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PART III, OPERATING UNIT GROUP 8
222-S DANGEROUS AND MIXED WASTE TREATMENT, STORAGE AND DISPOSAL UNIT
ADDENDUM H CLOSURE

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1 H CLOSURE AND FINANCIAL ASSURANCE

2 This addendum describes the planned activities and performance standards for closing dangerous waste
3 management units in the 222-S Operating Unit Group. Closure will begin when the 222-S dangerous
4 waste management units (the 219-S Tank System, the 222-S DMWSA, and Rooms 2-B and 4-E container
5 storage areas) are no longer managing hazardous or mixed waste (Section H.4).

6 H.1 Closure Plan

7 This plan proposes to leave clean structure and equipment in place after closure for potential use in future
8 operations. This need will be evaluated at the time of closure.

9 The 222-S Operating Unit Group dangerous waste management units will be closed by removal or
10 decontamination with respect to dangerous waste contamination that resulted from operations at the 222-S
11 Operating Unit Group. Closure may be pursued for one or more of the 222-S dangerous waste
12 management units or for the entire 222-S Operating Unit Group dangerous waste management units. If it
13 is determined that closure by removal or decontamination is not possible for container storage waste
14 management units or closure in accordance with [WAC 173-303-640\(8\)](#) is not possible for the 219-S Tank
15 System, the closure plan will be modified to address post-closure activities.

16 Uncontaminated or decontaminated structures will be left in place for future use or disassembled,
17 dismantled, and removed for disposal. Uncontaminated or decontaminated equipment and structures
18 could include Room 4-E, Room 2-B, the DMWSA, loading dock, asphalt, hoods, cabinets, and the 219-S
19 Waste Handling Facility.

20 Closure by removal or decontamination requires the decontamination or removal of all dangerous waste,
21 waste residues, contaminated equipment, soil or other material established in accordance with the removal
22 or decontamination closure performance standards established in this closure plan pursuant to the
23 requirements of [WAC 173-303-610\(2\)](#). This and future closure plan revisions will provide for
24 compliance with these performance standards.

25 H.2 Closure Performance Standard

26 Closure by removal or decontamination, as established in this plan is based on the requirements of
27 [WAC 173-303-610\(2\)](#) and Ecology Guidance for Clean Closure (Ecology 2005). Clean Closure will
28 eliminate the need for future maintenance and will be protective of human health and the environment by
29 removing or reducing chemical contamination at 222-S Operating Unit Group to levels that are below
30 concern.

31 H.2.1 Closure Standards for Metal Surfaces, Tanks, Concrete, and Asphalt

32 This closure plan proposes the use of a 'clean debris surface' (defined in the following paragraph) as the
33 clean closure performance standard for metal surfaces, tanks, and concrete surfaces that will remain after
34 closure. Ecology may determine that specific metal, concrete, and asphalt is non-hazardous in accordance
35 with [WAC 173-303-071\(3\)\(qq\)](#). This approach is consistent with Ecology guidance for achievement of
36 clean closure (Publication #94-111, Ecology 2005). Additionally adherence requirements in this closure
37 plan that are consistent with this guidance ensures that all residues have been removed as required by
38 [WAC 173-303-630\(10\)](#) and [WAC 173-303-640\(8\)](#) for the closure of the container storage and tank
39 storage/treatment units in the 222-S Operating Unit Group.

40 The clean debris surface standard is verified visually. *“A clean debris surface means the surface, when
41 viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except
42 residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations
43 and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and
44 soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area”*
45 [\[40 CFR 268.45\]](#).

1 Metal surfaces, except piping, requiring decontamination based on visual examination will be
2 decontaminated using an appropriate physical or chemical extraction technology from the alternative
3 treatment standards for hazardous debris [[40 CFR 268.45](#), incorporated by reference by [WAC 173-303-
4 140](#)]. Piping will be rinsed in accordance with [40CFR268.45](#) to achieve a clean debris surface, or the
5 piping does not exhibit a characteristic identified in [WAC 173-303-090](#) and Ecology has determined,
6 based on the extent of contamination, that it is no longer contaminated with hazardous waste. For piping
7 and ancillary equipment where the contaminated surface can be inspected consistent with ALARA
8 principles, an inspection will be performed to see if the surfaces meets the clean debris standard in 40
9 CFR 268.45, incorporated by reference by [WAC 173-303-140](#) or can be declared non-dangerous in
10 accordance with [WAC 173-303-071\(3\)\(qq\)](#). If it is not possible to meet the clean debris surface
11 performance standard, or demonstrate that the piping and ancillary equipment is non-dangerous, the
12 contaminated surfaces of the particular piping or ancillary equipment of concern will be removed,
13 designated and disposed of accordingly.

