C). Removes containerization description (which is covered in Addendum B and C) and moves decontamination to the proper section. Class 1, A.1.

Commented [A15]: Allows for movement of waste to another part of the OUG if partial closure is taking place, and allows for use of either onsite or offsite container storage/treatment units as suggested in Ecology permit application guidance. D.1.b, Class 1.

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1 • ~~Firewater containment tank (beneath Room 520)~~

2 Decontamination methods for equipment and structures will be selected from appropriate technologies  
3 (40 CFR 268.45, Table 1) such as ~~water washing and spraying with water~~, high-pressure water jet  
4 scarifiers, abrasive blasting, aquablasting, or mechanical concrete scrubbers and scarifiers. ~~Following the~~  
5 ~~decontamination process, a visual inspection will be conducted for monitoring the effectiveness of the~~  
6 ~~decontamination work. Such technologies will be used until a clean debris surface is obtained or the~~  
7 ~~effort to decontaminate is abandoned (i.e. the equipment or structure is removed for disposal.)~~

8 All equipment used for decontamination will be ~~used exclusively within the HWTU during closure~~  
9 ~~activities. When all structural and equipment decontamination is complete, and when the equipment is no~~  
10 ~~longer necessary, the equipment will be decontaminated or disposed of before final closure of the units is~~  
11 ~~complete. All cleaning and decontamination waste will be collected and analyzed as described in Section~~  
12 ~~H.2.4. Any disposable equipment will be placed in a container and disposed at an appropriate unit based~~  
13 ~~on the status of the waste as dangerous, mixed waste, or nonhazardous. Dangerous waste placed in~~  
14 ~~containers will be managed in accordance with Addendum C properly disposed.~~

15 ~~All waste handling equipment in the HWTU will be decontaminated by washing with water or a solvent~~  
16 ~~to a 'clean debris surface' as defined in Section H.1.1. If additional decontamination is necessary, a~~  
17 ~~decontamination technique will be selected from appropriate technologies (40 CFR 268.45, Table 1) such~~  
18 ~~as high pressure water wash. If adequate cleaning is not possible, the equipment will be disposed of as~~  
19 ~~dangerous waste. The decision to dispose or decontaminate equipment will be made at the time of~~  
20 ~~closure. The option that is the most environmentally and economically feasible will be chosen. Adequate~~  
21 ~~decontamination will be determined by a visual inspection for a 'clean debris surface' as described in~~  
22 ~~Section H.1.1. All wastewater will be collected in sumps or portable containers, pumped to chemically~~  
23 ~~compatible, closed top containers, and transported and managed as described in Section H.2.4.~~

24 ~~The time required for decontamination of waste handling equipment and the amount of wastewater~~  
25 ~~generated by these methods will depend on the amount of equipment that needs to be decontaminated. At~~  
26 ~~this time, minimal time and effort are anticipated. The wastewater to be generated through~~  
27 ~~decontamination is not anticipated to exceed approximately 378 liters. The volume of solid waste~~  
28 ~~generated will depend on the extent of decontamination necessary.~~

29 ~~If a 'clean debris surface' is present at the time that closure activities are started, the area will be~~  
30 ~~considered clean closed. In this case, housekeeping measures may be undertaken and could include~~  
31 ~~sweeping, dusting, vacuuming, and wiping with soap and water. Brushing or sweeping will be used to~~  
32 ~~clean up coarse debris. Vacuuming will be performed using a commercial or industrial vacuum equipped~~  
33 ~~with a high efficiency particulate air (HEPA) filter. The vacuum cleaner bag containing captured~~  
34 ~~particulates will be disposed appropriately. Dust wiping will be done with a damp cloth or wipe (soaked~~  
35 ~~with water) to remove dust from surfaces that cannot be decontaminated with a vacuum. The cloth or~~  
36 ~~wipe also will be disposed appropriately. HEPA filters from installed equipment and vacuum cleaners~~  
37 ~~will be designated and managed as described in Section H.2.4. The volume of solid waste (e.g., personal~~  
38 ~~protective clothing/equipment, wipes, HEPA filters, vacuum bags) generated will depend on the extent of~~  
39 ~~decontamination necessary.~~

40 ~~Minimal time will be required for setup of the decontamination equipment. Labor requirements for the~~  
41 ~~process should be moderate. Minimal time also will be required for packaging debris, dismantling, and~~  
42 ~~removing cleaning equipment. Small quantities of wastewater (only the contents of buckets used in the~~  
43 ~~decontamination procedure) will be generated. However, if a clean debris surface is not present, more~~  
44 ~~sophisticated decontamination methods will be implemented. The surfaces in the HWTU that do not have~~  
45 ~~a 'clean debris surface' will be treated extensively using an appropriate decontamination technology such~~  
46 ~~as water washing (40 CFR 268.45, Table 1). The contaminated surfaces will be decontaminated to~~  
47 ~~remove all residues from the surfaces. The contaminated waste generated by this activity will be~~  
48 ~~contained by the designed spill controls already in place for the unit (i.e., fire water containment tank and~~  
49 ~~associated drain lines/sumps) or by disposable absorbent pads that might be placed around the area to be~~

Commented [HT16]: Deletes unnecessary detail; all equipment and structures in the closing unit(s) will be disposed or decontaminated, whether listed here or not, as required by WAC 173-303-630(10). A.1, Class 1.

