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ADDENDUM H
CLOSURE PLAN

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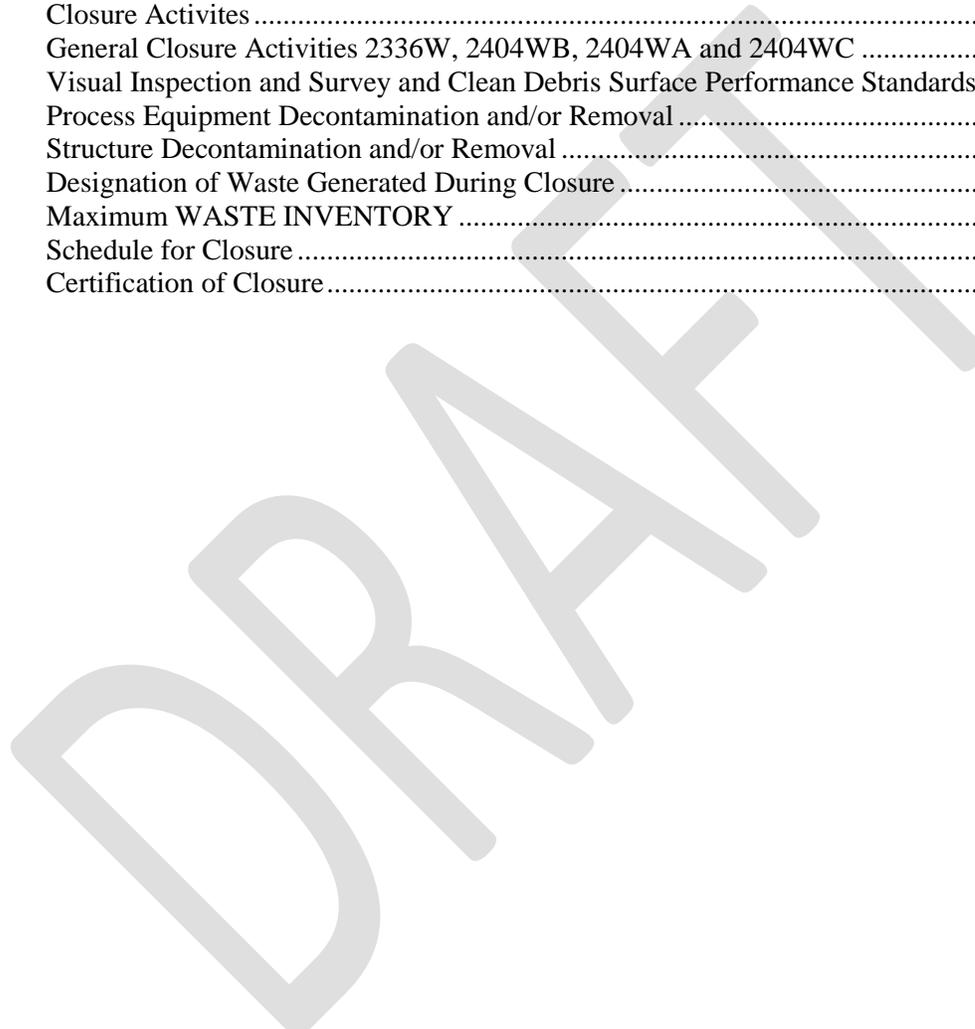
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ADDENDUM H
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1 **H CLOSURE**

2 This addendum describes the planned activities and performance standards for closing dangerous waste
3 management units (DWMU) at the WRAP Operating Unit Group.

4 **H.1 Closure Plan**

5 The WRAP Operating Unit Group consists of the following dangerous waste management units:

- 6 • 2336W Building, including the process area, the NDE/NDA area, the shipping and receiving area,
7 and Room 152.
- 8 • 2404WA Storage Building.
- 9 • 2404WB Storage Building.
- 10 • 2404WC Storage Building.

11 Closure of WRAP dangerous waste management units may proceed independently of one another. The
12 closure approach will be closure by removal or decontamination (“clean close”) as required by [WAC 173-](#)
13 [303-630\(10\)](#) and [WAC 173-303-610\(2\)](#) for container storage units. Consistent with the criteria that must
14 be met to clean close a dangerous waste management unit, no waste will be closed in place and therefore
15 no post closure activities will be necessary.

