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**ADDENDUM H
CLOSURE PLAN**

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**ADDENDUM H
CLOSURE PLAN**

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1 **H. CLOSURE PLAN**

2 This addendum describes the planned activities and performance standards for closing Liquid Effluent
3 Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF).

4 **H.1 Closure Plan**

5 The LERF and 200 Area ETF will be closed by removal or decontamination with respect to dangerous
6 waste contamination that resulted from operation as Treatment, Storage, and Disposal (TSD) units, with
7 closure of LERF occurring first. To facilitate closure, the LERF retention basins are being viewed as
8 consisting of seven components: the covers and primary liner, drainage layer system/bentonite carpet
9 liner, secondary liner, soil/bentonite, internal and/or external piping, ancillary equipment, and concrete
10 basins. To facilitate closure of 200 Area ETF, the 200 Area ETF is being viewed as consisting of six
11 components: tanks, internal and/or external piping, ancillary equipment, concrete floors/dikes/
12 encasements, structures, and soil directly beneath the structure. It is anticipated that closure of LERF and
13 200 Area ETF will begin after the projected 30-year active life of LERF and 200 Area ETF. If it is
14 determined that closure by removal or decontamination is not possible, the closure plan will be modified
15 to address required post closure activities.

16 Uncontaminated structures will be left for future use or disassembled, dismantled, and removed for
17 disposal. Uncontaminated equipment and structures could include aqueous makeup, HVAC and piping,
18 steam condensate and cooling water piping, and the 200 Area ETF Control Room and office areas.

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

23 **H.2 Closure Performance Standard**

24 Closure by removal or decontamination, as provided for in this plan based on the requirements of
25 [WAC 173-303-610](#)(2), will eliminate future maintenance and will be protective of human health and the
26 environment by removing or reducing chemical contamination at LERF and 200 Area ETF to levels that
27 are below concern with respect to human health and the environment.

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

30 **H.2.1 Closure Standards for Metal Surfaces, Rubber, Tanks, and Concrete**

31 This closure plan proposes use of a 'clean debris surface' (defined in the following paragraph) as the clean
32 closure performance standard for the metal surfaces, rubber (i.e., basin covers, liners, etc.), tanks, and
33 concrete that will remain after closure. This approach is consistent with the Washington State
34 Department of Ecology (Ecology) guidance (Publication #94-111, Ecology 2005) for achievement of
35 clean closure. Additionally, adherence to this guidance ensures that all residues have been removed as
36 required by [WAC 173-303-640](#) for closure of the 200 Area ETF tank systems.

37 The clean debris surface standard is verified visually.

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

43 When a physical extraction method is used on concrete, the performance standard is based on removal of
44 the contaminated layer of debris. The physical extraction performance standard for concrete is removal of
45 0.6 centimeter (0.25 inches) of the surface layer and treatment to a clean debris surface. Inspections to
46 verify achievement of a clean debris surface will be performed and documented.

1 H.2.2 Closure Standards for Piping and Ancillary Equipment

2 The internal and external piping of both LERF and 200 Area ETF that has contacted dangerous waste will
3 be flushed and drained as part of closure. When practical, ancillary equipment, which has contacted
4 dangerous waste will also be flushed and drained. For piping and ancillary equipment where the
5 contaminated surfaces can be inspected, an inspection will be performed to see if the surfaces meets the
6 clean debris surface standard in [40 CFR 268.45](#), incorporated by reference by [WAC 173-303-140](#), and
7 can be declared non-dangerous in accordance with [WAC 173-303-071](#)(3)(qq). If it is not possible to
8 inspect the contaminated surfaces or meet the clean debris surface performance standard, the particular
9 piping or ancillary equipment of concern will be removed, designated, and disposed of accordingly.

10 Dangerous and/or mixed-waste materials generated during closure activities will be managed in
11 accordance with [WAC 173-303-610](#)(5). Removal of any dangerous wastes or dangerous constituents
12 during partial or final closure will be handled in accordance with applicable requirements of
13 [WAC 173-303-610](#)(5).