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Commented [HT17]: Clarifies that appropriate technologies will be used until the clean debris standard is met, but more than one might be used. This was implied, but not made clear. D.1.d, Class '1.

Commented [HT18]: Revises this description to reflect process that may be involved in partial closure, e.g. decon equipment might not be used exclusively in the areas being closed. Equipment will either be disposed of or decontaminated. Class '1, D.1.b.

1 water washed. Pumps or vacuums will be used to empty the wastewater from the containment area into  
2 chemically compatible, closed top containers. Containers of wastewater will be managed as described in  
3 Section H.2.4.

4 Although this method will require more time than the dusting, vacuuming, and wiping procedures  
5 outlined previously, time requirements are still considered minimal for the water washing approach.  
6 Wastewater generated by this method is not anticipated to exceed 500 liters.

7 If necessary, further decontamination methods such as sandblasting or other appropriate technologies  
8 could be used effectively to clean contaminated structure surfaces. All residues from the decontamination  
9 effort will be collected for sampling and proper subsequent disposal as described in Section H.2.5.4.

10 Following completion of decontamination, additional visual inspections will be performed to determine  
11 that the 'clean debris surface' standard has been achieved. In the unlikely event that structures cannot be  
12 cleaned using the methods described, these structures might be demolished, removed, and managed as  
13 dangerous waste.

14 The collection sumps and secondary containment system will be decontaminated by water washing.  
15 Wastewater collected from the cleaning process in each sump and containment system will be pumped  
16 into chemically compatible, closed top containers and analyzed as described in Section H.2.4 to  
17 determine if the wastewater is a dangerous waste under WAC 173-303-070. If the wastewater is  
18 determined to be a dangerous waste, the wastewater will be managed and disposed at an appropriate  
19 permitted unit. If the wastewater is not a dangerous waste, the wastewater will be discharged to the  
20 300 Area retention process sewer system. The water washing of all sumps should take minimal time and  
21 should generate less than 500 liters of wastewater. Additional decontamination techniques such as grit  
22 blasting, scabbling, or chipping might be used if necessary. The volume of solid waste generated will  
23 depend on the extent of decontamination necessary.

24 If review of the operating record determines that releases to the firewater containment tank have not  
25 occurred during the operating life of the 325 HWTUs, the internal surface of the firewater containment  
26 tank will be visually inspected. If a 'clean debris surface' is present at the beginning of the closure  
27 process, the firewater containment tank will be considered clean closed. If the surface of the liner does  
28 not meet the 'clean debris surface' standard then the firewater containment tank for the HWTU and  
29 ancillary equipment could be flushed with water, and if flushed, the water could be tested for dangerous  
30 waste constituents. Detergents, solvents, or a dilute acid wash could be required to remove constituents  
31 from the tank. In all cases, the final decontamination rinse water will be tested. To demonstrate  
32 decontamination, the interior surface of the tank liner will be visually inspected to determine if the 'clean  
33 debris surface' standard has been achieved. If this proves to be impractical or impossible, the tank liner  
34 will be removed and disposed. If the underlying tank surface does not meet the clean debris surface  
35 standard, it will be decontaminated in accordance with this section or disposed. Runoff of decontamination  
36 solutions and wastewater will be prevented either by performing cleaning activities within existing  
37 containment structures or within portable containment pans or by surrounding the decontamination area  
38 with plastic and absorbent pads.

39 If water flushing is unsuccessful at removing dangerous waste and dangerous waste constituents, other  
40 decontamination processes will be employed, including appropriate technologies such as aquablasting and  
41 high pressure water jet scarifiers. The actual equipment used will consist of an appropriate combination  
42 of equipment that will be the most effective as determined by sampling results. Following the  
43 decontamination process, a visual inspection for a 'clean debris surface' will be conducted to monitor the  
44 effectiveness of the decontamination work.

45 Management of decontamination residues is provided in Section H.2.4. The time requirements for  
46 decontamination of the tank are expected to be minimal, and wastewater generated by this procedure is  
47 not expected to exceed 757 liters.

48 All dangerous waste storage and treatment operations at the 325 HWTUs will be conducted indoors,  
49 which will minimize potential contamination of the soil and groundwater. Unit design and administrative

Commented [HT19]: Deleted a significant amount of redundant and/or unnecessary information. While estimate of waste to be generated is requested in application, it should not be included in enforceable sections. The meaningful part of the closure plan is to use one or more of the methods in 40 CFR 280.45 to obtain a clean debris surface, and to collect, containerize, and properly manage the resulting decontamination waste. D.1.d, Class '1.

1 ~~controls minimize the possibility of loss of waste to the soil and contamination of the groundwater. The~~  
2 ~~potential for degradation of surface water quality also is very low due to the building design and~~  
3 ~~administrative controls employed. Additional details on spill prevention and emergency response are~~  
4 ~~provided in Addendum H.~~

#### 5 ~~H.2.4~~**H.2.3 Management of Decontamination Waste from HWTU Closing Container** 6 **Units (Non-Hot Cell)**

7 Decontamination waste from ~~the HWTU closing container storage and treatment units~~ will be placed in  
8 containers and sampled to determine disposal requirements. Samples from each container will be  
9 analyzed ~~for the following:~~

10 ~~• Corrosivity using the methods described in EPA SW 846 (Methods 9040/9045)~~