14 When a physical extraction method is used on concrete, the performance standard is based on removal of
15 the contaminated layer of debris. The physical extraction performance standard for concrete is removal of
16 0.6 centimeter of the surface layer and treatment to a clean debris surface. Asphalt is considered a form
17 of porous debris and is subject to the same treatment standards as concrete (Publication #94-111, Ecology
18 2005). Verification of a clean debris surface will be performed and thereby achieving compliance with
19 [WAC-173-303-610\(2\)\(a\)\(ii\)](#).). If it is not possible to meet the clean debris surface performance
20 standard, or demonstrate that the asphalt is non-dangerous, the contaminated surfaces of the asphalt of
21 concern will be removed, designated as debris, and disposed of accordingly.

22 **H.2.2 Closure Standards for Piping and Ancillary Equipment**

23 The internal and external piping of the 219-S Tank System that has contacted dangerous waste will be
24 flushed and drained as part of closure. When practical, ancillary equipment, which has contacted
25 dangerous waste will also be flushed and drained. For piping and ancillary equipment where the
26 contaminated surface can be inspected consistent with ALARA principles, an inspection will be
27 performed to see if the surfaces meets the clean debris standard in [40 CFR 268.45](#), incorporated by
28 reference by [WAC 173-303-140](#) or can be declared non-dangerous in accordance with [WAC 173-303-
29 071\(3\)\(qq\)](#). If it is not possible to meet the clean debris surface performance standard, or demonstrate
30 that the piping and ancillary equipment is non-dangerous, the contaminated surfaces of the particular
31 piping or ancillary equipment of concern will be removed, designated and disposed of accordingly.

32 **H.2.3 Closure Standards for Underlying Soil**

33 Clean closure of the soil under the 222-S dangerous waste management units will be accomplished by
34 demonstrating that the concrete floors, containment systems, and secondary containment prevented
35 contaminants from reaching the soil. The soil will be considered clean closed unless the unit has a history
36 of spills (as identified in the operating record), and inspections have identified potential through-thickness
37 cracks in the concrete or containment system indicating containment failure and a subsequent potential for
38 soil contamination from the unit operations. However, potential soil contamination will be investigated if
39 there have been documented spills in the unit and inspections identify such cracks.

40 Clean closure of soils underlying piping encased in secondary containment with leak detection will be
41 accomplished by demonstrating that there are no pathways for dangerous waste to the underlying soil.
42 The 222-S Unit Operating Record will be checked to verify that the primary piping has not leaked. If
43 records indicate that no leaks from the primary piping have occurred, the soil will be considered clean
44 closed. If leaks in the primary pipe occurred and inspection reveals no through thickness cracks in the
45 secondary pipe, the soil will be considered clean closed.

46 If the investigation above identifies potential soil contamination, those soils will be sampled and
47 analyzed for constituents of concern according to the sampling and analysis plan. The sampling and

1 analysis plan will be prepared following the completion of a data quality objectives process in accordance
2 with EPA/600/R-96/055 (QA/G-4), *Data Quality Objectives Process*, as amended. The data quality
3 objectives process will be initiated prior to closure on a schedule to ensure timely closure of 222-S
4 dangerous waste management units. The sampling and analysis plan will be submitted to Ecology as part
5 of a permit modification request in accordance with [WAC-173-303-830](#). The sampling and analysis plan
6 will be prepared consistent with EPA/240-B-01/003 (EPA/QA R-5), *EPA Requirements for Quality*
7 *Assurance Project Plans*, as amended.

8 The soil will be considered clean closed if the soil analytical results determine that the constituents of
9 concern are either:

- 10 • Below the levels in [WAC 173-303-610\(2\)\(b\)\(i\)](#).
- 11 • Below background levels in the Hanford soil if background is greater than the levels in [WAC](#)
12 [173-303-610\(2\)\(b\)\(i\)](#).

13 If the constituents of concern exceed background levels, the soil will be closed per the standards of [WAC](#)
14 [173-303-610\(2\)\(b\)](#).