16 Records of the dangerous waste management units in the WRAP Operating Unit Group identify the
17 materials stored, as well as records of any spills, releases, and related cleanups at WRAP dangerous waste
18 management units. The permit conditions authorizing storage of containerized waste at WRAP DWMU
19 help ensure that spills or releases will not occur. Should spills or releases occur, permit conditions ensure
20 that they are cleaned up and documented in compliance with the final closure performance standards.

21 Dangerous waste management units at WRAP will be closed by removal or decontamination with respect
22 to dangerous waste contamination that resulted from operations. If it is determined that closure by
23 removal or decontamination is not possible, the closure plan will be modified in accordance with Permit
24 Condition II.J.2 to address closure of the affected unit (s) as a landfill and post-closure activities including
25 groundwater monitoring.

26 Uncontaminated or decontaminated structures and equipment will be left in place for future use, or
27 disassembled, dismantled, and removed for disposal. Decisions regarding disposal or future use of
28 equipment and structures will be made at the time of closure. Equipment and structures subject to
29 requirements of this closure plan include those that have been used for the treatment and/or storage of
30 dangerous or mixed waste, or which may reasonably be expected to be or have been contaminated by
31 dangerous or mixed waste.

32 **H.2 Closure Performance Standard**

33 Closure by removal or decontamination requires the decontamination or removal and disposal of all
34 dangerous waste, waste residues, contaminated equipment, soil or other material established in
35 accordance with the removal or decontamination performance standards established in this closure plan
36 pursuant to [WAC 173-303-610\(2\)](#). This and future closure plan revisions will document closure activities
37 necessary to achieve compliance with these performance standards.

38 Closure by removal or decontamination, based on the requirements established in this closure plan
39 pursuant to [WAC 173-303-610\(2\)](#), will eliminate the need for future maintenance and will be protective
40 of human health and the environment by removing and reducing the chemical contamination at or
41 resulting from operations of WRAP dangerous waste management units to levels that are below concern
42 with respect to human health and the environment.

43 Clean closure of soils underlying the structures and soils surrounding the outdoor storage area will be
44 accomplished by demonstrating that there are no pathways for dangerous waste to the underlying soils.
45 Operating records will be checked to verify that cleanup of any spills within the WRAP dangerous waste

1 management units was performed, and that these cleanups satisfied the closure performance standards at
2 the time of the cleanup.

3 Clean closure will be to standards specified in this closure plan pursuant to [WAC 173-303-610\(2\)\(b\)\(ii\)](#)
4 for all structures, equipment, bases, liners, etc. Except for the asphalt surface located at the Outdoor
5 Storage Area A a, the performance standard for structures, equipment, bases, liners, etc, will be a clean
6 debris surface in 40 CFR 268.45, Table 1, Footnote 3 incorporated by reference in [WAC 173-303-140\(2\)](#).
7 For equipment, a closure performance standard of removal or disposal can be applied. For the asphalt
8 surface area at the Outdoor Storage Area A, the closure performance standard will be removal of the
9 asphalt surface, treatment as necessary, and disposal. Although not anticipated, any contaminated soils
10 will be subject to numeric cleanup levels in [WAC 173-303-610\(2\)\(b\)\(i\)](#). If contaminated soils are
11 encountered, or if it is not possible to demonstrate there are no pathways for dangerous wastes or
12 constituents to underlying soils, this circumstance will be considered an unexpected event for closure
13 requiring a modification to the plan pursuant to Permit Condition II.J.2.

14 Any previously designated dangerous/mixed waste or debris removed from WRAP permitted storage will
15 be managed in accordance with this Permit. Newly or generated dangerous/mixed waste from
16 decontamination or removal efforts will be designated in accordance with [WAC 173-303-070](#) through -
17 100 and managed accordingly.

18 **H.2.1 Closure Standards for Concrete Containment Structures**

19 This closure plan proposes ‘clean debris surface’ as the clean closure performance standard for equipment
20 and concrete containment structures that will remain after closure. This approach is consistent with
21 Ecology guidance (Publication #94-111, Ecology 2005) for achievement of clean closure. ‘Clean debris
22 surface’ is defined as “the surface, when viewed without magnification, shall be free of all visible
23 contaminated soil and hazardous waste except residual staining from soil and waste consisting of light
24 shadows, slight streaks, or minor discolorations and soil and waste in cracks, crevices, and pits may be
25 present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no
26 more than 5% of each square inch of surface area” [40 CFR 268.45 incorporated by reference by [WAC](#)
27 [173-303-140\(2\)](#)].” Adherence to this guidance ensures that all residues have been removed as required by
28 [WAC 173-303-610](#).

