



## **Response to Comments Closure Units at T Plant & Central Waste Complex**

**June 8 to July 24, 2020  
Sept. 21 to Nov. 4, 2020**



For the **Nuclear Waste Program**

Washington State Department of Ecology

Richland, Washington

December 2021, Publication 21-05-027

## Publication Information

This document is available on the Department of Ecology's website at:

<https://apps.ecology.wa.gov/publications/summarypages/2105027.html>

Ecology publishes this document to meet the requirements of [Washington Administrative Code 173-303-840 \(9\)](#).

### COVER PHOTO CREDIT

- Photo by Washington State Dept. of Ecology, July 26, 2020

## Contact Information

Debra Alexander

Hanford Facility Dangerous Waste Permit Coordinator for Revision 8c

Nuclear Waste Program

3100 Port of Benton Blvd

Richland, WA 99354

Phone: 509-372-7950

Email: [Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

**Website**<sup>1</sup>: [Washington State Department of Ecology](#)

## ADA Accessibility

The Department of Ecology is committed to providing people with disabilities access to information and services by meeting or exceeding the requirements of the Americans with Disabilities Act (ADA), Section 504 and 508 of the Rehabilitation Act, and Washington State Policy #188.

To request an ADA accommodation, contact Ecology by phone at 509-372-7950 or email at [Daina.McFadden@ecy.wa.gov](mailto:Daina.McFadden@ecy.wa.gov). For Washington Relay Service or TTY call 711 or 877-833-6341. Visit Ecology's website for more information.

---

<sup>1</sup> [www.ecology.wa.gov/contact](http://www.ecology.wa.gov/contact)

# Department of Ecology's Regional Offices

## MAP OF COUNTIES SERVED



<b>Southwest Region</b> 360-407-6300	<b>Northwest Region</b> 425-649-7000	<b>Central Region</b> 509-575-2490	<b>Eastern Region</b> 509-329-3400
-----------------------------------------	-----------------------------------------	---------------------------------------	---------------------------------------

Region	Counties served	Mailing Address	Phone
<b>Southwest</b>	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
<b>Northwest</b>	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	3190 160th Ave SE Bellevue, WA 98008	425-649-7000
<b>Central</b>	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
<b>Eastern</b>	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
<b>Headquarters</b>	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

# Response to Comments Closure Units at T Plant & Central Waste Complex

---

**June 8 to July 24, 2020**  
**Sept. 21 to Nov. 4, 2020**

Nuclear Waste Program  
Washington State Department of Ecology  
Richland, WA

**December 2021 | Publication 21-05-027**



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

# Table of Contents

**Introduction ..... 6**

**Reasons for Issuing the Permit ..... 7**

**Public Involvement Actions ..... 8**

**List of Commenters ..... 10**

**Attachment 1: Comments and Responses**

**Attachment 2: Ecology’s 2018 Walk down**

**Appendix A: Copies of All Public Notices**

**Appendix B. Transcripts from Public Hearings**

## Introduction

The Washington State Department of Ecology’s Nuclear Waste Program (Ecology) manages dangerous waste within the state by writing permits to regulate its treatment, storage, and disposal. When a new permit or a significant modification to an existing permit is proposed, Ecology holds a public comment period to allow the public to review the change and provide formal feedback. (See [Washington Administrative Code \[WAC\] 173-303-830](#) for types of permit changes.)

The Response to Comments is the last step before issuing the final permit, and its purpose is to:

- Specify which provisions, if any, of a permit will become effective upon issuance of the final permit, providing reasons for any changes from the draft permit.
- Describe and document public involvement actions.
- List and respond to all significant comments received during the public comment period and any related public hearings.

This Response to Comments is prepared for:

Comment period	Closure Units for T Plant and Central Waste Complex, June 8 to July 24, 2020, and Sept. 21 to Nov. 4, 2020.
Permit	<i>Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Part V, WA 7890008967, Closure Unit Group 27, 277-T Building; Closure Unit Group 28, 277-T Outdoor Storage Area; Closure Unit Group 29, 271-T Cage; Closure Unit Group 30, 211-T Pad; Closure Unit Group 37, 221-T Sand Filter Pad; Closure Unit Group 39, 2401-W Waste Storage Building; and Closure Unit Group 41, 221-T Railroad Cut</i>
Permittees	U.S. Department of Energy Central Plateau Cleanup Company LLC
Original Issuance date	Sept. 27, 1994
Effective date	Jan. 6, 2022

To see more information related to the Hanford Site and nuclear waste in Washington, please visit our webpage, [Hanford Cleanup](#)<sup>2</sup>.

## Reasons for Issuing the Permit

On June 26, 2013, the U.S. Department of Energy (USDOE) and the U.S. Environmental Protection Agency (USEPA) signed a Consent Agreement and Final Order (CAFO), Docket Number RCRA-10-2012-0113. The CAFO was a result of information collected and violations identified by authorized representatives of USEPA's National Enforcement Investigations Center while conducting a Resource Conservation and Recovery Act of 1976 (RCRA) compliance inspection in March 2011 at the Hanford Facility's Solid Waste Operations Complex (SWOC). The SWOC includes the T Plant Complex, Central Waste Complex-Waste Receiving and Processing Facility (CWC-WRAP), and Low-level Burial Grounds (LLBG) Trenches 31, 34, and 94.

The violations identified by USEPA included:

- Storage of hazardous waste without a permit
- Failure to meet closure plan requirements
- Failure to submit closure notice and closure plans
- Failure to comply with land disposal restriction requirements

Changes to the Hanford Site-wide Permit (WA7890008967) are required by the USEPA CAFO issued against USDOE. These changes are summarized as follows:

- Stop receiving waste in the dangerous waste management units (DWMUs) listed in the CAFO.
- Submit closure plans to Ecology within 120 days of the effective date of the CAFO, for the following DWMUs:
  - T Plant 271-T Cage
  - T Plant 211-T Pad
  - T Plant 221-T Sand Filter Pad
  - T Plant 221-T R5 Waste Storage Area
  - T Plant 277-T Outdoor Storage Area
  - CWC Outside Storage Area A
  - CWC Outside Storage Area B
  - Low-level Burial Grounds FS-1 Outdoor Container Storage Area
- Immediately comply with all applicable final facility standards for the management of dangerous waste for the DWMUs listed in the CAFO, in accordance with WAC 173-303-600.
- Submit closure plans to Ecology for the T Plant 221-T Railroad Tunnel and CWC 2401-W Building within 120 days of the effective date of the CAFO, unless prior to that date Ecology approves an extension pursuant to 40 Code of Federal Regulations (CFR) 265.112(d)(2), as incorporated and modified by reference in WAC 173-303-400.

---

<sup>2</sup> <https://www.ecology.wa.gov/Hanford>

- Immediately stop the placement of prohibited dangerous waste in LLBG Trenches 31 and 34, unless the waste meets land disposal treatment standards set forth in WAC 173-303-140.

On Jan. 24, 2014, USDOE and CH2M HILL Plateau Remediation Company (and their successors) entered into an Agreed Order and Stipulated Penalty, Docket No. DE 10156, with Ecology (14-NWP-023), commonly referred to as the Agreed Order (AO). The AO required USDOE to submit a Class 3 permit modification (Exhibit A, Paragraph 1.12) to incorporate the T Plant Complex, CWC, and WRAP unit group DWMUs (Exhibit B) into the Hanford Dangerous Waste Permit. In response, USDOE submitted a Class 3 permit modification request on Jan. 28, 2016 (16-ESQ-0028). The request included information for the T Plant Complex, CWC-WRAP, and Low-Level Burial Grounds Trenches 31/34/94 Operating Unit Groups. The 271-T Cage, 211-T Pad, 221-T Sand Filter Pad, 277-T Outdoor Storage Area, 277-T Building, 221-T Railroad Cut, and the 2401-W Waste Storage Building are listed as closing units in Exhibit B of the AO.

In this permit modification, the CAFO DWMUs are: Closure Unit Group (CUG) 28, 277-T Outdoor Storage Area, CUG 29, 271-T Cage, CUG 30, 211-T Pad, CUG 37, 221-T Sand Filter Pad, and CUG 39, 2401-W Waste Storage Building. Also included in this Permit modification are two additional closing DWMUs that USDOE identified as no longer having a future use. The non-CAFO DWMUs are: CUG 27, 277-T Building and CUG 41, 211-T Railroad Cut.

This Response to Comments covers comments received during Ecology’s public comment periods for the above-listed seven CAFO and non-CAFO CUG’s Addendum H, Closure Plans and Unit-Specific Permit Conditions.

## Public Involvement Actions

Ecology encouraged public comment on the documents out for public review during a 45-day public comment period held June 8 through July 24, 2020. Ecology reopened the public comment period for an additional 45-days from Sept. 21 through Nov. 4, 2020.

The following actions were taken to notify the public:

- Mailed a public notice announcing the comment period to 1,152 members of the public.
- Distributed copies of the public notice to members of the public at Hanford Advisory Board meetings.
- Placed a public announcement legal classified notice in the Tri-City Herald on June 7, 2020, and Sept. 20, 2020.
- Emailed a notice announcing the start of the comment period to the Hanford-Info email list, which has 1,340 recipients.
- Posted the comment period notice on the Washington Department of Ecology – Hanford’s Facebook and Twitter pages.

Ecology held a virtual public hearing 5:30 p.m. Oct. 29, 2020. Fourteen members of the public attended, and three comments were collected. The hearing transcript of the public testimony portion of the public hearing is in [Appendix B](#) of this document.

The Hanford information repositories located in Richland, Spokane, and Seattle, Washington, and Portland, Oregon, received the following documents for public review:

- Focus sheet
- Transmittal letters
- Fact Sheet/Statement of Basis: Proposed Permit Modification to Part V of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, WA7890008967, to add Closure Unit Group 27, 277-T Building; Closure Unit Group 28, 277-T Outdoor Storage Area; Closure Unit Group 29, 271-T Cage; Closure Unit Group 30, 211-T Pad; Closure Unit Group 37, 221-T Sand Filter Pad; Closure Unit Group 39, 2401-W Waste Storage Building; and Closure Unit Group 41, 221-T Railroad Cut
- Draft Permit Modifications: Addendum H, Closure Plan, 277-T Building; Addendum H, Closure Plan, 277-T Outdoor Storage Area; Addendum H, Closure Plan 271-T Cage; Addendum H, Closure Plan, 211-T Pad; Addendum H, Closure Plan, 221-T Sand Filter Pad; Addendum H, Closure Plan, 2401-W Waste Storage Building; and Addendum H, Closure Plan, 221-T Railroad Cut
- Draft Unit-Specific Permit Conditions: 277-T Building, Part V, Closure Unit Group 27 Unit-Specific Permit Conditions; 277-T Outdoor Storage Area, Part V, Closure Unit Group 28 Unit-Specific Permit Conditions; 271-T Cage, Part V, Closure Unit Group 29 Unit-Specific Permit Conditions; 211-T Pad, Part V, Closure Unit Group 30 Unit-Specific Permit Conditions; 221-T Sand Filter Pad, Part V, Closure Unit Group 37 Unit-Specific Permit Conditions; 2401-W Waste Storage Building, Part V, Closure Unit Group 39 Unit-Specific Permit Conditions; and 221-T Railroad Cut, Part V, Closure Unit Group 41 Unit-Specific Permit Conditions

The following public notices for this comment period are in [Appendix A](#) of this document:

- Focus sheet
- Classified notices in the Tri-City Herald
- Notices sent to the Hanford-Info email list
- Notices posted on the Washington Department of Ecology – Hanford’s Facebook and Twitter pages

## List of Commenters

The table below lists the names of organizations or individuals who submitted a comment on the closing DWMUs for T Plant and Central Waste Complex permit modification. The comments and responses are in [Attachment 1](#).