14 H.2.3 Closure Standards for Underlying Soils

15 The LERF retention basins have a leachate collection system that channels the leachate to sumps at the
16 bottom of the basins. The collected liquid is pumped back into the basins, thereby limiting fluid head on
17 the secondary liner. The secondary liner is comprised of several protective layers, including a high-
18 density polyethylene geomembrane and a soil/bentonite admixture. The soil below the LERF only could
19 be contaminated if the layers of the secondary liner had failed. The primary liner and the drainage gravel,
20 geotextile, and geonet between the primary and secondary liners cannot easily be decontaminated. The
21 high-density polyethylene layer of the secondary liner also cannot be decontaminated. These materials
22 will be removed and disposed according to the requirements of [WAC 173-303-170](#). The soil/bentonite
23 admixture will be sampled and analyzed for constituents of concerns according to the sampling and
24 analysis plan developed prior to the time of closure. If the analytical results determine that the
25 constituents of concern are at or below the levels in [WAC 173-303-610](#)(2)(b)(i), or background levels for
26 Hanford soil if background is greater, the soil/bentonite admixture and the soil below LERF will be
27 considered clean closed.

28 Clean closure of soil under the 200 Area ETF will be accomplished by demonstrating that the coated
29 concrete floor kept contaminants from reaching the soil. The coated concrete floor provided secondary
30 containment for all the tanks and process piping. Unless inspections identify potential through-thickness
31 cracks indicating containment failure and a subsequent potential for soil contamination from TSD unit
32 operations, the soil will be considered clean closed. However, if inspections identify such cracks and
33 there have been documented spills in the vicinity, potential soil contamination will be investigated. Soils
34 will be sampled and analyzed for constituents of concern according to the sampling and analysis plan.
35 The sampling and analysis plan will be prepared following the completion of a data quality objectives
36 process in accordance with EPA/600/R-96/055 (QA/G-4), *Data Quality Objectives Process*, as amended.
37 The data quality objectives process will be initiated prior to closure on a schedule to ensure timely closure
38 of LERF. The sampling and analysis plan will be submitted to Ecology as part of a permit modification
39 request meeting the requirements of [WAC 173-303-830](#). The sampling and analysis plan will be prepared
40 consistent with EPA/240/B-01/003 ([EPA QA/R-5](#)), *EPA Requirements for Quality Assurance Project*
41 *Plans*, as amended.

42 If the soil analytical results determine that the constituents of concern are at or below the levels in
43 [WAC 173-303-610](#)(2)(b)(i), or background levels in the Hanford soil if background is greater, the soil
44 will be considered clean closed. If the constituents of concern exceed background levels, the soil will be
45 closed per the standards of [WAC 173-303-610](#)(2)(b).

46 H.3 Closure Activities

47 The LERF and 200 Area ETF were designed for a 30-year active life.

1 At the time of closure, the closure plan will be modified as necessary to reflect current regulation or
2 informational revisions in accordance with [WAC 173-303-610\(3\)\(b\)](#). If it is determined that clean
3 closure is not possible, the closure plan will be modified to address required post closure activities.

4 **H.3.1 General Closure Activities**

5 The approach to LERF closure is to dispose of accumulated basin aqueous waste by processing the waste
6 through 200 Area ETF. Primary basin liners, covers, drainage gravel, geonets, and secondary High
7 Density Polyethylene (HDPE) liners will be removed, designated, and disposed of as described in
8 Sections H.3.4.1 and H.3.4.2. Any remaining solids (residue) within the basins will also be removed,
9 designated, and disposed of accordingly. Piping associated with LERF closure is intended to be
10 decontaminated, drained, and inspected. Piping that meets the closure standard in Section H.2.2 will be
11 left in place. Piping that does not meet the closure standard, or cannot be inspected, will be disposed of
12 accordingly. Rinsate generated during decontamination also will be disposed of through 200 Area ETF.
13 Sampling will assess whether contamination beneath the secondary HDPE liner has occurred.
14 Contamination above background levels, if present, will be removed or decontaminated to meet the
15 regulatory requirements of [WAC 173-303-610\(2\)\(b\)](#).