11 ~~• Ignitability using methods described in EPA SW 846 (Methods 1010/1020)~~

12 ~~• Toxicity characteristic using the Toxicity Characteristic Leaching Procedure (TCLP) described~~  
13 ~~in 40 CFR 261 Appendix II (Method 1311) [including analysis for metals; volatile organics; and~~  
14 ~~semivolatile organics, which includes chlorinated pesticides, using methods identified in the waste~~  
15 ~~analysis plan (Addendum B).~~

16 ~~Other analyses might be performed based on process knowledge to determine the presence of a listed~~  
17 ~~waste. The results of sample analyses will be used to determine how to dispose of decontamination~~  
18 ~~waste. (Background levels will be determined by analysis of the tap water used for makeup of the~~  
19 ~~decontamination solutions.) The results of the ignitability, corrosivity, and toxicity characteristic analyses~~  
20 ~~will be used to determine if the waste is characteristic dangerous waste (WAC 173-303-090) as set forth in~~  
21 ~~Table H.1. Depending on designation, d) Decontamination waste will be managed as follows:~~

22 ~~• Dangerous waste— Manifested and shipped and/or transferred to a permitted TSD unit~~

23 ~~• Mixed waste— Manifested and shipped to a TSD unit as available, or treated and disposed onsite.~~

#### 24 ~~H.2.5~~**H.2.4 Inspection to Identify Extent of Decontamination/Removal and** 25 **to Verify Achievement of Closure Standard**

26 *Attainment of a 'clean debris surface' will be verified by a visual inspection in accordance with*  
27 *the standard that states: A clean debris surface means the surface, when viewed without*  
28 *magnification, shall be free of all visible contaminated soil and hazardous waste except residual*  
29 *staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations*  
30 *and soil and waste in cracks, crevices, and pits may be present provided that such staining and*  
31 *waste and soil in cracks, crevices and pits shall be limited to no more than 5 percent of each*  
32 *square inch of surface area. (40 CFR 268.45, Table 1).*

33 Areas of degraded surface material, such as significant concrete cracking or heavily gouged steel, will be  
34 evaluated by non-destructive or destructive means to determine depth of significant surface defects,  
35 amount of contamination present in the defects, and to determine if environmental contamination has  
36 resulted from the material defect.

### 37 **H.3 CLOSURE OF THE SHIELDED ANALYTICAL LABORATORY HOT CELLS AND TANK**

38 The activities required for the closure of the SAL ~~hot cells and tank system~~ are described in the following  
39 sections. ~~As noted in Section H.1.2, these units will be closed at the same time as their operations are~~  
40 ~~mutually interdependent.~~

#### 41 ~~H.3.1~~**H.3.1 Removing Dangerous Waste, Disposal and Decontamination of Equipment,** 42 **Structures, and Soils**

43 ~~Steps for inventory removal, decontamination, or removal of all dangerous waste containers, residues, and~~  
44 ~~contaminated equipment are described in the following sections.~~

**Commented [HT20]:** Simplifies the explanation of how the fire water tank would be decontaminated if necessary by referencing the same methods used elsewhere to achieve the clean debris surface standard. As with the previous paragraphs, much of the material being deleted here is speculative and unnecessary. The regulatory requirement is clear and is followed here. D.1.d, Class 1.

**Commented [HT21]:** Title and this paragraph revised to allow for partial closure of any container storage and treatment areas (other than hot cells), not just HWTU. D.1.b, Class 1.

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**Commented [HT22]:** Redundant to Table H.1; replaced with reference to that table. A.1, Class 1.

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**Commented [HT23]:** Simplifies the description of management of decontamination waste. Some waste may qualify for ERDF disposal based on changes to the ERDF ROD since 1995, even if partial closure occurs prior to final closure. Class 1, A.1.

**Commented [HT24]:** Titles and this paragraph were revised to clarify that the hot cells and the tank must be closed together, and require a different type of closure activity (with greater safety protocols) than do the other container storage and treatment units. D.1.b, Class 1.

### 1 ~~H.3.2~~H.3.1 Removing Dangerous Waste

2 Closure or partial closure activities will be initiated by removal of the dangerous waste inventory present  
3 ~~at the SAL in the hot cells and tank~~ at the time of closure or partial closure. Inventory removal procedures  
4 will be ~~identical to performed in accordance with~~ the waste handling, treating, packaging, and manifesting  
5 ~~activities associated with normal permitted operations at the SAL requirements of Addenda B and C of~~  
6 ~~this Permit.~~

7 ~~During closure, wastes will simply be relocated to other, unclosed portions of the 325 HWTUs (in the~~  
8 ~~case of partial closure) or transferred to other Hanford Permit operating units for subsequent management.~~  
9 ~~Offsite treatment and/or storage facilities may be used if appropriate.~~

10 ~~At the SAL, liquid waste will be treated and packaged to meet requirements for disposal in onsite units.~~  
11 ~~The contents of the SAL tank will be loaded into containers and managed in accordance with~~  
12 ~~Section H.2.2. Any other suitable RCRA permitted units that might exist when the SAL tank is closed~~  
13 ~~could be used as a storage alternative. Liquid waste handling, packaging, transportation, and manifesting~~  
14 ~~procedures will follow those used during normal operation of the SAL.~~