Commenter	Organization
Mike Conlan	Citizen
Laurene Contrares	Citizen
Nancy Kroening	Citizen
Jeanne Raymond	Citizen
Nancy Kroening	Citizen
Duane Carter	Citizen
U.S. Department of Energy	Agency
CH2MHill	Business
Heart of America, Northwest	Organization

# Attachment 1: Comments and Responses

## **Description of comments:**

Ecology accepted comments from June 8 to July 24, 2020, and Sept. 21 to Nov. 4, 2020. This section provides a summary of comments that we received during the public comment period and our responses, as required by WAC 173-303-840(9). Comments are grouped by individual and each comment is addressed separately. Comments on similar topics will have the same response.

Several of Ecology's responses will include references. At times, Ecology reached out to the Permittees for clarifying information in order to form a response to a public comment. The emails are included, in their entirety, in the [Reference](#) Section of this document.

## **I-1: MIKE CONLAN**

### **Comment I-1-1**

Remove all nuclear waste

#### ***Response to I-1-1***

*Thank you for your comment. Ecology is working to ensure long-term storage, treatment, and disposal of waste that is protective of human health and the environment.*

### **Comment I-1-2**

Do not allow anymore nuclear waste into the facility

#### ***Response to I-1-2***

*Thank you for your comment. The proposed permit changes are not to allow new waste, but to better manage the waste already at Hanford.*

### **Comment I-1-3**

Replace all the single storage tanks

#### **Response to I-1-3**

*Thank you for your comment. Single-shell tanks are not in the scope of this comment period. Ecology does agree the tanks pose a threat. We believe a better approach to addressing it is to remove the waste from single-shell tanks and put it in the more compliant double-shell tanks to prepare for eventual treatment in the Waste Treatment and Immobilization Plant which is now being built.*

#### ***Comment I-1-4***

Stop all the nuclear leakage entering the Columbia River

#### **Response to I-1-4**

*Thank you for your comment. Stopping any potential nuclear waste from impacting the Columbia River is why clean up continues in units all over the Hanford site.*

#### ***Comment I-1-5***

Glassification!

#### **Response to I-1-5**

*Thank you for your comment. Ecology is working to ensure the Waste Treatment and Immobilization Plant is completed so tank wastes can be safely processed and meet disposal requirements.*

## **I-2: LAURENE CONTRARES**

### **Comment I-2-1**

Public Hearing Testimony:

Have the T-Plant areas identified for closure met Section 110 and 106 requirements?

### ***Response to I-2-1***

*Thank you for your comment. WAC 173-303-110, "Sampling, testing methods, and analyses", is required to be followed for sampling activities done under closure plans. This information is part of the Sampling and Analysis Plan (SAP) in each closure plan.*

*Ecology is unable to answer the question regarding "106", as there is no section -106 in WAC 173-303.*

### **I-3: NANCY KROENING**

#### **Comment I-3-1**

##### Public Hearing Testimony:

And we are hoping [unintelligible word] that all of these areas and buildings have been thoroughly cleaned up before closing. And I would like to hear either a 'yes' or a 'no.'

#### ***Response to I-3-1***

*Thank you for your comment. Yes, Ecology will not allow these dangerous waste management units to be closed until verifying they have been thoroughly cleaned up and meet the clean closure performance standards. As described in Section H.5.3 of each closure plan, within sixty days of completing closure of each dangerous waste management unit, the Permittees must submit to Ecology a certification that the unit has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the Permittees, and by an independent qualified registered professional engineer. Before Ecology accepts these closure certifications, Ecology will verify through inspections and review of closure documentation that the units have been closed in accordance with the approved closure plans, and meet the clean closure performance standards.*

### **I-4: JEANNE RAYMOND**

#### **Comment I-4-1**

The promise to the people of Washington and Oregon, is to close and clean, and to prevent further contamination of the soil, air and water.

#### ***Response to I-4-1***

*Thank you for your comment. Yes, Ecology will not allow these dangerous waste management units to be closed until verifying that they have been thoroughly cleaned up and meet closure performance standards. As described in Section H.5.3 of each closure plan, within sixty days of completing closure of each dangerous waste management unit, the Permittees must submit to Ecology a certification that the unit has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the Permittees, and by an independent qualified registered professional engineer. Before Ecology accepts these closure certifications, Ecology will verify through inspections and review of closure documentation that the units have been closed in accordance with the approved closure plans, and meet clean*

*closure performance standards. Once Ecology accepts that clean closure has been achieved, the site will no longer have any potential to contaminate soil, air or water.*

## **I-5: NANCY KROENING**

### **Comment I-5-1**

We are hoping and trusting that all these areas/buildings have been thoroughly cleaned up before closing. Either a yes or no?

#### ***Response to I-5-1***

*Thank you for your comment. Yes, Ecology will not allow these dangerous waste management units to be closed until verifying that they have been thoroughly cleaned up and meet closure performance standards. As described in Section H.5.3 of each closure plan, within sixty days of completing closure of each dangerous waste management unit, the Permittees must submit to Ecology a certification that the unit has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the Permittees, and by an independent qualified registered professional engineer. Before Ecology accepts these closure certifications, Ecology will verify through inspections and review of closure documentation that the units have been closed in accordance with the approved closure plans, and meet clean closure performance standards.*

## **I-6: DUANE CARTER**

### **Comment I-6-1**

#### **Public Hearing Testimony:**

Well, it's a little bit of both. Cause we went through with Ecology and we worked collaboratively to fix and make sure these closure plans were good and this started in 2013 long before I came to DOE. That I'd just like to put on the record that Ecology has not been negotiating in good faith on these and now they want to go and change our closure plans. So, that's all just put it on the record right there.

#### ***Response to I-6-1***

*Thank you for your comment. The permit modification timeline and history of development was described in extensive detail in the Fact Sheet. As noted in the Fact Sheet, it took several years to reach agreement with the Permittees on multiple issues. Ecology and the Permittees worked collaboratively until Ecology required additional soil and concrete chip sampling to demonstrate clean closure at five of the seven dangerous waste management units. Ecology attempted to work with the Permittees on the additional sampling requirements from November 2018 through July 2019. At that point, the Permittees decided they would no longer work with Ecology on the closure plans unless Ecology reverted back to the Permittees last certified submittals. These submittals did not include the additional sampling Ecology had requested. Ecology made the decision to not take enforcement action and chose to move forward on*

*finalizing the closure plans for public comment. The draft closure plans contain the additional sampling requirements.*

## **A-1: THE US DEPARTMENT OF ENERGY**

### **Comment A-1-1**

Name: Mostafa Kamal  
Address: P.O. Box 550  
City: Richland  
Province: Washington  
Postal Code: 99352  
Email: Mostafa.Kamal@rl.doe.gov

Submitted By: The US Department of Energy  
Closure Plans for T-Plant and Central Waste Complex  
Attachment(s):  
DOE Comments CWC T-Plant Closure Plans 7-22-2020

### ***Response to A-1-1***

*Thank you for your comments.*

## **CLOSURE UNIT GROUP 27, 277-T BUILDING**

### **Comment A-1-2**

#### 1. Addendum Section: Unit 27 277-T Building Permit Conditions

Comment Text: Addenda H "Closure Plan"

Basis Text: Erroneous use of the plural form of Addendum.

Recommendation Text: Change "Addenda" to "Addendum".

### ***Response to A-1-2***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

### **Comment A-1-3**

#### 2. Addendum Section: Unit 27 277-T Building Permit Conditions

Comment Text: The permittees will notify Department of Ecology (Ecology) within 24 hours of any deviations from the approved Addendum H, "Closure Plan."

Basis Text: This permit condition lacks regulatory basis and is contradictory to Permit Condition II.K.6 which states:

"Deviations from a TSD unit closure plan required by unforeseen circumstances encountered during closure activities, which do not impact the overall closure strategy, but provide

equivalent results, shall be documented in the TSD unit-specific Operating Record and made available to Ecology upon request, or during the course of an inspection."

While field sampling plans are designed to be able to be implemented as written, field conditions arise that may require minor deviation. These circumstances are addressed in permit condition II.K.6.

Recommendation Text: Minor deviations from this closure plan must be addressed in accordance with Permit Condition II.K.6.

### ***Response to A-1-3***

*Thank you for your comment. Ecology disagrees Permit Condition II.K.6 lacks a regulatory basis or is contradictory to the unit-specific permit condition. Permit Condition II.K.6 requires documentation of closure plan deviations be provided to Ecology upon request. Ecology is requesting documentation of any closure plan deviations via Permit Condition V.27.B.2. Most importantly, Ecology notes the term "minor deviations" used in Permit Condition II.K.6 could be interpreted differently by the Permittees and Ecology in this context. Therefore, Ecology is requiring notification in order for Ecology and the Permittees to review the deviation to determine if it will affect the ability to meet final acceptance of closure. If Ecology determines the deviation will affect the ability to meet final acceptance of closure, Ecology will require the Permittees to submit a permit modification request to modify the closure plan in accordance with WAC 173-303-610(3)(b)(iv). Ecology also notes Permit Condition II.J.3 requires changes to the approved closure plan be submitted to Ecology as a permit modification request, which is consistent with WAC 173-303-610(3)(b)(ii).*

*In addition, even if this unit-specific permit condition were contradictory with Permit Condition II.K.6, the language of a unit-specific condition prevails when in conflict with the Hanford Facility Part I-Standard and/or Part II-General Facility Conditions. This is clearly stated in the first unit-specific permit condition for the 277-T Building, Part V, Closure Unit Group 27:*

#### ***"V.27.A COMPLIANCE WITH PERMIT CONDITIONS***

*The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act Permit (Permit) as specified in Permit Attachment 9, Permit Applicability Matrix, including all approved modifications. All addenda, subsections, figures, tables, and appendices included in the following Unit-Specific Permit Conditions are enforceable in their entirety. In the event that the Part V, Unit-Conditions for Closure Unit 27, 277-T Building conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit conditions will prevail for Closure Unit 27, 277-T Building."*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020. The bases for this closure unit group's permit conditions are summarized in the Fact Sheet. As stated in the Fact Sheet:*

#### *"4.2 Basis for Closure Unit Group Permit Conditions*

*The following are permit conditions for Closure Unit Groups 27, 29 and 39:*

*Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, Permit Applicability Matrix, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.*

*Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.*

*Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within 24 hours of any deviations from the approved closure plan. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure."*

*Please note, permit condition numbers noted in the Fact Sheet were incorrect. For Closure Unit Group 27, 277-T Building, permit condition numbers are: V.27.A, V.27.B.1, and V.27.B.2.*

#### **Comment A-1-4**

##### 3. Addendum Section: Unit 27 277-T Building Permit Conditions

Comment Text: The Permittees will notify Ecology in advance of conducting the visual inspection in the Addendum H, "Closure Plan," that will take place following removal of stored equipment, in order for Ecology to witness the inspection.