16 The approach to 200 Area ETF closure is to process any aqueous waste through the effluent treatment
17 system. Any waste, which cannot be treated at 200 Area ETF as the facility is being closed, will be
18 transferred to other TSD units or off-site TSD facility. Piping will be rerouted and temporary piping
19 installed to allow the isolation of tanks and ancillary equipment for draining, decontamination, and
20 closure. Rerouted and temporary piping will be closed in the same manner as process piping. All
21 structures and equipment will be decontaminated to the closure standards in Section H.2.2 or disposed.
22 Piping associated with 200 Area ETF closure is intended to be decontaminated, drained, and inspected.
23 Piping that meets the closure standard in Section H.2.2 will be left in place. Piping that does not meet the
24 closure standard, or cannot be inspected, will be disposed of accordingly. Contamination, if present, will
25 be managed in compliance with regulatory requirements.

26 Equipment or materials used in performing closure activities will be decontaminated or disposed at a
27 permitted facility.

28 **H.3.2 Constituents of Concern for Closure for the Liquid Effluent Retention Facility and** 29 **200 Area Effluent Treatment Facility**

30 Using the list of dangerous waste numbers in the Addendum A, Part A Form, constituents in the final
31 delisting in [40 CFR 261](#) Appendix IX, sample results from wastes added to LERF and 200 Area ETF,
32 process knowledge and the risk to human health and the environment, the constituents of concern for
33 closure will be determined through the data quality objective process. Based on constituents in
34 wastewater received at LERF from 2000 to 2006 which are present at five percent of their delisting levels
35 or higher, the constituents of concern are:

- Acetone
- Ammonia
- Barium
- Chromium
- Carbon tetrachloride
- Fluoride
- Lead
- Mercury
- Methyl ethyl ketone
- n-Butyl alcohol
- Total cresols
- Tributyl phosphate
- Vanadium

36 Arsenic and beryllium are excluded because they are present in Hanford soils and may therefore give a
37 false positive sample result. Constituents of concern vary in each basin. For example, ammonia may be
38 present only in LERF Basin 42. The constituents of concern for each basin will be determined by process
39 knowledge as part of the Data Quality Objectives process for the Sampling and Analysis Plan.

40 **H.3.3 Removing Dangerous Waste**

41 At the start of LERF closure, aqueous waste will be transferred sequentially from each basin to another
42 LERF basin or to 200 Area ETF for treatment.

1 At a pump rate of about 284 liters (75 gallons) per minute, it will take approximately 60 days to empty a
2 full basin. Basin covers will remain in place to prevent possible wind dispersion of waste until all basin
3 waste has been removed.

4 All of the aqueous waste inventory at the 200 Area ETF will be processed before closure. Any residue
5 remaining in piping, equipment, or the LERF liner will be removed to an appropriate disposal unit. All
6 containerized waste will be dispositioned. All secondary waste in containers will be transferred to an
7 appropriate TSD unit.

8 **H.3.4 Decontaminating Structures, Equipment, and Soils**

9 This section discusses the activities necessary to implement a clean closure strategy for the LERF and
10 200 Area ETF.

11 **H.3.4.1 Covers and Primary Liner**

12 The following steps will be performed to close each LERF basin cover and primary liner:

- 13 • Wastewater will be removed from the basins and transferred to another LERF basin or to
14 200 Area ETF. Additional pumps and piping may be installed to empty the basin as low as
15 possible.
- 16 • The basin cover will be cut into pieces and disposed in containers.
- 17 • As much as practical of the remaining residue within the basins will be removed and transferred
18 to containers, another LERF basin, or 200 Area ETF. Rinsing may be performed to facilitate
19 removal.
- 20 • The pipe risers, transfer pump, HDPE primary liner and bentonite carpet liner will be cut into
21 pieces and disposed in containers.