15 ~~Equipment and structural components in the 325 HWTUs will be decontaminated using appropriate~~  
16 ~~methods described in Sections H.2.3 and H.3.3. If decontamination is impracticable, components will be~~  
17 ~~removed, designated, and disposed of. All waste residues resulting from decontamination will be~~  
18 ~~sampled and analyzed as described in Section H.3.6 to determine whether the residue is mixed waste,~~  
19 ~~dangerous, or nonhazardous waste and to discern how to dispose of the waste properly. All residues will~~  
20 ~~be removed from the units and transferred to a TSD unit having the necessary permits for proper~~  
21 ~~treatment, storage, and/or disposal. Residues containing listed waste, having dangerous characteristics, or~~  
22 ~~exceeding dangerous waste designation limits will be disposed of properly.~~

### 23 ~~H.3.3~~H.3.2 Decontaminating Equipment, Structures, and Soils

24 ~~At the time of hot cell and tank closure, all equipment and structures in dangerous waste storage and~~  
25 ~~treatment areas will be either removed and disposed of, or decontaminated at the time of closure or partial~~  
26 ~~closure except in accordance with this section. Equipment and structures that exhibit a 'clean debris~~  
27 ~~surface' before starting closure activities. These will be considered decontaminated and receive no further~~  
28 ~~decontamination. Initial closure activities will entail decontamination of all piping and equipment that is~~  
29 ~~known to have contacted the waste. Equipment and structures to be decontaminated include the~~  
30 ~~following:~~

31 ~~• Floors, walls, and ceilings of the SAL front face (Room 201), hot cells, back face (Rooms 200,~~  
32 ~~202, and 203), and associated airlocks~~

33 ~~• Floors, walls, and ceiling of the basement of Room 32 in the SAL~~

34 ~~• SAL tank and ancillary equipment~~

35 ~~• Secondary containment pans~~

36 ~~• Interior surfaces of all secondary containment trenches~~

37 Decontamination methods for equipment and structures will be selected from appropriate technologies  
38 ~~found in 40 CFR 268.45, Table 1, such as washing with water washing and spraying, high-pressure water~~  
39 ~~jet scarifiers, abrasive blasting, aquablasting, or mechanical concrete scrubbers and scarifiers. Other~~  
40 ~~methods not included in 40 CFR 268.45, Table 1 may be utilized to address non-RCRA contaminants, but~~  
41 ~~cannot be used alone to achieve a clean debris surface. These methods will be used until a clean debris~~  
42 ~~surface is obtained, or the effort to decontaminate is abandoned (i.e. the equipment or structure is~~  
43 ~~removed for disposal.) Following the decontamination process, a visual inspection for a 'clean debris~~  
44 ~~surface' will be conducted to monitor the effectiveness of the decontamination work.~~

45 All equipment used for decontamination will be ~~used exclusively within the units during closure~~  
46 ~~activities. When all structural and equipment decontamination is complete, and when the equipment is no~~

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Commented [A25]: As in H.2.1.2, allows for movement of waste to another part of the OUG if partial closure is taking place, and allows for use of either onsite or offsite container storage/treatment units as suggested in Ecology permit application guidance. D.1.b, Class '1.

Commented [HT26]: As in Section H.2.1, simplifies this by identifying the requirements in Addenda B and C as the process by which waste inventories will be processed and removed for disposal. Removes containerization description (which is covered in Addendum B and C) and moves decontamination to the proper section. A.1, Class 1.

Commented [HT27]: Rephrases these sentences and clarifies that the decision is either to remove and dispose, or decontaminate, equipment and structures. Class 1, A.1.

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Commented [HT28]: Deletion of unnecessary detail; all equipment and structures in the closing hot cells and tank/ancillary equipment will be disposed or decontaminated, whether listed here or not, per WAC 173-303-630(10) and 173-303-640(8). Class 1, A.1.

Commented [HT29]: Clarifies that appropriate technologies will be used until the clean debris standard is met, but more than one might be utilized. This was implied but not made clear. Visual verification is covered in the next section. Class '1, D.1.d.

1 ~~longer necessary, the equipment will be decontaminated or disposed of before final closure is complete of~~  
2 ~~the units. All cleaning and decontamination waste will be collected and packaged-managed as described~~  
3 ~~in Section H.3.6<sup>5</sup>. Any disposable equipment will be containerized and disposed of based on the status of~~  
4 ~~the waste as dangerous, nondangerous, or mixed waste.~~

5 ~~Initial gross decontamination of the hot cells will be necessary before entry of personnel into the hot cells~~  
6 ~~for the visual inspection of the cell liners. ALARA concerns in the cells will preclude personnel entry~~  
7 ~~into the cells, and configuration of the cells precludes thorough visual inspection of the interior surfaces~~  
8 ~~of the cells. This decontamination will be accomplished using high pressure water sprays or other~~  
9 ~~appropriate decontamination techniques operated by means of the manipulators.~~

10 ~~If a 'clean debris surface' is present at the time that closure activities are started, decontamination~~  
11 ~~procedures will consist of sweeping, dusting, vacuuming, and wiping with soap and water. Brushing or~~  
12 ~~sweeping will be used to clean up coarse debris. Vacuuming will be performed using a commercial or~~  
13 ~~industrial vacuum equipped with a HEPA filter. The vacuum cleaner bag containing captured particulates~~  
14 ~~will be appropriately disposed. Dust wiping will be done with a damp cloth or wipe (soaked with water)~~  
15 ~~to remove dust from surfaces that cannot be decontaminated with a vacuum. The cloth or wipe also will~~  
16 ~~be appropriately disposed. The volume of solid waste generated will depend on the extent of~~  
17 ~~decontamination necessary.~~