29 **H.2.2 Closure Standards for Underlying Soils**

30 **H.2.2.1 2336W, 2404WB, 2404 WA and 2404WC**

31 Clean closure of the soil under the 2336W, 2404WB, 2404WA and 2404WC structures will be
32 accomplished by demonstrating that the coated concrete floors kept contamination from reaching the soil.
33 The coated concrete floors provided secondary containment for the storage and treatment areas of the
34 WRAP Operating Unit Group buildings. Unless inspections identify potential through-thickness cracks
35 indicating containment failure and a subsequent potential for soil contamination from the WRAP
36 dangerous waste management units operations, the soil will be considered clean closed. Should
37 inspections identify such cracks, and there have been documented spills in the vicinity, potential soil
38 contamination will be investigated. In this circumstance, a sampling and analysis plan for characterizing
39 the nature and extent of soil contamination will be prepared following the completion of a data quality
40 objectives process in accordance with EPA/600/R-96/055 (QA/G-4), *Data Quality Objectives Process*, as
41 amended. The data quality objectives process will be initiated prior to closure on a schedule to ensure
42 timely closure of WRAP dangerous waste management units. The sampling and analysis plan will be
43 submitted to Ecology as part of a permit modification pursuant to Permit Condition II.J.2. This permit
44 modification request will also establish constituents of concern, soil remediation requirements, soil
45 closure performance standards, and associated sampling, analysis, and QA/QC requirements necessary to
46 demonstrate compliance with closure performance standards. The sampling and analysis plan will be
47 prepared consistent with EPA/240-B-01/003 (EPA/QA R-5), *EPA Requirements for Quality Assurance*
48 *Project Plans*, as amended.

1 **H.3 Closure Activities**

2 **H.3.1 General Closure Activities 2336W, 2404WB, 2404WA and 2404WC**

3 The WRAP operating record will be reviewed to identify any previous spills and releases that occurred at
4 WRAP Operating Unit Group. The review will also verify the cleanup of spills was performed and that
5 these cleanups satisfied the closure performance standards at the time of the cleanup.

6 Attainment of a clean debris surface will be verified visually in accordance with the performance
7 standard. When the performance standard is not met, decontamination of concrete will be accomplished
8 using physical extraction methods from the alternative treatment standards for hazardous debris [40 CFR
9 268.45, Table 1, incorporated by reference by [WAC 173-303-140](#)]. Inspections to verify achievement of
10 a clean debris surface will be performed and documented.

11 The concrete will be reexamined visually after decontamination. Areas that do not satisfy the clean
12 debris closure performance standard will be reevaluated for more rigorous decontamination or removal,
13 designation, and disposal. If this circumstance is encountered, it will be considered an unexpected event
14 during closure, and this closure plan will be modified according to Permit Condition II.J.2.

15 Closure activities will include the following:

- 16 • Document review to determine spill history
- 17 • Inventory removal
- 18 • Visual inspection and survey
- 19 • Process equipment decontamination and/or removal
- 20 • Structure decontamination and/or removal
- 21 • Designation of wastes generated during closure
- 22 • Obtain independent registered professional engineer certification that closure activities were
23 completed in accordance with the approved closure plan (to include any approved permit
24 modifications).

25 Additional details for closure activities are provided below.

26 All waste inventories at the WRAP Operating Unit Group at the start of closure will be processed as part
27 of closure. At completion of closure, no waste will remain at the WRAP Operating Unit Group. Residue
28 remaining in process lines and equipment will be removed during decontamination as necessary to
29 achieve a clean debris surface. All containers of waste will be removed from the storage structures and
30 will be transferred to another permitted onsite Operating Unit Group or permitted offsite facility.
31 Equipment used in performing closure activities may be decontaminated as necessary to meet the closure
32 performance standards for equipment in [Section H.2](#). Equipment that is not or cannot be decontaminated,
33 as well as materials used in performing closure activities, will be or disposed at an on-site Operating Unit
34 Group, an off-site permitted facility, or another approved facility.

35 **H.3.2 Visual Inspection and Survey and Clean Debris Surface Performance Standards**

36 After all waste has been removed from WRAP dangerous waste management units, a visual inspection
37 and survey will be performed to identify areas of potential contamination. The visual inspection will
38 evaluate the equipment and structures, including interior walls, containment areas, grates, floors, and
39 storage pads. For areas that do not satisfy the clean debris surface closure performance standards, field
40 personnel will determine whether to remove and dispose or to decontaminate.