22 **H.3.4.2 Drainage Layer and Secondary Liner**

23 The following steps will be performed to close each LERF basin drainage layer and secondary liner:

- 24 • The drainage gravel, geotextile, and geonet will be cut into pieces, and disposed in containers.
- 25 • As much as practical of the remaining residue on the secondary liner will be removed and
26 transferred to containers, another LERF basin or 200 Area ETF. Rinsing may be performed to
27 facilitate removal of residue.
- 28 • The HDPE liner portion of the secondary liner will be visually inspected for physical damage.
29 This will provide potential sampling locations to determine if the soil/bentonite below the HDPE
30 liner may be clean closed.
- 31 • The leachate pump, pump riser, and HDPE liner portion of the secondary liner will be removed,
32 cut into pieces, and disposed in containers.
- 33 • The soil/bentonite portion of the secondary liner will be visually inspected for signs of
34 contamination. This will provide potential sampling locations to determine if the soil/bentonite
35 may be clean closed.

36 Assessment of contamination beneath the LERF's secondary liner will be performed within each basin by
37 sampling the top surface of the 91-centimeter (36-inch) thick layer of soil/bentonite. Biased and random
38 location selection will be used to increase the probability of detecting leachate contamination. Some
39 sampling points will be chosen randomly, while others will be chosen where physical damage was noted
40 during the inspection of the secondary HDPE liner and soil/bentonite layer, and in areas where the
41 underlying material porosity and permeability and the hydraulic head would most likely drive any
42 leachate. The leakage rate through the liner would increase toward the bottom of the liner as hydraulic
43 head increases. Any leakage that did occur in the sloped sides could be expected to travel down slope
44 through the geotextile between the primary and secondary liner until reaching the bottom of the liner.

1 Therefore, the most likely area of contamination would be the soil/bentonite in the leachate sump and at
2 the bottom of the basin. Sampling and disposal objectives will be determined at the time prior to closure
3 activities through the data quality objectives process. The sampling and analysis plan will be prepared
4 following the completion of a data quality objectives process in accordance with EPA/600/R-96/055
5 (QA/G-4) *Data Quality Objectives Process*, as amended.

6 The data quality objectives process will be initiated prior to closure on a schedule to ensure timely closure
7 of LERF. The sampling and analysis plan will be submitted to Ecology as part of a permit modification
8 request meeting the requirements of [WAC 173-303-830](#). The sampling and analysis plan will be prepared
9 consistent with EPA/240/B-01/003 ([EPA QA/R-5](#)), *EPA Requirements for Quality Assurance Project*
10 *Plans*, as amended.

11 Sampling of the soil/bentonite will be performed in accordance with the sampling methods allowed for in
12 [WAC 173-303-110\(2\)](#). Special care will be needed in sampling for volatiles. To aid in ensuring sample
13 integrity, the initial sampling of the soil/bentonite may proceed while the secondary HDPE liner is in the
14 process of being removed.

15 If no constituents of concern are found above soil closure performance standards (Section H.2.3), no
16 further analysis will be done. If the initial sample analysis indicates liner leakage, additional samples
17 from different depths and locations will be taken to determine the spatial extent of contamination. The
18 soil/bentonite will be removed in the area around the contamination and placed in containers. If
19 contamination is found to extend through the entire depth of the soil/bentonite layer, soil beneath the
20 basin that is contaminated above closure performance standards will also be removed and placed in
21 containers.