Basis Text: This requirement is too restrictive. The Permittees only have a limited number of days to do this inspection before it starts to impact the schedule for closure.

Recommendation Text: The Permittees will notify Ecology at least five (5) working days before the scheduled inspection.

#### ***Response to A-1-4***

*Thank you for your comment. Ecology accepts the recommendation and amended Closure Unit Group 27 Permit Condition V.27.B.3 to read, "The Permittees will notify Ecology at least five (5) working days prior to conducting the visual inspection required by Section H.3.4 of Addendum H, "Closure Plan," that will take place following removal of stored equipment in order for Ecology to conduct a final inspection."*

#### **Comment A-1-5**

##### 4. Addendum Section: Unit 27 277-T Building Permit Conditions

Comment Text: For statistical grid sampling

Basis Text: There is no statistical grid sampling in the building. All grid sampling is directly compared to the closure performance standards.

Recommendation Text: Delete permit condition V.27.b.4.a since only non-statistically grid sampling is part of the closure plan.

***Response to A-1-5***

*Thank you for your comment. Ecology accepts the recommendation and removed the permit condition.*

**Comment A-1-6**

5. Addendum Section: Unit 27 277-T Building Permit Conditions

Comment Text: If the closure performance standards have been exceeded, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work and/or sampling that would need to be done to achieve clean closure.

Basis Text: Resolving Contamination Identified During Focused Soil Sampling and Grid (Non-Statistical) Concrete Chip Sampling is already addressed in Section H.4.4.3. Identify what additional information is needed for this permit modification.

Recommendation Provide details on what additional information is required for the permit modification.

***Response to A-1-6***

*Thank you for your comment. Ecology agrees resolving contamination identified during sampling is already addressed in Section H.4.4.3. The permit condition was meant to address, (based on review of sampling data results), any additional sampling and remediation needed beyond what is already described in the closure plan. Ecology has amended the 277-T Building Closure Plan Permit Condition, V.27.B.4.a, to specify that a permit modification request will be required for closure performance standards specified in Table H-5 of the Addendum H, Closure Plan that have been met after remediation and confirmatory sampling data analysis. This is consistent with Sections H.3.7 and H.3.8, which describe meeting with Ecology to determine a path forward for closure if contamination remains after remediation.*

**Comment A-1-7**

6. Addendum Section: Unit 27 277-T Building Permit Conditions

Comment Text: Within sixty days of completion of closure for the 277-T Building, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 277-T Building has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610 (6)].

Basis Text: The IQRPE certification is submitted after closure activities are complete but as part of the overall closure process. Suggest specifying the IQRPE certification is submitted after closure activities are complete.

Recommendation Text: Within sixty days of completion of closure activities for the 277-T Building, the Permittees must submit to Ecology by registered mail or other means that

establish proof of receipt (including applicable electronic means), a certification that the 277-T Building has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610(6)].

### ***Response to A-1-7***

*Thank you for your comment. The 277-T Building Permit Condition V.27.B.5 language is consistent with WAC 173-303-610(6), Certification of closure, and will not be changed.*

### **Comment A-1-8**

#### 7. Addendum Section: Table of Contents

Comment Text: Table of Contents

Basis Text: Page numbers are missing the H-..

Recommendation Text: Suggest reformatting TOC for consistency with page numbering throughout document.

### ***Response to A-1-8***

*Thank you for your comment. The page numbering aligns with permit formatting.*

### **Comment A-1-9**

#### 8. Addendum Section: Terms

Comment Text: Terms

Basis Text: HWMA and RCW are not included in table. See first paragraph in Intro. BCSO is not defined in this plan.

Recommendation Text: Add HMWA, RCW to and; and remove BCSO from terms table.

### ***Response to A-1-9***

*Thank you for your comment. Ecology has amended "Terms" to include HWMA - Hazardous Waste Management Act, RCW- Revised Code of Washington, and to exclude BCSO - Benton County Sheriff's Office*

### **Comment A-1-10**

#### 9. Addendum Section: H.1 Introduction

Comment Text: The purpose of this plan is to describe the Resource Conservation and Recovery Act (RCRA)/Hazardous Waste Management Act (HWMA), Chapter 70.105 Revised Code of Washington (RCW) closure process for the 277-T Building Dangerous Waste Management Unit (DWMU), hereinafter called the 277-T Building.

Basis Text: Should be defined as "Resource Conservation and Recovery Act of 1976."

Recommendation Text: The purpose of this plan is to describe the closure process for the 277-T Building Dangerous Waste Management Unit (DWMU), hereinafter termed the "277-T Building," as required by and in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) and Washington's Hazardous Waste Management Act (HWMA).

### ***Response to A-1-10***

*Thank you for your comment. Ecology agrees that "RCRA" should be defined as "Resource Conservation and Recovery Act of 1976" and has amended the text to reflect the correct definition.*

### **Comment A-1-11**

#### 10. Addendum Section: H.1 Introduction

Comment Text: The U. S. Department of Energy (DOE) and CH2M HILL Plateau Remediation Company (CHPRC), hereinafter called Permittees, have agreed with the U. S. Environmental Protection Agency (EPA) and Washington State Department of Ecology (Ecology) through a Consent Agreement and Final Order (EPA Docket No. RCRA-110-2013-0113) to close this DWMU.

Basis Text: This DWMU is not identified in the CAFO. It was independently identified for closure by DOE and CHPRC.

Recommendation Text: "The U.S. Department of Energy (DOE) and CH2M HILL Plateau Remediation Company (CHPRC), hereinafter called the Permittees, along with the Washington State Department of Ecology (Ecology), have agreed to close this DWMU."

### **Response to A-1-11**

*Thank you for your comment. Ecology accepts the recommendation and amended the text to read, "The U.S. Department of Energy (DOE) and Central Plateau Cleanup Company (CPCCo), hereinafter called the Permittees, along with the Washington state Department of Ecology (Ecology), have agreed to close this DWMU."*

### **Comment A-1-12**

#### 11. Addendum Section: H.1 Introduction

Comment Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), and WAC 173-303-630(10).

Basis Text: Should define WAC 173-303-610 and WAC 173-303-630 the first time they are used. -610 is "Closure and Post-Closure;" and -630, "Use and Management of Containers."

Recommendation Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-3003-610(6), Closure and Post-Closure, and in WAC 173-303-630(10), Use and Management of Containers.

### **Response to A-1-12**

*Thank you for your comment. Ecology accepts the recommendation and amended the text to read, "This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), Closure and Post-Closure, and in WAC 173-303-630(10), Use and Management of Containers."*

## **Comment A-1-13**

### 12. Addendum Section: H.1 Introduction

Comment Text: Sampling of underlying soil to ensure closure performance standards are met.

Basis Text: Section H.1.2, Maximum Waste Inventory, identifies there was one 27 m<sup>3</sup> waste container of solid metal and organic material stored in the 277-T Building. The waste information combined with the information from the records review and visual inspection indicate no logical pathway for waste to reach the underlying soil of the building.

Recommendation Text: Provide technical justification on the pathway for contamination from the 27 m<sup>3</sup> box containing solid material to reach the underlying soil.

### ***Response to A-1-13***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors, including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between*

*December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identify this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete*

*construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

**Comment A-1-14**

13. Addendum Section: H.1 Introduction

Comment Text: Addendum H.6

Basis Text: The page numbering should start at H.1.

Recommendation Text: Renumber pages beginning with H.1.

***Response to A-1-14***

*Thank you for your comment. The page numbering aligns with permit formatting.*

**Comment A-1-15**

14. Addendum Section: Figure H-1 T Plant Complex Overview 277-T Building Dangerous Waste Management Unit

Comment Text: Figure H-1 T Plant Complex Overview 277-T Building Dangerous Waste Management Unit

Basis Text: Image should be dated

Recommendation Text: Provide date for Figure H-1.

***Response to A-1-15***

*Thank you for your comment. Ecology accepts the recommendation and included the date "Month Unknown, 2017."*

**Comment A-1-16**

15. Addendum Section: H.1.1 Unit Description

Comment Text: The 277-T Building (Figure H-2 and Figure H-3) is located west of the 221-T Canyon Building and adjacent to the 277-T Outside Storage Area.

Basis Text: Incorrect DWMU name for the 277-T Outdoor Storage Area

Recommendation Text: Replace "Outside" with "Outdoor".

***Response to A-1-16***

*Thank you for your comment. The name of the DWMU has been corrected from "Outside" to "Outdoor."*

## **Comment A-1-17**

### 16. Addendum Section: H.1.1 Unit Description

Comment Text: Therefore, the surface of the sump floor, and the surface of the building floor are designated as the boundary of the 277-T Building DWMU.

Basis Text: Based on this definition of the DWMU, the surface of the sump and the building floor are the boundaries of the DWMU. The underlying soil is not included in the DWMU boundary.

Recommendation Text: Provide the justification for soil sampling under the building since the underlying soil is not within the DWMU boundary.

### ***Response to A-1-17***

*Thank you for your comment. The definition of a "dangerous waste management unit" is set forth in WAC 173-303-040:*

*"[A] contiguous area of land on or in which dangerous waste is placed, or the largest area in which there is a significant likelihood of mixing dangerous waste constituents in the same area. Examples of dangerous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.*

*The referenced sentence in Section H.1.1 of Addendum H, which identifies the "boundary" of the 277-T Building DWMU as " the surface of the sump floor, and the surface of the building floor," is a contrast statement to the preceding narrative that describes why other historical components of the 277-T Building are not included in the closure plan. This administrative boundary does not limit the applicability of clean closure requirements for the DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. T A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily,*

*these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identify this waste was generated from 221-T Canyon cell cleanout, and although identify as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission*

through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

#### **Comment A-1-18**

##### 17. Addendum Section: Table H-1 Training Matrix for the 277-T Building Dangerous Waste Management Unit

Comment Text: The "X" in the FS column for Building Emergency Training Category Course Description

Basis Text: This "X" is in error. There is no requirement for Building Emergency training for the Field Sampler.