18 ~~Moderate time will be required for setup of the decontamination equipment. However, labor~~  
19 ~~requirements for the process will be extensive for areas with ALARA concerns, and will, at least initially,~~  
20 ~~require remote operations. Moderate time also will be required for packaging debris, dismantling, and~~  
21 ~~removing cleaning equipment. Moderate quantities of wastewater will be generated by this procedure.~~  
22 ~~However, if a 'clean debris surface' is not present, more sophisticated decontamination methods will be~~  
23 ~~implemented. The dangerous waste management portions of the SAL will be treated extensively using an~~  
24 ~~appropriate decontamination technique (40 CFR 268.45, Table 1). The ceiling, walls, and floor will be~~  
25 ~~treated by applying the decontamination technique to remove all residues from the surfaces. The~~  
26 ~~contaminated waste generated by this activity will be collected in the SAL and will be managed as~~  
27 ~~described in Section H.3.6. The volume of waste generated by this procedure is anticipated to be on the~~  
28 ~~order of 2,000 liters.~~

29 ~~If necessary, more aggressive decontamination methods, such as sandblasting or other appropriate~~  
30 ~~technologies, could be used effectively to clean contaminated structure surfaces. All residues from the~~  
31 ~~decontamination effort will be collected for sampling and proper subsequent disposal as described in~~  
32 ~~Section H.3.6. Following completion of decontamination, additional visual inspections will be performed~~  
33 ~~to determine that the 'clean debris surface' standard has been achieved. In the unlikely event that~~  
34 ~~structures cannot be cleaned using the methods described, these structures might be demolished, removed,~~  
35 ~~and managed as dangerous waste.~~

36 ~~The hot cells in the SAL also include two other areas that might require decontamination. These are the~~  
37 ~~storage rooms 200, 202 and 203 in the backside of SAL and the front face (Room 201). It is expected that~~  
38 ~~the level of contamination will be minimal based on the operations performed. Accordingly, the level of~~  
39 ~~the decontamination effort also is expected to be minimal. For example, decontamination efforts in the~~  
40 ~~operating gallery might be limited to decontamination and removal of the fume hood. If a 'clean debris~~  
41 ~~surface' is present at the time that closure activities are started, decontamination procedures will consist of~~  
42 ~~sweeping, dusting, vacuuming, and wiping with soap and water.~~

43 ~~All dangerous waste storage and treatment operations at the 325 HWTUs will be conducted indoors,~~  
44 ~~which will minimize potential contamination of the soil and groundwater. Unit design and administrative~~  
45 ~~controls minimize the possibility of loss of waste to the soil and contamination of the groundwater. The~~  
46 ~~potential for degradation of surface water quality also is very low due to the building design and~~  
47 ~~administrative controls employed. Additional details on spill prevention and emergency response are~~  
48 ~~provided in Addendum J.~~

**Commented [HT30]:** Revises this description to reflect process that may be involved in partial closure, e.g. decon equipment might not be used exclusively in the areas being closed. Equipment will either be disposed of or decontaminated. D.1.b, Class '1.

1 ~~If contaminated soil is found and if practical, it may be excavated, removed, and disposed as dangerous~~  
2 ~~waste. Extensive soil contamination may be deferred to the closure of the 325 Building and to the~~  
3 ~~CERCLA RI/FS process for the 300-FF-2 and 300-FF-5 operable units.~~  
4 No contaminated soil is expected to be removed in conjunction with the closure of the hot cells and SAL  
5 tank units at the 325 HWTUs OUG due to the construction of the building and the scope of operations. If  
6 it is necessary to remove soil, the closure plan will be amended to include necessary details such as soil  
7 removal, sampling to verify adequacy of removal, and subsequent management of the removed soil. Soil  
8 removal may also be deferred to the 300-FF-2 cleanup in accordance with H.1.1.2.

9 **H.3.4H.3.3 Decontamination of Hot Cell Trough**

10 The collection trough in the interconnected SAL hot cells will be decontaminated using an appropriate  
11 decontamination technique (40 CFR 268.45, Table 1) until a clean debris surface is obtained. Any  
12 wastewater collected in each sump from the cleaning process will be collected in the SAL waste tank  
13 system and ~~analyzed to determine if the wastewater is a~~managed as dangerous waste. ~~If the wastewater is~~  
14 ~~a dangerous waste, it will be managed and disposed at an appropriate permitted facility. If the wastewater~~  
15 ~~is not a dangerous waste, the wastewater will be discharged to an appropriate disposal facility. The~~  
16 ~~decontamination of the hot cell collection trough should take moderate time and should generate less than~~  
17 ~~500 liters of waste. Additional decontamination techniques, such as grit blasting or chemical cleaning,~~  
18 ~~could be used if necessary. The volume of solid waste generated will depend on the extent of~~  
19 ~~decontamination necessary.~~

20 **H.3.5H.3.4 Decontamination of the Shielded Analytical Laboratory Tank System**

21 ~~At closure, t~~The SAL tank and ancillary equipment, tank secondary containment pan, and associated tank  
22 piping will be ~~flushed with water; the water will then be tested for dangerous waste constituents.~~  
23 ~~Detergents, solvents, or a dilute acid wash could be required to remove constituents. In all cases, the final~~  
24 ~~decontamination rinse water will be tested to determine whether cleaning activities are~~  
25 ~~effective.~~decontaminated using water washing and spraying (40 CFR 268.45, Table 1). This may be  
26 followed by other appropriate techniques if necessary to obtain a clean debris surface. Run-off of  
27 decontamination solutions and wastewater will be prevented either by performing cleaning activities  
28 within existing containment structures or within portable containment pans or by surrounding the  
29 decontamination area with plastic and absorbent pads.