15 **H.3 Closure Activities**

16 Clean closure will be accomplished with the proper implementation of this plan. At the time of closure,
17 the closure plan will be modified, as necessary, to reflect current regulation or informational revisions in
18 accordance with [WAC 173-303-610\(3\)\(b\)](#). If Ecology determines that clean closure is not possible for
19 the 219-S Tank System, the closure plan will be modified to address post closure activities.

20 **H.3.1 General Closure Activities**

21 The approach to the closure of the 222-S Operating Unit Group's operating units that store containerized
22 dangerous waste (i.e., the DMWSA, Room 4-E, and Room 2-B) is to remove all dangerous waste, send
23 the dangerous waste for final disposition at an appropriate facility, evaluate the 222-S Operating Record
24 for spill history; and verify metal, concrete, and asphalt meets clean debris surface as described in H.2.1.

25 Operating records will be reviewed to obtain an inventory and spill history for the units undergoing
26 closure. A spill history is necessary to help determine the need for and extent of decontamination
27 necessary for clean closure. The records review will entail a review of all available records related to
28 operations in the treatment and/or storage units. The records review will include operations logbooks,
29 RCRA weekly inspection records, a search for 'off normal' event reports, the waste identification data
30 system, and the records required by [WAC 173-303-380](#). Former cognizant operation personnel could be
31 interviewed.

32 Decontamination and equipment removal will occur as necessary to demonstrate compliance with the
33 closure performance standards in H.2 for the following portions of the 219-S Tank System:

- 34 • 219-S Tank System structure.
- 35 • Truck load in/out areas.
- 36 • Process tanks, piping, and ancillary equipment.
- 37 • Below-grade concrete vault structure.
- 38 • External piping and ancillary equipment.
- 39 • Underlying soil.

40 The general approach to closure of 219-S Tank System is to transfer tank contents to an appropriate
41 facility for final disposition.

42 Closure of the 222-S DMWSA will require removal of all waste inventories, decontamination or removal
43 of the storage structures, the concrete pad, and closure or removal of the underlying soil. All dangerous

1 waste and dangerous waste residues will be removed from the containment system in accordance with
2 [WAC 173-303-630](#)(10). Remaining containers, liners, bases, and soil containing or contaminated with
3 dangerous waste or dangerous waste residues will be decontaminated or removed.

4 Closure of Room 2-B and Room 4-E will be performed in accordance with activities established in this
5 closure plan which ensure compliance with the requirements of [WAC 173-303-630](#)(10). These activities
6 include removal of all waste inventory, removal of equipment associated with waste management
7 activities, and decontamination of the room. As a first step of closure, all containers of waste will be
8 removed from the storage area. The containers of waste will be transferred to an appropriately authorized
9 facility for final disposition.

10 This closure plan describes the methods of decontamination and equipment removal in accordance with
11 [WAC 173-303-610](#)(5) and [WAC 173-303-640](#)(8)(a). Any waste generated during decontamination and
12 equipment removal will be managed pursuant to [WAC 173-303-170](#) through [173-303-230](#).

13 Equipment, piping, and materials that cannot be decontaminated, or for which compliance with the
14 applicable closure performance standard cannot be demonstrated, will be removed, designated, and
15 transported to an appropriately authorized facility for final disposition. Equipment or materials used in
16 performing closure activities will be decontaminated or disposed at an appropriately authorized facility.

17 **H.3.2 Removing Dangerous Waste**

18 **H.3.2.1 Removing Dangerous Waste from 219-S Tank System**

19 The mixed waste inventory contained within the 219-S Tank System (i.e., Tanks 101, 102, and 104) will
20 be removed using the existing process equipment and pumps to the extent practical. Piping may be
21 rerouted and temporary piping may be installed to allow the isolation of tanks and ancillary equipment for
22 draining, decontamination, and closure. Rerouted and temporary piping will be closed in the same
23 manner as process piping. All structures and equipment will be decontaminated, including removal of
24 tank heels and residues, to the closure standards in Section H.2.1 and H.2.2 or disposed. Piping that
25 meets the closure standard in Section H.2.2 may be left in place. Piping that does not meet the closure
26 standard, or cannot be inspected, or determined to be non-dangerous, will be disposed of accordingly.
27 The mixed waste inventory so removed will be transferred to an appropriately authorized facility for
28 disposition. Any residue remaining in piping, equipment, or liner will be removed to an appropriate unit
29 for final disposition.