Recommendation Text: Remove the "X" for the FS column for Building Emergency Training Category Course Description.

#### ***Response to A-1-18***

*Thank you for your comment. Ecology agrees with the recommendation and deleted the "X" from Training Category Course Description: Building Emergency, under the Field Sampler (FS) column.*

#### **Comment A-1-19**

##### 18. Addendum Section: Table H-1 Training Matrix for the 277-T Building Dangerous Waste Management Unit

Comment Text: Superscript c. The Facility Health and Safety training is required only if workers are unescorted in the facility.

Basis Text: There is no c superscript in Table H-1 for the FS column for Facility Health and Safety Training Category Course Description.

Recommendation Text: Apply superscript c to the FS column for the Facility Health and Safety Training Category Course Description within the H-1 table.

***Response to A-1-19***

*Thank you for your comment. Ecology agrees with the recommendation and included the omitted superscript from Training Category Course Description: Facility Health and Safety, under the Field Sampler (FS) column.*

**Comment A-1-20**

19. Addendum Section: H.1.2 Maximum Waste Inventory

Comment Text: Waste management records indicate the maximum inventory of the dangerous or mixed waste stored in the 277-T Building over its operational period included one container of mixed waste with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>). The waste was generated from canyon cleanout, and included metal and organic material.

Basis Text: Based on the waste inventory of the building, there is no release pathway to the underlying soil. The visual inspection in Section H.3.2, Operating Records Review and Visual Inspection, does not indicate a potential crack, gap, or opening that would allow containerized solid waste to reach the underlying soil.

Recommendation Text: Provide technical justification for performing sampling of the underlying soil.

***Response to A-1-20***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA*

*Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identify this waste was generated from 221-T Canyon cell cleanout, and although identify as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission*

through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

#### **Comment A-1-21**

##### 20. Addendum Section: H.1.5 Facility Contact Information

Comment Text: Doug S. Shoop

Basis Text: Contact information should be in the Part A only. If the contact information changes, it will require a permit modification to the closure plan. In addition, the DOE contact is no longer Doug Shoop.

Recommendation Text: Remove facility contact information from closure plan.

#### ***Response to A-1-21***

*Thank you for your comment. As there is no approved Part A for the closure units that are the subject of this permit modification, facility contact information needs to be included in the closure plans. Ecology obtained the most recent facility contact information from the Permittees at the drafting of this permit modification.*

*The Section H.1.5 - Facility Contact Information has been updated to include the current contact information provided by the Permittees in letter dated, January 22, 2021, "Transfer of Co-Operator Responsibilities for Hanford Facility Resource Conservation and Recovery Act Permit, WA7890008967," (21-ESQ-00305) and approved by Ecology in a letter dated March 15, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide*

Permit), WA7890008967," (21-NWP-033). Once the permit is in effect, if the contact information changes the Permittees are required to submit a permit modification request.

Ecology has amended Section H.1.5 - Facility Contact Information text to read:

Brian T. Vance, Manger

U.S. Department of Energy, Richlands Operations Office

P.O. Box 550

Richland, WA 99352

(509) 376-7395

Scott Sax, President and Project Manager

Central Plateau Cleanup Company, LLC

P.O. Box 1464

Richland, WA 99352

(509) 372-3845

Additionally, in these closure plans, references to "CH2M HILL Plateau Remediation Company (CHPRC)" as a Permittee have been changed to "Central Plateau Cleanup Company, LLC (CPCCo)." The change is reflected in the following Sections:

TERMS,

H.1 Introduction,

H.3.7 Closure Performance Standards for Soil,

H.3.9 Development of Closure Performance Standards, and

H.4.3 Project Management

## **Comment A-1-22**

### 21. Addendum Section: H.2 Closure Performance Standards

Comment Text: Remove all waste and waste residues and properly dispose of them in a RCRA permitted disposal facility.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

### **Response to A-1-22**

Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Remove all waste and waste residues" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for clean closure of container storage areas. The text "and properly dispose of them in a RCRA permitted disposal facility" is deleted as it is an activity required by WAC 173-303-610(3)(a)(iv) to treat (if necessary) and dispose of all dangerous wastes removed from the dangerous waste management unit during closure activities. This information is covered under Section H.3, Closure Activities.

### **Comment A-1-23**

#### 22. Addendum Section: H.2 Closure Performance Standards

Comment Text: Decontaminate the concrete surface and perform concrete chip sampling to ensure concrete meets standard Model Toxics Control Act (MTCA) cleanup levels, or remove any concrete that cannot be so decontaminated.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

#### ***Response to A-1-23***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Decontaminate the concrete surface and perform concrete chip sampling to ensure concrete ... [to meet] standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, or remove any concrete that cannot be so decontaminated" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met in order for the 277-T Building to achieve clean closure.. The text "and perform concrete chip sampling to ensure concrete meets" is deleted as it is an activity required by WAC 173-303-610(3)(a)(v)-(vi) to ensure closure activities achieve the extent of decontamination required to satisfy the closure performance standard. This information is covered under Section H.3, Closure Activities.*

### **Comment A-1-24**

#### 23. Addendum Section: H.2 Closure Performance Standards

Comment Text: Perform soil sampling and analysis to ensure soils at the 277-T Building meet standard MTCA cleanup levels, and remove any soils contaminated above these levels.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

#### ***Response to A-1-24***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Perform soil sampling and analysis to ensure soils at the 277-T Building meet standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, and remove any soils contaminated above these levels" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for the 277-T Building to achieve clean closure. The text "Perform soil sampling and analysis to" is deleted as it is an activity required by WAC 173-303-610(3)(a)(v)-(vi) to ensure closure activities achieve the extent of decontamination required to satisfy the closure performance standard. This information is covered under Section H.3, Closure Activities.*

## **Comment A-1-25**

### 24. Addendum Section: H.3 Closure Activities

Comment Text: Perform soil sampling beneath the 277-T Building concrete flooring and sump (Section H.4.4).

Basis Text: If chip sampling does not determine contamination of the surface of the concrete areas, provide the technical justification for sampling under the concrete. In addition, the records review did not identify any releases to the DWMU. The visual inspection did not identify any waste related staining or potential pathways for contamination of the underlying soil. Provide justification for additional sampling.

Recommendation Text: Provide technical justification and supporting documentation for sampling of soil below concrete foundation or delete text.

### ***Response to A-1-25***

*Thank you for your comment. Chip sampling is the evaluation criterion that will be used to determine whether decontamination of the concrete structure is successful. It is not related to sampling soil below the concrete structure.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils*

*during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses.*

*Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been*

*documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

### **Comment A-1-26**

#### 25. Addendum Section: H.3.1 Removal of Wastes and Waste Residues

Comment Text: It is unknown if dangerous or mixed waste residues are present at this DWMU.

Basis Text: As identified in the records review, facility inspections were completed in this storage area to monitor for spills. No documentation of spills were found during the records reviewed. Provide supporting documentation indicating the potential for dangerous or mixed waste residue to be present at the DWMU.

Recommendation Text: The records review and visual inspection did not identify any releases of dangerous waste or waste related staining, therefore dangerous or mixed waste residues are not anticipated at this unit.

#### ***Response to A-1-26***

*Thank you for your comment. Until confirmation sampling results are made available, the referenced text in Section H.3.1 of Addendum H, "It is unknown if dangerous waste residues are present at this DWMU," is accurate. Accordingly, this language will not be changed. The recommendation text, "...dangerous or mixed waste residues are not anticipated at this unit," would not change the fact that confirmation sampling must be performed.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved: Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*

- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of*

*the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the*

*Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject ...*

Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:

1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or
2. Propose a site-specific method of decontamination and evaluation criteria.

The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...

Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."

While the records review and visual inspections for the 277-T Building provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, and is included as an excerpt below:

"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications.

*whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations. One focused concrete chip sample was added at the sump based on Ecology's professional judgement. The sump is the lowest point of the 277-T Building and is considered to have the highest potential for contamination to migrate.*

### **Comment A-1-27**

#### 26. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: The records review indicated no releases of dangerous or mixed waste in the 277-T Building.

Basis Text: If there is no record of waste being released, there is no physical exposure pathway for waste migrating to the soil under the building.

Recommendation Text: Provide technical justification and supporting documentation for sampling of soil below concrete foundation or delete text.

### ***Response to A-1-27***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

### **Comment A-1-28**

#### 27. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: For the purposes of focused sampling, visual inspections were performed by the Permittees in September 2013 and June 2015, to identify any dangerous or mixed waste related staining, major cracks, crevices, pits, low area, or joints/seams that would allow liquid to migrate to the underlying soil.

Basis Text: If the waste did not contain free liquids, it is impossible for liquid to migrate to the underlying soil therefore, there is no possible exposure pathway.

Recommendation Text: Provide technical justification for solid waste to migrate through the concrete foundation to the underlying soil.

### ***Response to A-1-28***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of*

*the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the*

*Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

### **Comment A-1-29**

#### **28. Addendum Section: H.3.2 Operating Records Review and Visual Inspection**

Comment Text: Ecology and the Permittees performed an additional walk-down and inspection of the DWMU.

Basis Text: WAC 173-303-840(2)(e) states, "All draft permits must be accompanied by a fact sheet that is supported by administrative record and made available for public comment." The walk-down and inspection are part of the administrative record. Ecology should attach this information to the closure plan, making the information available for Permittee and public comments.

Recommendation Text: Provide all documentation from this inspection so the Permittees and the public can review and comment.

### ***Response to A-1-29***

*Thank you for your comment. WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the Fact Sheet to be supported by the*

*administrative record. Ecology does not provide the administrative record for public review unless specifically requested.*

*Ecology made the Fact Sheet for this permit modification available during the September 21 through November 4, 2020 public comment period. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

### **Comment A-1-30**

#### 29. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Ecology identified five additional focused soil sample locations including three low point samples, and two construction joint/seam samples. Ecology also identified one focused concrete chip sample for the sump based on professional judgement.

Basis Text: If the waste did not contain free liquids, it is impossible for liquid to migrate to the underlying soil therefore, there is no possible exposure pathway.

Recommendation Text: Provide technical justification for solid waste to migrate through the concrete foundation to the underlying soil.