30 ~~If water flushing is unsuccessful at removing dangerous waste and dangerous waste constituents, other~~  
31 ~~decontamination processes will be employed, including appropriate technologies such as, aquablasting,~~  
32 ~~sandblasting, and high pressure water jet scarifiers. The actual equipment used will be selected based on~~  
33 ~~what the sampling results indicate will be the most effective. Following the decontamination process, a~~  
34 ~~visual inspection for a 'clean debris surface' will be conducted to monitor the effectiveness of the~~  
35 ~~decontamination work.~~

36 ~~Management of decontamination residues is provided in Section H.3.6. The time requirements for~~  
37 ~~decontamination of the SAL tank system are expected to be moderate, and wastewater generated by this~~  
38 ~~procedure is not expected to exceed 1,200 liters. The volume of solid waste generated will depend on the~~  
39 ~~extent of decontamination necessary.~~

40 ~~On completion of decontamination activities, the SAL tank either will remain in place for other uses~~  
41 ~~within the 325 Building, will be moved for other uses on the Hanford Facility, or will be demolished and~~  
42 ~~disposed as scrap (if its usefulness is determined to be complete).~~

43 **H.3.6H.3.5 Management of Decontamination Waste from SAL**

44 Decontamination liquid from the SAL hot cells will be accumulated in cell or in the tank and sent to a  
45 permitted facility. All nonliquid waste generated during decontamination operations and the equipment  
46 used (e.g., sandblast grit, personnel protective equipment and clothing, disposable equipment) will be  
47 collected in ~~208 liter, open head~~ containers and stored onsite. Samples of the waste could be collected  
48 and analyzed as described in Section H.2.4.

**Commented [HT31]:** Deleted a significant amount of redundant and/or unnecessary information. While estimate of waste to be generated is requested in application, it should not be included in enforceable sections. The meaningful part of the closure plan is to use one or more of the methods in 40 CFR 280.45 to obtain a clean debris surface, and to collect, containerize, and properly manage the resulting decontamination waste. D.1.d, Class 1.

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**Commented [A32]:** Clarifies that soil is not expected to be removed in conjunction with closure of the tank and hot cells due to their location in the 325 building. Allows for alternative to clean up (with a permit modification) or defer soil cleanup if more appropriate. D.1.d, Class 1.

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**Commented [HT33]:** Eliminated testing since the SAL tank is known to have an F-listed heel. All rinsates collected in the tank will be designated accordingly per mixture rule. This makes the disposal more stringent, but it is still a "change". D.1.d, Class 1.

**Commented [HT34]:** Updates obsolete language to reflect use of clean debris standard to meet the clean closure requirements. Class 1, D.1.d.

**Commented [HT35]:** Removed unnecessary and/or redundant information. While estimate of waste to be generated is requested in application, it should not be included in enforceable sections. The meaningful part of the closure plan is to use one or more of the methods in 40 CFR 280.45 to obtain a clean debris surface, and to collect, containerize, and properly manage the resulting decontamination waste. D.1.d, Class 1.

**Commented [HT36]:** Revised to allow different types of containers to be used. This may be particularly critical in the hot cell and SAL tank removal due to need to use shielded containers for waste. D.1.d, Class 1.

1 ~~H.3.7~~**H.3.6** **Inspection to Identify Extent of Decontamination/Removal and to Verify**  
2 **Achievement of Closure Standard**

3 ~~Attainment of a 'clean debris surface' will be verified by a visual inspection in accordance with the~~  
4 ~~standard that states: A clean debris surface means the surface, when viewed without magnification,~~  
5 ~~shall be free of all visible contaminated soil and hazardous waste except residual staining from soil~~  
6 ~~and waste consisting of light shadows, slight streaks, or minor discolorations and soil and waste in~~  
7 ~~cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks,~~  
8 ~~crevices and pits shall be limited to no more than 5 percent of each square inch of surface area.~~  
9 ~~(40 CFR 268.45, Table 1).~~  
10 ~~Areas of degraded surface material, such as significant concrete cracking or heavily gouged steel, will be~~  
11 ~~evaluated by non-destructive or destructive means to determine depth of significant surface defects,~~  
12 ~~amount of contamination present in the defects, and to determine if environmental contamination has~~  
13 ~~resulted from the material defect.~~

14 ~~The SAL tank and ancillary waste piping will be evaluated for meeting the clean debris standard by use of~~  
15 ~~fiber-optic cameras or other nondestructive examination techniques. Methods to demonstrate success of~~  
16 ~~decontamination will be the same as described in Section H.2.5 for the HWTU.~~

17 **H.4** **MAXIMUM WASTE INVENTORY**  
18 ~~H.4~~

19 The 325 HWTUs are used to store and treat a variety of different research-and-operations-related  
20 dangerous waste. The maximum inventory of waste that could be present at any one time in the  
21 325 ~~HWTUs~~ ~~HWTUs~~ ~~DWMUs~~ is given in the following table.