30 **H.3.2.2 Removing Dangerous Waste from DMWSA, Room 4-E, and Room 2-B**

31 At the start of 222-S waste management unit closure, dangerous waste will be transferred for disposition.
32 Containerized waste will be transferred to an appropriately authorized facility for final disposition.

33 **H.3.3 Decontaminating Structures, Equipment, and Soils**

34 This Section discussed the activities necessary to implement a clean closure strategy for the
35 222-S Operating Unit.

36 **H.3.3.1 Tanks**

37 The following general steps will be performed to close the 219-S Tank System (Tanks 101, 102, 103, and
38 104) and ancillary equipment:

- 39 • Piping and ancillary equipment associated with the tank will be flushed with water and drained to
40 the tank being closed, to another tank, or to containers.
- 41 • The tank will be flushed as necessary to reduce radiological activity to as low as reasonably
42 achievable to facilitate visual inspection.
- 43 • Wastewater will be removed from the tank and transferred to another tank or containers.

1 Additional pumps and piping may be installed to empty the tank as low as practical.

- 2 • Rinsing may be performed to facilitate removal of residue.
- 3 • An initial visual inspection of the tank's interior and exterior surfaces will be performed to
4 determine the type of flushing that will allow the tank to be decontaminated to the closure
5 performance standard and must be removed and disposed of to meet the closure performance
6 standards in this closure plan.
- 7 • The tank's surfaces, piping and ancillary equipment may be cleaned by chemical or physical
8 extraction techniques described in [40 CFR 268.45](#). Flush solution will be transferred to another
9 tank or containers. All flush solution at the bottom of the tank will be removed (to the extent
10 practical) before visual inspection.
- 11 • The tank, piping and ancillary equipment will be inspected visually for compliance with the
12 performance standard in Section H.2.1 and H.2.2. Visual inspections may be made using a
13 camera or other device that allows verification of meeting the performance standard.

14 If any areas do not meet the clean debris surface performance standard, these areas will be:

- 15 • decontaminated in-place, or
- 16 • the contaminated portions will be removed, designated, and disposed accordingly, or
- 17 • the tank may be found to be non-dangerous in accordance with [WAC 173-303-071\(3\)\(qq\)](#).

18 Only removal of contaminants from the surface layer is necessary for metal surfaces [[40CFR 268.45](#),
19 Table 1, incorporated by reference at [WAC 173-303-140](#)].

20 The outside of the tanks will be inspected for compliance to the performance standard. Any areas that do
21 not to meet this performance standard will be decontaminated in-place, or the contaminated portions will
22 be removed, designated, and disposed accordingly. If tanks are removed from the stainless steel lined
23 vault for inspection, the tanks will be either placed on engineered containment devices (e.g., portable
24 catch basins, liners, etc.) to collect and contain solutions or the surface on which the tanks rest will be
25 inspected for cracks or other openings that could provide a pathway to soil. This inspection will be
26 performed as described in Section H.2.1. The cracks will be sealed before beginning the
27 decontamination.

28 Decontamination residues will be collected, designated, and managed as appropriate. If it is not possible
29 to meet clean debris surface performance standard, these areas will be:

- 30 • decontaminated in-place, or
- 31 • the contaminated portions will be removed, designated, and disposed accordingly, or
- 32 • the tank may be found to be non-dangerous in accordance with [WAC 173-303-071\(3\)\(qq\)](#).

33 **H.3.3.2 Piping and Ancillary Equipment**

34 After the waste inventory is transferred from the 219-S Tank System the tanks and piping will be rinsed
35 and flushed to meet the performance standard from Section H.2.1 to be considered clean closed.

36 The internal piping and ancillary equipment for the 219-S Tank System (see Addendum C), which have
37 contacted dangerous waste, will be flushed and drained as part of closure. Where the contaminated
38 surfaces can be inspected, an inspection will be performed to see if the piping and ancillary equipment
39 meet the clean debris surface standard in [40 CFR 268.45](#) and can be declared non-dangerous. If it is not
40 possible to meet the clean debris surface standard or the piping or ancillary equipment cannot be
41 inspected, those portions of the piping and ancillary equipment will be removed, designated and
42 dispositioned at an appropriately authorized facility. The inspections for a clean debris surface will be
43 documented and maintained in the facility operating record.