### ***Response to A-1-30***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if*

*there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soils in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building., However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet,*

Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

#### **Comment A-1-31**

##### 30. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Once all stored equipment and materials have been removed from the 277-T Building to supporting sampling and decontamination activities, an additional visual inspection will be performed by the Permittees and Ecology (Section H.3.4).

Basis Text: Clarify by using the term "final".

Recommendation Text: Change "additional" to "final".

#### ***Response to A-1-31***

*Thank you for your comment. Ecology accepts the recommendation and amended the text from "an additional" to "a final."*

#### **Comment A-1-32**

##### 31. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Supporting documentation for the visual inspection is included in Attachment A, T Plant Complex 277-T Building Visual Inspection Supporting Documentation.

Basis Text: There is no documentation in Attachment A for the inspection conducted by Ecology.

Recommendation Text: Provide documentation (notes, photos, etc.) from Ecology for this inspection.

### ***Response to A-1-32***

*Thank you for your comment. The text: "Supporting documentation for the visual inspections is included in Attachment A, T Plant Complex 277-T Building Visual Inspection Supporting Documentation" should have been limited to reference the Permittees' visual inspections. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments. Ecology amended the text as follows, "Supporting documentation for the Permittees' visual inspections is included in Attachment A, T Plant Complex 277-T Building Visual Inspection Supporting Documentation."*

### **Comment A-1-33**

#### **32. Addendum Section: H.3.3 Unit Components, Parts, and Ancillary Equipment**

Comment Text: The sampling locations will be sealed after sampling, and the 277-T Building will remain in place pending confirmation and acceptance of clean closure.

Basis Text: Provide the regulatory driver to seal the sampling locations. This should be at the discretion of the facility and not part of closure activities.

Recommendation Text: Delete this text. If Ecology does not delete the language, clarification is required to only apply to the concrete samples, not soil samples. Suggested language: The concrete sampling locations may be sealed after sampling at the discretion of the Permittees. The 277-T Building will remain in place pending..

### ***Response to A-1-33***

*Thank you for your comment. Ecology agrees that sealing locations after sampling should be at the discretion of the facility, pending confirmation and acceptance of clean closure, and deleted the text from Section H.3.3 Unit Components, Parts, and Ancillary Equipment. This language also appeared in Section H.3.10 Conditions that will be Achieved when Closure is Complete, and was deleted.*

### **Comment A-1-34**

#### **33. Addendum Section: H.3.4.1 Inspection of Unit Before Decontamination**

Comment Text: A visual inspection of the floor surface by the Permittees and Ecology will be conducted to identify any additional dangerous waste or mixed waste related staining, low points, joints/seams, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

Basis Text: If only solid waste in a large container was stored in the 277-T Building, low points, joints/seams, cracks, etc. would need to be significant enough allow contamination from solid material to reach underlying soil.

Recommendation Text: Delete text related to underlying soil.

### ***Response to A-1-34***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a*

*good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension."*

*Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as*

*follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1. of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

### **Comment A-1-35**

#### **34. Addendum Section: H.3.4.2 Decontamination**

Comment Text: Equipment used during decontamination and sampling will be decontaminated for re-use or disposed of and managed as newly generated waste in accordance with Section H.3.6.

Basis Text: Per WAC 173-303-610, only equipment containing or contaminated with dangerous wastes or waste residue require removal or decontamination. With the absent of contamination, decontamination of equipment is not necessary.

Recommended Text: Any equipment used to remove material contaminated with hazardous or mixed waste will be decontaminated in accordance with WAC 173-303-610. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible, and will be performed within the area where the closure activity has taken place. Solid waste debris generated by decontamination of equipment (e.g., rags and personal protective equipment) will be collected and disposed at an approved disposal facility. Dangerous waste generated will be managed in accordance with WAC 173-303, "Dangerous Waste Regulations." Contaminated equipment that cannot be decontaminated for re-use will be discarded and managed as dangerous waste in accordance with generator accumulation standards of WAC 173-303-170 and -200.

***Response to A-1-35***

*Thank you for your comment. Ecology has amended the text to read, "Equipment that becomes contaminated during decontamination and sampling activities will be decontaminated for re-use or managed and disposed of as newly generated waste in accordance with Section H.3.6. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible. A temporary decontamination area may be established near the 277-T Building. This area will be constructed of Visqueen™ or equivalent material, and may be used for decontamination of sampling equipment, personal protective equipment, and other miscellaneous small equipment used during decontamination and sampling activities. When decontamination of equipment is completed, the Visqueen™ or equivalent materials, rinsate, and solid waste debris generated by equipment decontamination (e.g., rags and personal protective equipment) will be removed and managed as newly generated waste in accordance with Section H.3.6"*

**Comment A-1-36**

35. Addendum Section: H.3.4.2 Decontamination

Comment Text: A small temporary decontamination area (approximately 10 by 20 feet) may be established near the 277-T Building.

Basis Text: Providing approximate dimensions requires Permittees to establish that size of area when a smaller area may be effective.

Recommendation Text: A small temporary decontamination area may be established near the 277-T Building.

***Response to A-1-36***

*Thank you for your comment. Ecology has amended the text to read, "A temporary decontamination area may be established near the 277-T Building."*

### **Comment A-1-37**

#### 36. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: The contaminated soil will be containerized, labeled, and sampled for waste characterization.

Basis Text: Basis Text: The soil has already been sampled and analyzed through the closure plan SAP. Provide the regulatory justification for requiring sampling of the soil for purposes of characterization. The soil can be characterized using the existing data.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized.

#### ***Response to A-1-37***

*Thank you for your comment. Ecology agrees the data may be used for characterization, but only within the area of inference for that particular sample. Ecology has amended the text to read, "The contaminated soil will be containerized, labeled, and sampled as needed to designate for disposal of the entire volume of contaminated soil."*

### **Comment A-1-38**

#### 37. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil will be placed in U. S. Department of Transportation-compliant containers and sent to a RCRA permitted disposal facility or staged at CAAs in accordance with all applicable requirements of WAC 173-303-200, Conditions for exemption for a large quantity generator that accumulate dangerous waste.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized. Contaminated soil will be placed in U.S. Department of Transportation compliant containers and sent to an approved disposal facility or staged at central accumulation areas in accordance with standards in WAC 173-303-200, "Accumulating Dangerous Waste On-site." Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268, "Land Disposal Restrictions") will be characterized, designated, stored, or treated, as applicable, prior to disposal in an approved disposal facility.

#### ***Response to A-1-38***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil will be placed in U.S. Department of Transportation-compliant containers and sent to an appropriate land disposal unit, possibly with central accumulation as an intermediary step, in accordance with all applicable*

*requirements of WAC 173-303-200, Conditions for exemption for a large quantity generator that accumulates dangerous waste."*

**Comment A-1-39**

38. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil subject to the requirements of WAC 173-30-140, Land Disposal Restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268, Land Disposal Restriction) will be characterized, designated, and stored or treated, as applicable, prior to disposal in a RCRA permitted disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

***Response to A-1-39***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil subject to the requirements of WAC 173-303-140, Land Disposal Restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268 Land Disposal Restrictions) will be characterized, designated, and treated, as applicable, prior to disposal in an appropriate land disposal unit."*

**Comment A-1-40**

39. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Once waste characterization results are received, all waste will be designated and shipped to a RCRA permitted facility for treatment, storage, or disposal.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste based on characterization results, provide the regulatory driver for requiring disposal in a RCRA permitted disposal facility.

Recommendation Text: If any waste is identified as hazardous waste it must be properly disposed or decontaminated in accordance with WAC 173-303-610(5). All hazardous waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230.

***Response to A-1-40***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Once waste characterization results are received, all waste will be designated." The last sentence in the preceding paragraph, "The waste will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5)," was clarified as follows: "The waste will be managed as a newly generated waste stream and either disposed of or decontaminated in accordance with WAC 173-303-610(5)."*

#### **Comment A-1-41**

##### 40. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268) then ultimately disposed in a RCRA permitted waste disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

#### ***Response to A-1-41***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268), then ultimately disposed in an appropriate land disposal unit."*

#### **Comment A-1-42**

##### 41. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: WAC 173-340-740(2), Table 740-I, Method A Soil Cleanup Levels for Unrestricted Land Uses (WAC 173-340-900), which includes closure performance standards for human health based on unrestricted land use.

Basis Text: Include the title of this WAC 173-340-900, Tables.

Recommendation Text: WAC 173-340-740(2), Table 740-I, Method A Soil Cleanup Levels for Unrestricted Land Uses (WAC 173-340-900, Tables), which includes closure performance standards for human health based on unrestricted land use.

#### ***Response to A-1-42***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

#### **Comment A-1-43**

##### 42. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: The waste container in the 277-T Building contained physically solid waste and inspections indicate no releases (Section H.3.2). Therefore, there is no known waste-related source of contaminated media and the inhalation exposure pathway has been excluded.

Basis Text: This excludes a pathway to underlying soil therefore focused soil samples should be eliminated from closure activities.

Recommendation Text: Remove focused soil samples from closure activities.

### ***Response to A-1-43***

*Thank you for your comment. Exclusion of the inhalation pathway does not invalidate the need to perform confirmation sampling of the soil to demonstrate clean closure has been achieved. As stated in Section H.3.7 of Addendum H: "Of the exposure pathways listed above, direct soil contact is always considered a complete and viable exposure pathway for all soil samples."*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing a significant amount of miscellaneous stored equipment. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during the June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1. of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection*

*results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

#### **Comment A-1-44**

##### 43. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: The sump at 277-T Building was designed to direct water from the sump to a WIDS draining pipe that is outside of this DWMU. With no indication of cracks or joints/seams that would allow water to penetrate beneath the sump and into the soil, the soil concentration protective of groundwater pathway was excluded when calculating closure performance standards.

Basis Text: Based on closure plan text, the sump does not pose a potential for soil contamination. Provide the technical justification for a pathway to underlying soil in other parts of the building.

Recommendation Text: Provide technical justification for a pathway to underlying soil in other parts of the 277-T Building.

#### ***Response to A-1-44***

*Thank you for your comment. Exclusion of the soil concentration protective of groundwater pathway does not invalidate the need to perform confirmation sampling of the soil to demonstrate clean closure has been achieved. As stated in Section H.3.7 of Addendum H: "Of the exposure pathways listed above direct soil contact is always considered a complete and viable exposure pathway for all soil samples."*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if*

*there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing a significant amount of miscellaneous stored equipment. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during the June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1. of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet,*

Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

#### **Comment A-1-45**

##### 44. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: If target analytes are found above closure performance standards, then the contaminated soil will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3 to ensure the closure performance standards are met for remaining soil. If failed constituents of concern do not meet closure performance standards for soil remediation, then the Permittees will meet with Ecology to determine a path forward.