<u>Activity</u>	<u>HWTU</u>	<u>SAL Containers</u>	<u>SAL Tank</u>	<u>Cask Handling Area</u>	<u>Truck Lock</u>	<u>3714 Pad</u>
<u>Storage (liters)</u>	<u>9000</u>	<u>3000</u>	<u>1218</u>	<u>10370</u>	<u>10370</u>	<u>17620</u>
<u>Treatment (liters/day)</u>	<u>946</u>	<u>568</u>	<u>1218</u>	<u>10370</u>	<u>10370</u>	<u>17620</u>

22 ~~constrained by the following factors:~~  
23 ~~The maximum inventory of dangerous waste stored in containers will not exceed the limits listed in~~  
24 ~~Addendum A~~  
25 ~~The maximum inventory of dangerous waste in tank storage in the SAL will not exceed 1,218 liters in~~  
26 ~~accordance with the design capacity of the SAL and Addendum A~~  
27 ~~The total amount of dangerous waste at any one time will not exceed Uniform Building Code~~  
28 ~~hazardous material quantity restrictions (Addendum C).~~

29 **H.5 SCHEDULE FOR CLOSURE**

30 Completion of closure activities ~~for units at the 325 HWTUs OUG~~ is expected to take up to two years  
31 from the date of receipt of the final volume of waste at the units. This extended time for closure is  
32 necessary due to ALARA concerns present in the facility, particularly the six interconnected hot cells.  
33 ~~Safety systems needed to protect the environment will continue to operate during the closure process.~~  
34 ~~Ecology personnel will be notified by the DOE RL at least 45 days before the final closure activities are~~  
35 ~~to begin.~~ Closure activities are summarized in Table 11.2, and a detailed schedule of closure activities is  
36 provided in Table 11.3.

**Commented [A37]:** Added identical wording from H.2.4.1 and H.2.4.2 to describe how clean debris surface standard will be met. This was done by reference previously. A.1, Class 1.

**Commented [A38]:** Clarifies that visual examination per standard will need to be conducted by camera or other technique due to personnel entry being impossible into a pipe or the tank. D.1.b, Class 1.

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**Commented [HT39]:** Revised to add the maximum extent of operations for the units being added to the permit, and to specify the maximum operations for each unit in both quantity and physical location. Class 3, F.1.a.

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**Commented [HT40]:** Deleted; is redundant to Addenda A, B, and C and unneeded based on addition of the table above. Class 1, A.1.

**Commented [HT41]:** Incorporates partial closure; moves specific issue re safety systems to extension request in H.6.1 (such systems will operate until D&D of facility); deletes notification which is included in Tables H.2 and H.3. D.1.b, Class 1.

1 **H.6 EXTENSION FOR CLOSURE TIME**

2 **H.6.1 Extension for Inventory Removal**

3 An extension of the time for removal of the inventory of dangerous waste from ~~the container~~  
4 ~~treatment/storage unit(s) being closed~~ designated for closure is requested for the 325 HWTUs. ~~The~~  
5 ~~ALARA concerns that are present, particularly in the six interconnected hot cells, necessitate this~~  
6 ~~extension. Acquiring disposal approvals and arranging shipping to receiving facilities for mixed waste~~  
7 ~~requires longer than the 90 days anticipated under WAC 173-303-610(4)(a).~~ The expected time needed to  
8 remove all waste from ~~the container treatment/storage units being closed~~ is 180 days. ~~For waste in the~~  
9 ~~tank and hot cells, the expected time to complete inventory removal is~~ two years.

10 The extended period for removal of the inventory of dangerous waste is needed to accomplish the  
11 procedures that are needed to safely work with the ALARA concerns that are present ~~in the SAL.~~ All  
12 activities required to remove the inventory of dangerous waste will be conducted in accordance with  
13 applicable Permit conditions and all safety systems will continue to be operated. The removal of the  
14 inventory of dangerous waste will be conducted following procedures that are designed to be protective of  
15 the workers and the environment.

16 **H.6.2 Extension for Closure Period**

17

18 An extension of the closure time is requested for the 325 HWTUs units being closed. The ALARA  
19 concerns that are present ~~particularly in the six interconnected hot cells,~~ necessitate this extension. The  
20 expected time needed to close the units is two years.

21 ~~Decontamination of hot cells is a slow and labor-intensive operation, complicated by the fact that most of~~  
22 ~~the work must be done remotely using manipulators because of ALARA concerns that are present in the~~  
23 ~~hot cells. Even after ALARA concerns have been reduced enough to allow personnel entry, work is~~  
24 ~~hampered by the extensive personal protective equipment that staff are required to wear, and the strict~~  
25 ~~procedures that are enforced to ensure that both workers and the environment are protected from~~  
26 ~~contamination.~~

27 ~~Most equipment located in the hot cells must be packaged in shielded containers. Typically, this requires~~  
28 ~~extensive remotely operated size reduction of the equipment. Removal of hot cell equipment, such as is~~  
29 ~~located in the SAL, usually takes many months to a year or more to complete.~~

30 The extended closure period exceeding the 180 days given in WAC 173-303-610(4)(a) is needed to  
31 accomplish the procedures that are needed to safely work with ALARA concerns that are present in the  
32 SAL. All closure activities will be conducted in accordance with applicable Permit conditions and all  
33 safety systems will continue to be operated. ~~The c~~losure activities will be conducted following  
34 procedures that are designed to be protective of the workers and the environment. [WAC 173-303-  
35 610(4)(b)(ii)]

36 **H.6H.7 CLOSURE COST ESTIMATE**

37 An annual report outlining updated projections of anticipated closure costs for the Hanford Facility  
38 TSD units having final status is not required per Permit Condition II.H.