44 Piping embedded within the concrete walls of the structure will be left in place until removal of the
45 concrete and then examined, as possible, for a clean debris surface.

1 Piping between the 219-S Tank System and the 222-S Laboratory building consist of below grade piping.
2 Piping that cannot be flushed and inspected for clean debris surface, will be excavated, designated, and
3 dispositioned at an appropriately authorized facility. Piping beyond the interface point (i.e., piping
4 between the exterior wall of the 219-S Tank System and the 241-SY tank farm) is addressed as part of
5 closure requirements associated with Operating Unit Group 12.

6 Rinsate from the 219-S piping will be collected in a 219-S tank or container. Dangerous and /or mixed-
7 waste solutions and materials generated during closure activities will be managed in accordance with
8 [WAC 173-303-610\(5\)](#).

9 Process equipment contained in the sample gallery, pipe gallery, and vault of the 219-S Tank System is
10 assumed to be contaminated or potentially contaminated. Equipment in these areas either has been in
11 contact with the waste or has been in close proximity to the waste. All major equipment used in these
12 areas is listed in Addendum C and will be closed according the closure standards in Sections H.2.1 or
13 H.2.2.

14 Any areas that do not meet the clean debris surface performance standard will be decontaminated in
15 place, or the contaminated portions will be removed, designated, and disposed of accordingly. Only
16 removal of contaminants from the surface layer is necessary for metal surfaces [[40 CFR 268.45](#), Table 1,
17 incorporated by reference at [WAC 173-303-140](#)].

18 **H.3.3.3 Concrete and Asphalt**

19 Closure of concrete and asphalt at 222-S dangerous waste management units will be performed after the
20 associated tanks, piping, ancillary equipment, and structures have been closed. All concrete and asphalt
21 will be inspected visually and surveyed before any decontamination. The purpose of the inspection will
22 be twofold: to identify any cracks in the concrete and asphalt that might have allowed contaminants a
23 pathway to the soil below, and to identify areas that potentially are contaminated with dangerous waste or
24 dangerous waste residues. The inspection standard will be a clean debris surface as defined in
25 Section H.2.1. The inspection of the concrete and asphalt for a clean debris surface will be documented
26 on an inspection record. Those areas already meeting the standard can be clean closed as is.

27 **H.3.3.3.1 Truck Load in/out Platforms**

28 The 219-S Tank System has a load-in and load-out staging area (Addendum C). Once the staging area is
29 no longer needed, all containerized waste will be transferred from the staging area to either an onsite or
30 offsite TSD unit. The spill history for the staging area will be reviewed, and platform surfaces will be
31 visually inspected for staining. Any evidence of contamination will be addressed by appropriate
32 decontamination and sampling procedures as specified by this closure plan. Clean closure will be
33 achieved by meeting the performance standards (Section H.2.1, H.2.2; H.2.3) for metal, concrete, and
34 asphalt surfaces as appropriate. In the event that clean closure is unachievable, the platforms will be
35 removed and handled as hazardous debris [[40 CFR 268.45](#)].

36 All the container storage areas have load-in and load-out platforms (Addendum C). Once the load-in and
37 load-out platforms are no longer needed, all containerized waste will be transferred from the platforms to
38 either an onsite or offsite TSD unit. The spill history for the platforms will be reviewed, and platform
39 surfaces will be visually inspected for staining. Any evidence of contamination will be addressed by
40 appropriate decontamination as specified by this closure plan. Clean closure will be achieved by meeting
41 the performance standards (Sections H.2.1, H.2.2; H.2.3) for metal, concrete, and asphalt surfaces. In the
42 event that clean closure is unachievable, the platforms will be removed and handled as hazardous debris
43 [[40 CFR 268.45](#)].

44 **H.3.3.3.2 Below-grade Concrete Vault Structure**

45 The stainless steel liners in the 219-S vault were installed from 1996 through 1998. The liners provide
46 secondary containment for the tanks, process piping, and ancillary equipment in the concrete vault. The

1 liners will be decontaminated, as necessary, before removal to meet the performance standards for metal
2 in Section H.2.1. All accessible concrete will be inspected visually before any decontamination. The
3 inspection will be documented on an inspection sheet and maintained in the operating record. The
4 purpose of the inspection will be to identify any cracks in the concrete that might have allowed
5 contaminants a pathway to the soil below and to identify areas that potentially are contaminated with
6 mixed waste or mixed waste residues.