Basis Text: Repetitive with Section H.4.4.3.

Recommendation Text: Target analytes found above closure standards will be addressed as in Section H.4.4.3.

#### ***Response to A-1-45***

*Thank you for your comment. Ecology will retain the text for clarity between Section H.3.7, Closure Performance Standards for Soil and Section H.4.4.3, Sampling and Analysis Requirements to Address Removal of Contaminated Soil and Concrete.*

#### **Comment A-1-46**

##### 45. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: The closure performance standard for concrete is treatment using a site-specific decontamination method as discussed in Section H.3.4, followed by confirmatory concrete chip sampling to ensure analytical results meet closure performance standards and that decontamination was successful.

Basis Text: There are no facts provided supporting the collection of chip samples as "necessary to achieve compliance with the Hazardous Waste Management Act." The records review and inspection showed no evidence of spills or leaks, thus the additional sampling provides no benefit. Closure performance standards must be supported by facts and a cogent explanation in the administrative record. Provide a reasonable basis based on the description of this facility for the need of chip sampling.

Recommendation Text: Provide documentation of the basis to support the necessity for chip sampling of the concrete.

### ***Response to A-1-46***

*Thank you for your comment. The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comments period's webpage.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject ...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer*

*before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Building provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, and is included as an excerpt below:*

*"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification - The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations.*

### **Comment A-1-47**

#### **46. Addendum Section: H.3.8 Closure Performance Standards for Concrete**

Comment Text: The viable exposure pathways considered for concrete are the same as for soil (Section H.3.7).

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications

Basis Text: Soil levels protective of groundwater is identified in the closure plan as a complete pathway. However, as evidence by the visual inspections, there are no cracks or breaches in the concrete surface significant enough to allow for contamination to percolate through to the soil and into the groundwater. Provide documentation of the avenue for percolation in Attachment A for visual inspections.

Recommendation Text: Provide documentation of the avenue for percolation through the concrete to the soil.

***Response to A-1-47***

*Thank you for your comment. Soil levels protective of groundwater is not identified as a complete pathway in Closure Unit 27, 277-T Building Closure Plan, Section H.3.7, Closure Performance Standards for Soil. The only complete exposure pathway for Closure Unit 27, 277-T Building is direct contact with soil, and is so indicated in Section H.3.9, Table H-5, where the only closure performance standard values and bases provided are background, direct contact, and unrestricted land use (MTCA Method A).*

*In addition, Section H.3.7 specifically states:*

*"A number of exposure pathways considered from the list above were determined to be incomplete pathways and were excluded when determining closure performance standards. . . . When considering soil levels protective of groundwater, there must be a route of exposure from water or rainwater to the underlying soil. The sump at 277 T Building was designed to direct water from the sump to a WIDS drainage pipe that is outside of this DWMU. With no indication of cracks or joints/seams that would allow water to penetrate beneath the sump and into the soil, the soil concentration protective of groundwater pathway was excluded when calculating closure performance standards."*

**Comment A-1-48**

47. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: Concrete chip sampling and analysis will be conducted in accordance with the closure plan SAP located in Section H.4.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

***Response to A-1-48***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

#### **Comment A-1-49**

##### 48. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: Analytical results of the concrete chip samples will be individually compared to the soil closure performance standards consistent with closure requirements. [WAC 173-303-610(2)(b)(i)]

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

#### ***Response to A-1-49***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

#### **Comment A-1-50**

##### 49. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3.

Basis Text: The closure plan does not provide activities detailing what is required for remediation of the concrete.

Recommendation Text: Provide text indicating acceptable remediation for clean closure.

#### ***Response to A-1-50***

*Thank you for your comment. Thank you for your comment. Ecology agrees text was not provided indicating what steps are to be taken when concrete closure performance standards are not achieved. The following text has been included in Section H.3.6:*

*"Contaminated concrete removal is not anticipated (see Section H.3.2). However, if contamination above closure performance standards is identified, the following options may be used:*

- Re-decontaminate using high pressure steam or water sprays, followed by confirmatory concrete chip sampling to demonstrate re-decontamination was successful.*
- Investigate the nature and extent of contamination. Remediate the concrete within the identified area of contamination by removing the contaminated concrete, followed by resampling to confirm contamination has been removed.*
- Submit a permit modification request to treat concrete using one of the physical extraction methods, in accordance with 40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris in Table 1."*

### **Comment A-1-51**

#### 50. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

### ***Response to A-1-51***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-52**

#### 51. Addendum Section H.4 Sampling and Analysis Plan

Comment Text: Sampling includes six focused soil samples, one focused concrete chip sample at the sump, and six non-statistical concrete chip samples (Figure H-5).

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

No evidence was provided in the closure plan for the addition of the focused and non-statistical grid samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of additional focused and non-statistical grid samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-52***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if*

*there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided. In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

*For concrete chip sampling, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject ...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer*

*before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Building provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, and is included as an excerpt below:*

*"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations. One focused concrete chip sample was added at the sump based on Ecology's professional judgement. The sump is the lowest point of the 277-T Building and is considered to have the highest potential for contamination to migrate.*

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications."

## **Comment A-1-53**

### 52. Addendum Section: H.4.1 Sampling and Analysis Plan Requirements

Comment Text: Sampling and analysis activities were designed using the EPA guidance document EPA/240/R-02/005, Guidance on Choosing a Sampling Design for Environmental Data Collection for Use in Developing a Quality Assurance Project Plan (EPA QA/G-5S)...

Basis Text: In EPA/240/R-02/005, Section 4.1, first sentence states "Judgmental sampling refers to the selection of sample locations based on professional judgment alone, without any type of randomization." No basis is provided for why the six samples have been randomized if they are based on professional judgment.

Recommendation Text: Provide the basis for randomizing the six focused samples.

### ***Response to A-1-53***

*Thank you for your comment. As stated the 277-T Building, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject ...*

Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:

1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or
2. Propose a site-specific method of decontamination and evaluation criteria.

The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...

Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."

The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, and is included as an excerpt below:

"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification - The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications."

*achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations.*

#### **Comment A-1-54**

##### 53. Addendum Section: H.4.3.3 Sampling Documents and Records

Comment Text: Records may be stored in either electronic or hard copy format. Documentation and records, regardless of medium or format, are controlled in accordance with internal work requirements and processes to ensure the accuracy and retrieveability of stored records.

Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Federal Facility Agreement and Consent Order) will be managed in accordance with the requirements therein.

Basis Text: This replicates language in Section H.1.4.4.

Recommendation Text: Replace language with reference to Section H.1.4.4.

#### ***Response to A-1-54***

*Thank you for your comment. Ecology deleted the redundant text in Section H.4.3.3 and included a reference to Section H.1.4.4. Also, in Section H.1.4.4. the sentence "Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Facility Agreement and Consent Order) will be managed in accordance with the requirements therein." was deleted and replaced with "Records generated during closure will be maintained in the operating record in accordance with Permit Condition II.I."*

#### **Comment A-1-55**

##### 54. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Focused (Judgmental) Sampling

Basis Text: Based on the information in this Section and on Ecology Publication #94-111, there is no justification for sampling the underlying soil. None of the criteria for focused samples are met for this DWMU:

Likely areas for focused sampling include, but are not limited to:

- Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil;
- Below any sumps or valves;
- Load or unload areas;
- Storage units with underlying pavements or concrete that appears to be cracked or broken; and
- Areas receiving runoff or discharge from DWMUs, such as a ditch, a swale, or the discharge point down gradient from a pipe.

Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;

- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred;
- Length of time the unit has been in existence;
- Entries into the unit operating record; and
- Soil gas surveys or soil borings.

Recommendation Text: Delete text regarding focused sampling.

***Response to A-1-55***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

*Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*

- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soils in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.

In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.

Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.

The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:

"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection

*results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

### **Comment A-1-56**

#### 55. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.

Basis Text: Based on the records review and visual inspection, there are no evidence of leaks or spills in 277-T Building therefore focused sampling is not appropriate.

Recommendation Text: Delete text.

### ***Response to A-1-56***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between*

*December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete*

*construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

### **Comment A-1-57**

#### 56. Addendum Section H.4.4.1 Sampling Design Process

Comment Text: Per the visual inspections (Section H.3.2) and additional professional judgement, six focused soil sample locations and one focused concrete chip sample location are identified.

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

No evidence was provided in the closure plan for the addition of the focused and non-statistical grid samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of additional focused and non-statistical grid samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-57***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing miscellaneous stored equipment and materials. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste*

*Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during their June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Building are summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology's professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees' 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building."*

*For concrete chip sampling, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject ...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Building provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, and is included as an excerpt below:*

*"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance*

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications."

*standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations. One focused concrete chip sample was added at the sump based on Ecology's professional judgement. The sump is the lowest point of the 277-T Building and is considered to have the highest potential for contamination to migrate.*

### **Comment A-1-58**

#### 57. Addendum Section: H.4.4.1 Sampling Design Process

Comment Text: Any spill within the 277-T Building would likely drain and collect in the sump, therefore a focused concrete sample is identified.

Basis Text: No free liquids were contained in the waste container. Solid waste with no free liquids does not provide an avenue for waste to drain and collect in the sump.

Recommendation Text: Delete text.

### ***Response to A-1-58***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of sampling that contamination is not present [173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the*

*Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Building provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The bases for the focused sample location at the 277-T Building sump is summarized in the Fact Sheet, Section 4.1.1, Closure Actions for Closure Unit Group 27, 277-T, and is included as an excerpt below:*

*"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – One focused concrete chip sample was added at the sump based on Ecology's professional judgement. The sump is the lowest point of the 277-T Building and is considered to have the highest potential for contamination to migrate."*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being*

*physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

### **Comment A-1-59**

#### 58. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: As an evaluation criteria, concrete chip sampling results will be directly compared to the closure performance standards for soil (Section H.3.9).

Basis Text: Values listed in CLARC tables are for soil. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document values in Table H-5 of Addendum H.

### ***Response to A-1-59***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-60**

#### 59. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Concrete chip samples are collected at regularly-spaced intervals over an areas.

Basis Text: In EPA/240/R-02/005, Section 4.1, first sentence states "Judgmental sampling refers to the selection of sample locations based on professional judgment alone, without any type of randomization." No basis is provided for why the six samples have been randomized if they are based on professional judgment.

Recommendation Text: Provide the basis for randomizing the six focused samples.

### ***Response to A-1-60***

*Thank you for your comment. As stated in the 277-T Building, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject ...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure*

*unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, and is included as an excerpt below:*

*"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations.*

### **Comment A-1-61**

#### **60. Addendum Section: H.4.4.1 Sampling Process Design**

Comment Text: Concrete chip samples are collected at regularly-spaced intervals over an area.