22 **H.3.4.3 Tanks**

23 The following general steps will be performed to close, each 200 Area ETF tank and ancillary equipment:

- 24 • Wastewater and chemical additions to the tank will be isolated or rerouted to a downstream tank.
- 25 • Piping and ancillary equipment associated with the tank will be flushed with water and drained to
26 the tank being closed, to another tank, or to containers.
- 27 • Wastewater will be removed from the tank and transferred to another tank. Additional pumps and
28 piping may be installed to empty the tank as low as possible.
- 29 • All remaining residue at the bottom of the tank will be removed and transferred to another tank or
30 containers. Rinsing may be performed to facilitate removal of residue.
- 31 • An initial visual inspection of the tank's interior and exterior surfaces will be performed to
32 determine the type of flushing that will allow the tank to be clean closed, or whether the tank
33 cannot be clean closed.
- 34 • The tank's surfaces, piping and ancillary equipment will be cleaned by chemical or physical
35 extraction techniques described in [40 CFR 268.45](#). Flush solution will be transferred to another
36 tank or containers. All flush solution at the bottom of the tank will be removed before visual
37 inspection.
- 38 • The tank, piping, and ancillary equipment will be inspected visually for compliance with the
39 performance standard in Sections H.2.1 and H.2.2.

40 Closure will begin with the Load-In Station tanks, surge tank, and other tanks of the main treatment train.
41 The secondary treatment train will operate as long as possible to reduce the volume of flush water
42 requiring disposal. Condensate from the secondary treatment train will be routed to the main treatment
43 train or the verification tanks for storage or treatment.

44 After rinsing, the tanks will be inspected visually for compliance with the performance standard. Visual
45 inspection might be made remotely using a camera or other device that allows verification of meeting the
46 performance standard.

1 If any areas are found not meeting the clean debris surface performance standard, these areas will be
2 decontaminated in-place, or the contaminated portions will be removed, designated, and disposed
3 accordingly. Per [40 CFR 268.45](#), Table 1 incorporated by reference at [WAC 173-303-140](#), only removal
4 of contaminants from the surface layer is necessary for metal surfaces.

5 The outside of the tanks also will be inspected for compliance to the performance standard. Any areas
6 found not to meet this performance standard will be decontaminated in-place, or the contaminated
7 portions will be removed, designated, and disposed accordingly.

8 Before using decontamination solutions on the outside of the tanks, the floor will be inspected for cracks
9 or other openings that could provide a pathway to soil. This inspection will be performed as described in
10 Section H.2.3 in conjunction with mapping of potential through-thickness cracks. Any such cracks will
11 be mapped. The cracks will be sealed before beginning treatment or other engineered containment
12 devices (e.g., portable catch basins, liners) will be used to collect and contain solutions.

13 Decontamination residues will be collected, designated, and managed as appropriate. If it is not possible
14 to meet the clean closure performance standard, contaminated portions of the tanks could be removed,
15 designated, and disposed of accordingly. The inspections for a clean debris surface will be documented
16 on an inspection record.

17 **H.3.4.4 Internal and External Piping and Ancillary Equipment**

18 The internal piping and ancillary equipment for both LERF and 200 Area ETF, which have contacted
19 dangerous waste will be flushed and drained as part of closure. Any treatment media, such as filters,
20 reverse osmosis membranes, ion exchange resins, will be removed from the ancillary equipment, and
21 disposed of accordingly. Where the contaminated surfaces can be inspected, an inspection will be
22 performed to see if the piping and ancillary equipment meet the clean debris surface standard in
23 [40 CFR 268.45](#) and can be declared non-dangerous. If it is not possible to meet the clean debris surface
24 standard or the piping or ancillary equipment cannot be inspected, those portions of the piping and
25 ancillary equipment will be removed, designated, and disposed of accordingly.

26 External piping (transfer lines) associated with LERF and 200 Area ETF consist of below grade and
27 above grade piping. Below grade, piping will be dispositioned at closure consistent with the practices for
28 below grade piping in the 200 Areas at the time of closure consistent with the 200-IS-1 operable unit
29 decisions. Above grade piping will be dispositioned consistent with the provisions for internal piping.

30 Rinsate from the LERF and 200 Area ETF external piping and LERF internal piping will be processed
31 through 200 Area ETF. Dangerous and/or mixed-waste solutions and materials generated during closure
32 activities, which cannot be treated at 200 Area ETF will be managed in accordance with
33 [WAC 173-303-610\(5\)](#).