7 Those potentially contaminated areas will undergo decontamination to meet the clean closure standard
8 described in Section H.2.1. Decontamination residues will be collected, designated, and managed as
9 appropriate. Achievement of a clean debris surface for metal surfaces and clean surfaces for concrete
10 surfaces will be documented on an inspection record and retained in the 222-S Unit Specific Operating
11 Record.

12 **H.3.3.3.3 The DMWSA Concrete and Asphalt Pads**

13 After removal of the DMWSA storage structures, the concrete will be evaluated in accordance with
14 Section H.1.1.2. The purpose of the inspection will be to identify any cracks in the concrete that may
15 have allowed contaminants a pathway to the soil, and to identify areas that potentially have been
16 contaminated with dangerous waste or dangerous waste residues. The inspection will be documented on
17 an inspection record. This process will be repeated at the previous 222-S DMWSA location for concrete,
18 asphalt and soil.

19 Ecology approved the partial closure of the previous DMWSA location on March 12, 1998. A more
20 detailed description and certification of the partial closure of the previous DMWSA location can be found
21 in [Appendix 11B of the Part B Permit Application](#).

22 **H.3.3.4 Structures**

23 If contaminated with either dangerous or mixed waste constituents, the 222-S Operating Unit dangerous
24 waste management units will be decontaminated and/or disassembled, if necessary, packaged and
25 disposed of in accordance with the land disposal restrictions of [WAC 173-303-140](#).

26 Closure steps could include the following activities:

- 27 • Containerize (as necessary and practical) and remove any remaining waste.
- 28 • Review operating records of spillage incidents and visually inspect storage area surfaces for
29 evidence of contamination, or for cracks that could harbor contamination, or allow the escape of
30 decontamination solutions. Inspect storage area surfaces for visible evidence of contamination
31 (e.g., discoloration, material degradation, wetness, and odor). If contamination is evident, the
32 affected area(s) will be decontaminated.
- 33 • The resultant visual examination of the walls and floors will be compared to the closure
34 performance standards. Those that do not meet the standards will be decontaminated. The
35 structures could be cleaned by various methods (e.g., by water rinse or high-pressure, low-volume
36 steam cleaning coupled with a detergent wash). After decontamination, the walls and floors will
37 again be compared to the closure performance standards.
- 38 • Collect rinsate and manage as dangerous waste for appropriate disposal.

39 After closure activities have been completed, the structures may be used as needed.

40 **H.3.3.4.1 219-S Tank System Structure**

41 The operating gallery, product addition tank and piping of the 219-S Tank System were never used for the
42 treatment, storage or disposal of dangerous waste, and are therefore not subject to the requirements of this
43 closure plan. The 219-S Tank System contains equipment and structures (e.g., the walls and ceiling of the
44 operating gallery, the control panel, and the rinsed caustic tank) that are not expected to have become
45 contaminated with dangerous waste or dangerous constituents because of functional and physical

1 separation from the waste treatment and storage areas. The uncontaminated equipment and structures will
2 be left in place for future use or dismantled and/or removed dependent upon evaluation at closure.

3 **H.3.3.4.2 Decontamination of the DMWSA Structure**

4 Clean closure of the 222-S DMWSA will require that the storage structures meet the clean closure
5 performance standard in Section H.2. If any areas are found not meeting the clean debris surface
6 performance standard, these areas will be:

- 7 • decontaminated in-place, or
- 8 • the contaminated portions will be removed, designated, and disposed accordingly, or
- 9 • the structure may be found to be non-dangerous in accordance with [WAC 173-303-071\(3\)\(qq\)](#).

10 **H.3.3.4.3 Closure Activities for Room 2-B and Room 4-E Storage Areas**

11 Closure of Room 2-B and Room 4-E will be performed in accordance with requirements in this closure
12 plan established pursuant to [WAC 173-303-630\(10\)](#) and requires removal of all waste inventory, removal
13 of equipment associated with waste management activities, and decontamination of the room. As a first
14 step of closure, all containers of waste will be removed from the storage area. The containers of waste
15 will be transferred to an appropriately authorized facility.