Basis Text: This statement is contradictory. Samples are either focused (judgmental) or grid (area). Focused are non-statistical and do not need to be randomized. The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications.

- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of collecting random chip samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-61***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of sampling that contamination is not present [173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*As stated in Attachment B of the 277-T Building, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean*

closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...

Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:

1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or
2. Propose a site-specific method of decontamination and evaluation criteria.

The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...

Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."

The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, and is included as an excerpt below:

"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet,

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications.

*maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations.*

*The certified closure plan (letter 18-AMRP-0150, Attachment 2) indicated only one waste container with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>) was stored in the 277-T Building between December 2002 through September 2003, where it was overpacked. The records summary provided by the Permittees (letter 18-AMRP-0150, Attachment 3.11, Pgs. 175-180) identified this waste was generated from 221-T Canyon cell cleanout, and although identified as being physically solid, contained residual organic solvent liquids. Ecology also noted 45 kg of absorbent was added when overpacking this container.*

*Overall, there was very little information regarding waste stored at the 277-T Building. However, the records summary indicated additional waste may have been present June 30-July 4, 2003 (Pg. 54), May 3-7 2004 (Pgs. 67, 69-70) ; May 17-21, 2004 (Pg. 72-73); and March 20-23, 2007 (Pg. 209) [Note: some entries were specific to the 277-T Building, and some entries stated 277-T which could have referred to either the 277-T Building or the 277-T Outdoor Storage Area, or both]. No other information regarding storage of this additional waste was provided.*

*In the Permittees' June 15, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), six focused sampling locations were identified as follows: three low point samples, two seam samples, and one sump sample. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the building, and the floor of the building was uneven with potential low areas. Ecology also noted that there were chips, seams, and cracks throughout, although the severity of these areas could not be determined due to the building containing a significant amount of miscellaneous stored equipment. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*Based on the 2018 walk down, Ecology has agreed with the sampling locations identified by the Permittees during the June 15, 2015 inspection. Once all equipment and stored material are removed, Ecology will conduct a final inspection as described in Section H.3.4.1 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.27.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

## **Comment A-1-62**

### **61. Addendum Section: H.4.4.1 Sampling Process Design**

Comment Text: Professional judgement determined that six chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5).

Basis Text: WAC 173-303-840(2)(e) states, "All draft permits must be accompanied by a fact sheet that is supported by administrative record and made available for public comment." The walkdown and inspection which led to the professional judgement addition of six chip samples are part of the administrative record. Ecology should attach this information to the closure plan, making the information available for Permittee and public comments.

Recommendation Text: Provide all documentation from this inspection that supports the professional judgement so the Permittees and the public can review and comment.

***Response to A-1-62***

*Thank you for your comment. WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the fact sheet to be supported by the administrative record. Ecology does not provide the administrative record for public review unless specifically requested.*

*Ecology made the Fact Sheet for this permit modification available during the September 21 through November 4, 2020 public comment period. The basis for the referenced text in Addendum H, Section H.4.4.1, "Professional judgement determined that six chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5)," is summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, as follows:*

*"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations. One focused concrete chip sample was added at the sump based on Ecology's professional judgement. The sump is the lowest point of the 277-T Building and is considered to have the highest potential for contamination to migrate.*

*Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications.

### **Comment A-1-63**

#### 62. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: For the purpose of this SAP, ground surface is defined as the exposed surface layer once concrete or loose gravel has been removed.

Basis Text: There is no loose gravel in the building.

Recommendation Text: Delete text as soil sampling is inappropriate for this DWMU.

### ***Response to A-1-63***

*Thank you for your comment. Ecology understands there is no loose gravel within the building itself. The requirement pertains to sampling soil below the building once the overlying concrete and gravel (if present) have been removed. Ecology amended the text to read, "For the purpose of this SAP, ground surface is defined as the exposed surface layer once concrete and gravel (if present) have been removed."*

### **Comment A-1-64**

#### 63. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: The sampling device will be laboratory cleaned and wrapped in cleaned, autoclaved aluminum foil until ready for use.

Basis Text: Sampling devices do not have to be sterile to collect a representative sample. This does not allow for the use of disposable and properly decontaminated devices.

Recommendation Text: Delete text

### ***Response to A-1-64***

*Thank you for your comment. As stated in the Comment Text, the sampling device is not autoclaved, but the aluminum foil, which is a reusable resource, is both cleaned and autoclaved. Ecology agrees that the text precludes the Permittees' use of disposable and field-decontaminated sampling devices and has amended Section H.4.4.2 to read, "Sampling devices will be disposable, or either laboratory cleaned or field-decontaminated and kept wrapped until ready for use."*

### **Comment A-1-65**

#### 64. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Donning a new pair of disposable gloves, the concrete surface will be broken and sampled.

Basis Text: The PPE required to perform a specific task is developed based on multiple factors including safety of the worker. Listing specific PPE may interfere with the safety of the worker based on the hazards present.

Recommendation Text: Individuals will don appropriate PPE prior to breaking and sampling the concrete surface.

### ***Response to A-1-65***

*Thank you for your comment. Ecology accepts the recommendation and has amended the text to read, "Individuals will don appropriate personal protection equipment when breaking and/or sampling the concrete surface."*

### **Comment A-1-66**

#### 65. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: An effort will be made to avoid scattering pieces out of the sampling area boundary.

Basis Text: Area not defined.

Recommendation Text: Define sampling boundary area.

### ***Response to A-1-66***

*Thank you for your comment. The Permittees should consult the analytical laboratory for adequate sample volume in order to define a sampling boundary area that will provide the required chip volume. The sampling area boundaries will be documented as described in Section H.5.1.1 Confirmation of Site-Specific Decontamination.*

*Ecology has amended the third bullet in Section H.4.4.2 to read: "Field walk down of sample area (includes locating and marking sample locations and sample boundary areas)."*

### **Comment A-1-67**

#### 66. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: The area will be chipped to less than one-quarter inch (preferably 1/8 in.).

Basis Text: Based on the depth limit of 1/4 in (preferably 1/8 in), calculate the area to ensure the volume of concrete generated meets the minimum quantity of sample media required to run all analysis.

Recommendation Text: Provide calculation or supporting documentation to ensure adequate sample media.

### ***Response to A-1-67***

*Thank you for your comment. Ecology cannot provide a calculation or supporting documentation to ensure adequate sample media, as this is laboratory dependent. When implementing this closure plan, the Permittees should consult the analytical laboratory for volume requirements to ensure an adequate sample volume is collected to meet the PQL.*

### **Comment A-1-68**

#### 67. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Chipped pieces will be collected using a dedicated, decontaminated dustpan and natural bristle brush and transferred directly into the sampling bottle.

Basis Text: This detail may conflict with proceduralized sample collection processes and equipment. This level of detail is not necessary.

Recommendation Text: Delete text.

***Response to A-1-68***

*Thank you for your comment. The detail included is necessary to ensure collected samples are not contaminated, and was obtained from the Department of Defense Environmental Field Sampling Handbook Revision 1.0, April 2013 (277-T Building, Addendum H, Closure Plan, Section H.8, References). This level of detail is consistent with the Bonneville Power Administration – Ross Complex Washington State dangerous waste permit (WA1891406349). Prior to initiating closure activities, if sampling collection procedures differ from the requirements in this closure plan, the Permittees may submit a permit modification request to modify the closure plan with the updated information.*

**Comment A-1-69**

68. Addendum Section: H.4.4.3 Sampling and Analysis Requirements to Address Removal of Contaminated Soil and Concrete

Comment Text: If focused or chip sample results based on direct comparison (Section H.4.4.1) indicate contamination above closure performance standards, then sample location(s) will be remediated to remove contaminated soil or concrete.

Basis Text: Details for remediation of contaminated soil are presented in Section H.3.5, however details of concrete surface remediation are not provided.

Recommendation Text: Provide details on remediation of concrete.

***Response to A-1-69***

*Thank you for your comment. Ecology agrees that text was not provided indicating what steps are to be taken when concrete closure performance standards are not achieved. The following text was included in Section H.3.6:*

*" Contaminated concrete removal is not anticipated (see Section H.3.2). However, if contamination above closure performance standards is identified, the following options may be used:*

- Re-decontaminate using high pressure steam or water sprays, followed by confirmatory concrete chip sampling to demonstrate re-decontamination was successful. Investigate the nature and extent of contamination.*
- Remediate the concrete within the identified area of contamination by removing the contaminated concrete, followed by resampling to confirm contamination has been removed.*
- Submit a permit modification request to treat concrete using one of the physical extraction methods, in accordance with 40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris in Table 1."*

## **Comment A-1-70**

### 69. Addendum Section: H.4.4.3 Sampling and Analysis Requirements to Address Removal of Contaminated Soil and Concrete

Comment Text: If focused or chip sample results based on direct comparison (Section H.4.4.1) indicate contamination above closure performance standards, then sample location(s) will be remediated to remove contaminated soil or concrete.

Basis Text: Remediation of the soil under the 277-T Building sump requires disturbance of the WIDS site. Consider coordination with CERCLA for remediation of the existing WIDS site. It seems remediation of the WIDS is outside the scope of this closure plan.

Recommendation Text: If sampling and analysis of the soil under the sump indicates contamination above closure performance standards, then Permittees will meet with Ecology to determine a path forward for closure.

### ***Response to A-1-70***

*Thank you for your comment. Although the piping from the 277-T Building sump to the 216-T-1 Ditch is included in WIDS as an existing waste site (200-W-180-PL), it is not included in the Tri-Party Agreement (TPA) Action Plan, Appendix C, nor are there any TPA milestones associated with its remediation. As such, Ecology cannot consider coordination with CERCLA for remediation at this time.*

## **Comment A-1-71**

### 70. Addendum Section: H.4.6 Revisions to the Sampling and Analysis Plan and Constituents to be Analyzed

Comment Text: Changes to the SAP may be necessary due to unexpected events during closure. An unexpected event would be an event outside the scope of the SAP or a condition that inhibits implementation of the SAP as written. Revisions to the SAP will be submitted no later than 30 days after the unexpected event as a permit modification request.

Basis Text: Approval of a permit modification will likely adversely affect meeting the 180-day closure period.

Recommendation Text: Provide clarification on whether the permit modification request approval is required to continue with closure activities or if activities can continue uninterrupted after the unexpected event occurs.