34 **H.3.4.5 Concrete**

35 At LERF, the concrete catch basins are located at the northeast corner of each retention basin, where inlet
36 pipes, leachate risers, and transfer pipe risers emerge for the basin. The concrete catch basin is curbed,
37 and coated with a chemical resistant epoxy sealant. The concrete catch basin is sloped so that any leaks
38 or spills from the piping or connections will drain into the basin. At the 200 Area ETF, the coated
39 concrete floor and berm provides secondary containment for all the tanks and process piping.

40 Closure of concrete at LERF and 200 Area ETF will be performed after the associated tanks, piping,
41 ancillary equipment, and structures have been closed. All concrete will be inspected visually and
42 surveyed before any decontamination. The purpose of the inspection will be twofold: to identify and
43 map any cracks in the concrete that might have allowed contaminants a pathway to the soil below
44 (Section H.2.3), and to identify areas that potentially are contaminated with dangerous waste or dangerous
45 waste residues. The inspection standard will be a clean debris surface as defined in Section H.2.1. The
46 inspection of the concrete for a clean debris surface will be documented on an inspection record. Those
47 areas already meeting the standard can be clean closed as is.

1 Those potentially contaminated areas will undergo decontamination to meet the clean closure standard of
2 a clean debris surface. The concrete will be washed down; the rinsate collected, designated, and disposed
3 of accordingly. The concrete will be reinspected for a clean debris surface. Concrete surfaces indicated
4 by visual examination, as still being potentially contaminated will have the surface layer removed to a
5 depth of 0.6 centimeter (0.25 inches) by scabbing or other approved methods. This will not threaten the
6 environment, even if potential through-thickness cracks had been found during the inspection, because
7 concrete decontamination (scabbing) will not employ liquid solutions that could enter cracks and because
8 scabbing residues will be vacuumed away from cracks as, any residue is generated.

9 Achievement of a clean debris surface will be documented on an inspection record. Decontamination
10 residues will be collected, designated, and managed as appropriate.

11 **H.3.4.6 Structures**

12 If contaminated with either dangerous or mixed waste constituents, the 200 Area ETF structures will be
13 decontaminated and/or disassembled, if necessary, packaged, and disposed of in accordance with existing
14 land disposal restrictions ([WAC 173-303-140](#)).

15 Closure steps could include the following activities.

- 16 • Containerize (as necessary and practicable) and remove any remaining waste.
- 17 • Review operating records for spillage incidents and visually inspect storage area surfaces for
18 evidence of contamination or for cracks that could harbor contamination or allow the escape of
19 decontamination solutions. Inspect storage area surfaces for visible evidence of contamination
20 (e.g., discoloration, material degradation, wetness, and odor). If contamination is evident, the
21 affected area(s) will be decontaminated.
- 22 • Decontaminate 200 Area ETF walls and floors to minimize the potential for loose contamination
23 and facilitate any required surveys and/or chemical field screening. The structures could be
24 cleaned by water rinse or high-pressure, low-volume steam cleaning coupled with a detergent
25 wash. After decontamination, the walls and floors will be compared to closure performance
26 standards.
- 27 • Collect rinsate and manage as dangerous waste for appropriate disposal.
- 28 • Secure (lock) personnel entries into building and post doors with appropriate warning signs.

29 **H.3.4.7 Underlying Soils**

30 Clean closure of soil under LERF's secondary liner will be accomplished by demonstrating that the liners
31 and leak detection system kept contaminants from reaching the soil. The secondary liner provided
32 secondary containment for the LERF basins. Unless inspections identify potential leaks, punctures,
33 cracks, or tears indicating containment failure and a subsequent potential for soil contamination from
34 TSD unit operations, the soil will be considered clean closed. However, if inspections identify such leaks,
35 punctures, etc., potential soil contamination will be investigated.