39

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Commented [HT42]: These two paragraphs were reworded to allow a shorter time for inventory removal during partial closure of a container storage unit than is required for the SAL hot cells and tank system. This facilitates partial closure where it may be advisable to do so. Class 1, D.1.b.

Commented [HT43]: Removes unnecessary duplication of information already presented in Section H.3 regarding hot cell and tank decontamination. Also sets the time for closure at two years so it is clear when a permit modification may be needed to allow additional time for closure. D.1.b, Class 1.

1 Table H.1. Analysis Parameters for Closure of the 325 Hazardous Waste Treatment Units

Parameter and EPA SW-846 <sup>a</sup> Analytical Method	Decontamination Waste Water Samples	Soil Samples (if determined to be contaminated)
pH for corrosivity (Method 9040 or 9045)	X	
Ignitability (Method 1010 or 1020)	X	
TCLP (Extraction Method 1311)		
<ul style="list-style-type: none"> <li>Metals (Method 6000 and/or 7000 series)</li> <li>Volatile organics (Method 8240)</li> <li>Semivolatile organics (Method 8270)</li> <li>Chlorinated pesticides (Method 8080)</li> </ul>	X	
Total metals: antimony, arsenic, beryllium, boron, cadmium, chromium, lead, mercury, nickel, selenium, silver, and thallium (Method 6000 and/or 7000 series)		X
Volatile organics (Method 8240)		X
Semivolatile organics (Method 8270)		X
Radioactivity <sup>b</sup>		
<ul style="list-style-type: none"> <li>Gross alpha (Method 9310)</li> <li>Gross beta (Method 9310)</li> </ul>	X	X

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Commented [HT44]: Removes radioactivity as an analysis parameter. Most waste water and soil samples would be considered to be contaminated simply due to the origin from the 325 Building, and analysis will not confirm or deny this. D.I.d, Class 11.

2 Table H.2. Summary of Closure Activities for the 325 Hazardous Waste Treatment Units

Closure Activity Description	Expected Duration (a)	
	Container Unit(s)	SAL Hot Cells/Ta
Receive final volume of dangerous waste	N/A	N/A
Notify Ecology that closure activities will commence (at least 45 days before final closure activities begin)	N/A	N/A
Remove waste inventory and package, manifest, and transport all dangerous waste for treatment, storage, and/or disposal	180 days	780 days
Initial decontamination of the hot cells	120 days	120 days
Remove equipment from hot cells	270 days	270 days
Records review and visual inspection of structural surfaces, equipment, troughs, and tanks in the HWTU and SAL to identify areas of contamination and to determine levels and methods of decontamination required	30 days	30 days
Decontaminate structural surfaces, equipment, troughs, and tanks at the HWTU and SAL using methods determined after records review and visual inspection	180 days	180 days
Decontaminate front face and rear face of hot cells	120 days	120 days
Reinspect surfaces to verify thoroughness of decontamination clean debris standard is met	2 days	2 days
Evaluate best methods for treatment and disposal of waste resulting from decontamination	25 days	25 days
Dispose of waste resulting from decontamination	80 days	80 days
Submit certification of closure to Ecology (within 60 days of completion of final closure activities)	N/A	N/A

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Commented [HT45]: Allows for partial closure using the two separate extension periods pursuant to Section H.6. These breakouts match the time periods discussed in Sections H.5 and H.6. Class 11, D.I.d.

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Commented [HT46]: Entries in this row adjusted to match the text in H.6 (entry for "80 days" apparently a typo from prior modification). Class 11, D.I.d.

Commented [HT47]: Clarifies standard to be met. Class 1, A.1.

(a) Some activities are performed concurrently.

1 **Table H.3. Closure Schedule for the 325 Hazardous Waste Treatment Units**

Action	Schedule		Formatted: Centered
	Container Units	Hot Cells and Tank	
Date of receipt of last volume of waste	Day 0	Day 0	Formatted: Font: +Body (Calibri)
Completion of waste inventory removal	Day 90	Day 780	Formatted Table
Equipment decontamination or disposal and visual inspection of structural surfaces to identify areas of contamination and to determine level of decontamination needed	Day 530	Day 1210	Formatted: Font: +Body (Calibri)
HW TU and SALs Structural decontamination	Day 635	Day 1315	Formatted: Font: +Body (Calibri)
HW TU sump and fire water containment tank and SAL hot cells trough and tank decontamination	Day 650	Day 1330	Formatted: Font: +Body (Calibri)
Visual inspection to determine effectiveness of decontamination	Day 690	Day 1370	Formatted: Font: +Body (Calibri)
Further decontamination and visual inspection, if necessary, and disposal of all decontamination waste based on results of waste analyses	Day 720	Day 1400	Formatted: Font: +Body (Calibri)
Clean closure certification	Day 780	Day 1460	Formatted: Font: +Body (Calibri)
2			Commented [HT48]: Adjusts schedule consistent with extensions granted in Section H.6.1 and H.6.2. Also meets requirement for a schedule for "partial and final closure" per WAC 173-303-610(3)(a)(vii). Class 1, D.1.b.
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Class ~~1-3~~ Modification  
May ~~4~~, 2014

WA7 89000 8967, Part III, Operating Unit Group 5  
325 Hazardous Waste Treatment Units

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Class 1-3 Modification  
May 4, 2014

WA7 89000 8967, Part III, Operating Unit Group 5  
325 Hazardous Waste Treatment Units

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