41 **H.3.3 Process Equipment Decontamination and/or Removal**

42 Equipment containing or contaminated with dangerous/mixed waste or waste residue will be managed by
43 one of the following methods: (1) decontamination, (2) disposal as dangerous waste, or (3) disposal as
44 mixed waste. The method to be used will be determined based on the specific piece of equipment, the
45 level of contamination, the ease with which the equipment can be decontaminated, the waste designation
46 performed in accordance with [WAC 173-303-070](#) through -100, and the estimated quantity of waste to be

1 generated during decontamination. Final disposal will be determined using appropriate techniques
2 available at the time of closure.

3 **H.3.4 Structure Decontamination and/or Removal**

4 Any structures, including interior walls, containment areas, including, sumps, grates and, floors but
5 excluding the Outdoor Storage Area A, that contain or have contaminated dangerous/mixed waste or
6 waste residue in excess of the clean debris surface performance standard will be decontaminated. The
7 method of decontamination used will depend on the nature of the structure and the extent and type of
8 contamination. Decontamination methods might include wiping, washing, brushing, or scrubbing, and
9 rinsing with water or other appropriate media. Decontamination procedures will address minimization of
10 decontamination waste, measures to contain and collect such waste. Decontamination waste will be
11 designated in accordance with [WAC 173-303-070](#) through -100 and managed appropriately.

12 **H.3.5 Designation of Waste Generated During Closure**

13 During closure, waste could be generated. Any waste generated during closure will be designated in
14 accordance with [WAC 173-303-070](#) through -100. Following designation as dangerous and/or mixed
15 waste, the waste will be managed under the generator provisions of [WAC 173-303-200](#), an on-site
16 dangerous waste management unit at which closure has not yet begun, or at an off-site permitted facility,
17 or another approved facility.

18 In the unlikely event that contaminants are suspected to have penetrated the unit's containment, sampling
19 will be performed as necessary to determine the extent of contamination. If sampling is necessary to
20 achieve clean closure, the closure plan will be amended in accordance with the permit modification
21 process of II.J.2.

22 **H.3.6 Maximum Waste Inventory**

23 The WRAP Operating Unit Group provides storage capacity for both onsite- and offsite-generated waste
24 before final disposal. An estimated maximum waste inventory is 5,033,800 liters. The volume within
25 each container consists of waste and all necessary packing material.

26 **H.4 Schedule for Closure**

27 The actual year of closure is unknown but will be based on the availability of waste requiring processing,
28 operational requirements, and the ability to maintain WRAP dangerous waste management units, among
29 other considerations. Closure will be completed 180 days after the last shipment of waste is received at
30 the corresponding DWMU [[WAC 173-303-610\(4\)\(b\)](#)]. Ecology will be notified by the Permittees on
31 when closure is expected to begin. Notification of closure will be provided in accordance with Condition
32 II.J.3.

33 The closure schedule will be based on the time required to perform applicable closure activities described
34 in Section H.3. Closure activities are summarized in Table H.1. A detailed schedule of closure activities
35 is provided in Table H.2. Modifications to the Closure Plan schedule will be done in accordance with
36 [WAC 173-303-830](#) Appendix I, D.1.b.

37 **H.5 Certification of Closure**

38 Within sixty days of completion of closure activities at each WRAP dangerous waste management unit
39 according to this plan, the Permittees will submit to Ecology by registered mail a certification that the
40 corresponding dangerous waste management units have been closed in accordance with the specifications
41 in this plan. The certification will be signed by the Permittees and by an independent registered
42 professional engineer.

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Table H.1 Summary of WRAP DWMU Closure Activities

Closure Activity Description	Expected Duration¹
Receipt of final volume of dangerous waste	N/A
Notify Ecology that closure will begin	45 ² days
Remove waste inventory – package all dangerous waste, manifest, and transfer to permitted facility for further storage, treatment and/or disposal	90 days
Decontaminate structural surfaces and equipment.	45 days
Analyze decontamination waste to determine proper methods of treatment/disposal	25 days
Dispose of decontamination waste based on results of waste analysis	20 days

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¹ Time durations are consecutive and added together. ² Notification in accordance with Permit Condition II.J.

Table H.2 Detailed Schedule of Closure Action

Action	Schedule
Pre-Closure Activities	
Date of receipt of last volume of waste	Day 0
Closure Activities	
Removal of Waste Inventory	Day 90
Removal of equipment and components	Day 95
Decontamination of Unit	Day 135
Management of Decontamination Waste	
Waste Analysis	Day 160
Waste Disposal	Day 180
Other Activities	
Certification of Closure to Ecology	Day 240

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