36 Clean closure of soil under 200 Area ETF will be accomplished by demonstrating that the coated concrete
37 floor kept contaminants from reaching the soil. The coated concrete floor and bermed area provided
38 secondary containment for all the tanks and process piping. Unless inspections identify potential
39 through-thickness cracks indicating containment failure and a subsequent potential for soil contamination
40 from TSD unit operations, the soil will be considered clean closed. However, if inspections identify such
41 cracks and there have been documented spills in the vicinity, potential soil contamination will be
42 investigated.

43 Where it is possible visually to inspect directly beneath the tanks, a visual inspection will be performed.
44 Where it is not possible visually to inspect beneath the tanks, an evaluation of the tank integrity will be
45 made. The condition of the tank will be evaluated to determine if there was any potential for leakage. If
46 no cracks, severe corrosion, or evidence of leaks is observed, it will be reasoned that mixed or dangerous
47 waste solutions could not have penetrated to the soil directly below the tank.

1 External piping (transfer lines) between the 242-A Evaporator and LERF and 200 Area ETF are double
2 lined with a leak detection system. If records indicate that no leaks from the primary piping occurred, the
3 soil will be considered clean with respect to RCRA closure.

4 Where there is evidence that contamination may have leaked into the soil below tanks, concrete, or the
5 soil/bentonite layer at LERF, the contaminated tank, concrete, or soil/bentonite layer will be removed to
6 allow the underlying soil to be sampled to determine the depth of the contamination. Soil that is
7 contaminated above the closure performance standards in Section H.2.3 will be removed, placed in
8 containers, and disposed accordingly.

9 **H.4 Maximum Waste Inventory**

10 The maximum waste inventory for LERF and 200 Area ETF is in Addendum A.

11 **H.5 Closure of Containers, Tanks, and Surface Impoundments**

12 The following sections cover closure of containers, closure of tanks, and closure of surface
13 impoundments.

14 **H.5.1 Closure of Containers**

15 Containers at 200 Area ETF will be used to contain dangerous waste in the event of a spill, unexpected
16 release, or equipment failure. Containers will be used to accumulate nonradioactive dangerous waste
17 and/or mixed wastes. All containers will be emptied and treated prior to closure of 200 Area ETF. Any
18 containers used to contain dangerous and/or mixed waste at the 200 Area ETF that is generated during the
19 closure process and therefore cannot be treated at 200 Area ETF will be designated and shipped to an
20 onsite TSD unit or off-site TSD facility. Containers of dangerous and/or mixed waste will not be left in
21 the 200 Area ETF after closure.

22 **H.5.2 Closure of Tanks**

23 Clean closure of 200 Area ETF will consist of the removal and disposal of all dangerous waste and the
24 decontamination and/or removal and disposal of equipment which does not meet the performance
25 standards in Section H.2, including tanks. The 200 Area ETF was designed to incorporate removable
26 components. This design facilitates closure by allowing complete removal of equipment, which does not
27 meet the performance standards.

28 **H.5.3 Closure of Surface Impoundments**

29 At closure, all of LERF that received regulated waste will be closed in accordance with the requirements
30 of this approved closure plan, which are intended to ensure compliance with the requirements of
31 [WAC 173-303-650\(6\)\(a\)\(i\)](#). All equipment, structures, and other material associated with closure of
32 LERF will be decontaminated or removed in accordance with [WAC 173-303-610\(2\)](#). All basin waste and
33 decontamination rinsate will be transferred to 200 Area ETF. Sampling and testing will be conducted as
34 described in Section H.3.4.2.

35 **H.6 Schedule for Closure**

36 Closure of LERF and 200 Area ETF is not anticipated to occur within the next 30 years. The actual year
37 of closure will depend on the time required for current waste to be processed and what role the LERF and
38 200 Area ETF will play in processing additional waste generated during future activities in the 200 Areas.
39 Other factors affecting the year of closure include changes in operational requirements, lifetime extension
40 upgrades, and unforeseen factors. When a definite closure date is established, notification of closure will
41 be provided in accordance with Permit Condition II.J.3.

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