16 After removal of any waste and equipment associated with waste management activities, a visual
17 assessment of the room will be performed and the Operating Record will be reviewed to verify spills to
18 the room floor. Operating Records will be checked to verify that cleanup of any spills within the
19 container storage areas and structures was performed, and these cleanups satisfied closure performance
20 standards at the time of cleanup. If no spills have been recorded or if spill cleanups satisfy closure
21 performance standards, then Clean Closure is achieved. Room surfaces will be evaluated according to
22 Sections H.2.1.

23 **H.3.3.5 Underlying Soils**

24 Clean closure of soil under the structures associated with the 222-S Operating Unit Group dangerous
25 waste management units will be accomplished by demonstrating that the concrete floors and secondary
26 containment kept contaminants from reaching the soil. Clean closure of soil is achieved when the closure
27 standards are met as described in Section H.2.3.

28 Potential soil contamination will be investigated. If analysis of the samples does not confirm that
29 constituents of concern are present, the soil will be considered clean closed.

30 Where there is evidence that contamination may have leaked into the soil below asphalt, or concrete, the
31 contaminated asphalt, concrete, or soil will be removed to allow the underlying soil to be sampled to
32 determine the depth of the contamination. Soil that is contaminated above the closure performance
33 standards in Section H.2.3 will be removed, placed in containers, and disposed of accordingly.

34 If clean closure is not possible, for soil under 219-S vault, Room 4-E and Room 2-B the closure plan will
35 be amended at the time of closure through a permit modification according to [WAC 173-303-830](#).

36 **H.4 Maximum Waste Inventory**

37 The maximum volume inventories for the treatment and/ or storage units of the 222-S Operating Unit
38 Group are identified in the Part A Form and Addendum C.

39 **H.5 Historical Activities Supporting Closure**

40 A portion of the ancillary piping located in the 222-S Laboratory tunnels was removed from service in
41 1997. The removal and staging of the high-dose drain piping in a shielded staging area in the T-8 tunnel
42 within the 222-S Laboratory was agreed to by Ecology (99-EAP-446).

1 A closure was completed on two storage structures previously located at the 222-S DMWSA. The
2 structures were clean closed, removed from the area, and replaced with two new storage structures in
3 1998 (Part A Form). The concrete below the removed structures was not closed. Closure of underlying
4 soil and the concrete was deferred to the closure of the 222-S DMWSA, and will be closed in accordance
5 with this plan. Supporting closure documentation of the 222-S DMWSA is attached.

6 An Ecology approval letter and documentation of partial closure of the previous location of the DMWSA
7 can be found in DOE/RL-91-27 rev.2. A more detailed description and certification of the partial closure
8 of the previous DMWSA location can be found in [Appendix 11B of the Part B Permit Application](#).

9 With Ecology concurrence, Tank 103, a component of in the 219-S Tank System waste management unit
10 was isolated in 1999. Ecology Change Control Form M-32-98-01 to the Hanford Federal Facility
11 Agreement and Consent Order has the description and justification for the change. Tank 103 closure, as
12 part of the 219-S Tank System waste management unit, is addressed by this Change Control Form.

13 **H.6 Schedule for Closure**

14 Closure of the 222-S Operating Unit Group is not anticipated to occur within the next 40 years. The
15 actual year of closure will depend on the time required for current waste to be processed, and the role the
16 222-S Operating Unit Group will play in the processing of additional waste generated during future
17 activities at the 222-S Laboratory and Hanford. Other factors affecting the year of closure include
18 changes in operational requirements, lifetime extension upgrades, and unforeseen factors. When a
19 definite closure date is established, notification of closure will be provided in accordance with Permit
20 Condition II.J.1.

21 The activities required to complete closure are planned to be accomplished within 180 days in accordance
22 with [WAC 173-303-610\(4\)\(b\)](#). Should a modified schedule be necessary, a revised schedule will be
23 proposed through the permit modification procedure in accordance with [WAC 173-303-610\(4\)\(b\)](#).

24 **H.7 Certification of Closure**

25 Within sixty days of completion of closure activities at each of the 222-S dangerous waste management
26 units identified according to this plan, the Permittees will submit to Ecology by registered mail a
27 certification that the corresponding dangerous waste management units have been closed in accordance
28 with the specifications in this plan. The certification will be signed by the Permittees and by an
29 independent qualified registered professional engineer.

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