### ***Response to A-1-71***

*Thank you for your comment. Ecology disagrees with the recommendation, and is retaining the existing text. Due to the nature of unexpected events (that is, they are unexpected), Ecology cannot determine at this point in time whether or not closure activities may continue uninterrupted. Ecology understands that permit modifications caused by unexpected events may adversely affect the Permittees' ability to complete closure within the 180-day closure period and have specifically addressed this circumstance in Section H.6, Closure Schedule and Time Frame. Specifically:*

*"Should an unexpected event occur and an extension to the 180 day closure activity expiration date be deemed necessary, a permit modification request will be submitted to Ecology for approval at least 30 days prior to the expiration of the 180 days. [WAC 173 303 610(4)(c)]*

*The permit modification request will include the statement that closure activities, will of necessity, take longer than 180 days to complete, including the supporting basis for the statement. The permit modification request will also include necessary information demonstrating that all steps to prevent threats to HHE have been and will continue to be taken, including compliance with all applicable permit requirements. [WAC 173 303 610(4)(b)]"*

### **Comment A-1-72**

#### 71. Addendum Section: H.5.1 Confirmation of Clean Closure

Comment Text: The 277-T Building will be clean closed through confirmation of successful decontamination determined by chip sampling of the concrete surfaces, and through sampling of soil beneath asphalt and concrete.

Basis Text: Values listed in CLARC tables are for soil. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document values in Table H-5 of Addendum H.

### ***Response to A-1-72***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-73**

#### 72. Addendum Section: H.5.1.1 Confirmation of Site-Specific Decontamination

Comment Text: Once it has been determined that analytical results from chip sampling are below the closure performance standards that portion of the 277-T Building DWMU will be considered clean.

Basis Text: This indicates that only the portion of the DWMU that was chip sampled is clean closed. The chip samples be indicative of the entire DWMU.

Recommendation Text: Provide clarification that the entire DWMU is considered clean closed.

### ***Response to A-1-73***

*Thank you for your comment. Chip sampling results will determine if decontamination of the concrete was successful and determine if the concrete can be considered clean. Chip sampling results will not determine clean closure for the entire unit. Clean closure of the entire DWMU is achieved when all closure activities have been completed in accordance with the approved closure plan, certified by the Permittees and an independent qualified registered professional engineer, and submitted to Ecology, as described in Section H.5.3; and accepted by Ecology.*

*Ecology has amended the text to read, "Once it has been determined that analytical results from chip sampling are below the closure performance standards, the concrete of the 277-T Building DWMU will be considered clean."*

### **Comment A-1-74**

#### 73. Addendum Section: H.5.3 Closure Certification

Comment Text: Within 60 days of completion of closure of the 277-T Building DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail.

Basis Text: Suggest "closure activities". Closure is not complete until Ecology acknowledges the clean closure certification. Also, include language consistent with regulations for delivery of closure certification means.

Recommendation Text: Within 60 days of completion of closure activities of the 277-T Building DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means).

### ***Response to A-1-74***

*Thank you for your comment. The comment text is consistent with WAC 173-303-610(6) and will not be amended beyond the inclusion of a reference to other acceptable means of submittal. Ecology amended the text to read, "Within 60 days of completion of closure of the 277 T Building DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means)."*

### **Comment A-1-75**

#### 74. Addendum Section: Table H-8 277-T Building Dangerous Waste Management Unit Closure Schedule

Comment Text: 180 days

Basis Text: Per the WAC 173-303-610 requirement, the total duration of closure activities is limited to 180 days. The 180 day duration of this activity indicates closure will take 360 days. I

Recommendation Text: Delete Activity.

### ***Response to A-1-75***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the schedule item summarizing closure activities, as this item made the duration of closure appear to take 360 days vs. the actual duration of 180 days.*

### **Comment A-1-76**

#### 75. Addendum Section: H.8 References

Comment Text: (Dangerous Waste Permit Application Part A Form, Closure Unit 19, Hexone Storage & Treatment Facility, Revision 7, October 1)

Basis Text: This appears to be an incorrect reference.

Recommendation Text: Provide appropriate reference.

### ***Response to A-1-76***

*Thank you for your comment. Ecology agrees this is an incorrect reference, and has updated it with the following: "21-NWP-033, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967" (letter to Brian T. Vance, DOE-RL/ORP and Scott Sax, CPCCo, from Stephanie Schleif), Nuclear Waste Program, Ecology, Richland, Washington, March 15. Available at: <https://pdw.hanford.gov/document/AR-10235>*

### **Comment A-1-77**

#### 76. Addendum Section: Attachment B T Plant 277-T Building Visual Sample Plan Supporting Documentation

Comment Text: Table: Summary of Sampling Design User specified number of samples

Basis Text: Provide justification for the 6 samples. If this is for judgmental (focused) samples, then the randomization of the locations is unnecessary.

Recommendation Text: Recommendation Text: Provide justification and additional details to support the determination of the number of samples.

### ***Response to A-1-77***

*Thank you for your comment. As stated in the 277-T Building, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification, which included justification for each sample location, was not available on Ecology's webpage for the June 4 through July 24, 2020 public*

*comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comments period's webpage.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Building provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete*

structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.1 Closure Actions for Closure Unit Group 27, 277-T Building, and is included as an excerpt below:

*"Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – The decision to use "non-statistical grid concrete chip sampling" was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan ♦ derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations.*

## **CLOSURE UNIT GROUP 28, 277-T OUTDOOR STORAGE AREA**

### **Comment A-1-78**

#### 1. Addendum Section: Unit 28 277-T OSA Permit Conditions

Comment Text: Addenda H

Basis Text: Erroneous use of the plural form of Addendum.

Recommendation Text: Change "Addenda" to "Addendum".

### ***Response to A-1-78***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

### **Comment A-1-79**

#### 2. Addendum Section: Unit 28 277-T OSA Permit Conditions

Comment Text: The Permittees will notify the Department of Ecology (Ecology) within 24 hours of any deviations from the Approved Addendum H, "Closure Plan"

---

♦ The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications.

Basis Text: This permit condition lacks regulatory basis and is contradictory to Permit Condition II.K.6 which states:

"Deviations from a TSD unit closure plan required by unforeseen circumstances encountered during closure activities, which do not impact the overall closure strategy, but provide equivalent results, shall be documented in the TSD unit-specific Operating Record and made available to Ecology upon request, or during the course of an inspection."

While field sampling plans are designed to be able to be implemented as written, field conditions arise that may require minor deviation. These circumstances are addressed in permit condition II.K.6.

Recommendation Text: Minor deviations from this closure plan must be addressed in accordance with Permit Condition II.K.6.

### ***Response to A-1-79***

*Thank you for your comment. Ecology disagrees Permit Condition II.K.6 lacks a regulatory basis or is contradictory to the unit-specific permit condition. Permit Condition II.K.6 requires documentation of closure plan deviations be provided to Ecology upon request. Ecology is requesting documentation of any closure plan deviations via Permit Condition V.28.B.2. Most importantly, Ecology notes the term "minor deviations" used in Permit Condition II.K.6 could be interpreted differently by the Permittees and Ecology in this context. Therefore, Ecology is requiring notification in order for Ecology and the Permittees to review the deviation to determine if it will affect the ability to meet final acceptance of closure. If Ecology determines the deviation will affect the ability to meet final acceptance of closure, Ecology will require the Permittees to submit a permit modification request to modify the closure plan in accordance with WAC 173-303-610(3)(b)(iv). Ecology also notes Permit Condition II.J.3 requires changes to the approved closure plan be submitted to Ecology as a permit modification request, which is consistent with WAC 173-303-610(3)(b)(ii).*

*In addition, even if this unit-specific permit condition were contradictory with Permit Condition II.K.6, the language of a unit-specific condition prevails when in conflict with the Hanford Facility Part I-Standard and/or Part II-General Facility Conditions. This is clearly stated in the first unit-specific permit condition for the 277-T Outdoor Storage Area, Part V, Closure Unit Group 28:*

#### ***"V.28.A COMPLIANCE WITH PERMIT CONDITIONS***

*The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act Permit (Permit) as specified in Permit Attachment 9, Permit Applicability Matrix, including all approved modifications. All addenda, subsections, figures, tables, and appendices included in the following Unit-Specific Permit Conditions are enforceable in their entirety. In the event that the Part V, Unit-Conditions for Closure Unit 28, 277-T Outdoor Storage Area conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit conditions will prevail for Closure Unit 27, 277-T Outdoor Storage Area."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through*

November 4, 2020. The bases for this closure unit group's permit conditions are summarized in the Fact Sheet, Section 4.2. As stated in the Fact Sheet:

*"4.2 Basis for Closure Unit Group Permit Conditions*

*The following are permit conditions for Closure Unit Groups 28, 30, 37, and 41:*

*Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, Permit Applicability Matrix, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.*

*Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.*

*Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within 24 hours of any deviations from the approved closure plan. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure."*

*Please note, permit condition numbers noted in the Fact Sheet were incorrect. For Closure Unit Group 28, 277-T Outdoor Storage Area, permit condition numbers are: V.28.A, V.28.B.1, and V.28.B.2.*

**Comment A-1-80**

**3. Addendum Section: Unit 28 277-T OSA Permit Conditions**

Comment Text: If sampling assumptions/closure performance standards were not met, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work that would need to be done to achieve clean closure.

Basis Text: Resolving Contamination Identified During Grid (Area-Wide) Soil Sampling is already addressed in Section H.4.3.3.1. Identify what additional information is needed for this permit modification.

Recommendation Text: Provide details on what additional information is required for the permit modification.

***Response to A-1-80***

*Thank you for your comment. Ecology agrees resolving contamination identified during sampling is already addressed in Section H.4.4.3.1. The permit condition was meant to address, (based on review of sampling data results), any additional sampling and remediation needed beyond what is already described in the closure plan. Ecology has amended the 277-T Outdoor Storage Area Closure Plan Permit Condition, V.28.B.3.a, to specify that a permit modification request will be required for closure performance standards specified in Table H-5 of the Addendum H, Closure Plan that have not been met after remediation and confirmatory sampling data analysis. This is consistent with Sections H.3.5, H.3.7, and H.3.9, which describe meeting with Ecology to determine a path forward for closure if contamination remains after remediation.*

## **Comment A-1-81**

### 4. Addendum Section: Unit 28 277-T OSA Permit Conditions

Comment Text: If the closure performance standards have been exceeded, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work and/or sampling that would need to be done to achieve clean closure.

Basis Text: Resolving Contamination Identified During Focused Soil Sampling and Grid (Non-Statistical) Concrete Chip Sampling is already addressed in Section H.4.4.3.1. Identify what additional information is needed for this permit modification.

Recommendation Provide details on what additional information is required for the permit modification.

### ***Response to A-1-81***

*Thank you for your comment. Ecology agrees resolving contamination identified during sampling is already addressed in Section H.4.4.3.1. The permit condition was meant to address, (based on review of sampling data results), any additional sampling and remediation needed beyond what is already described in the closure plan. Ecology has amended the 277-T Outdoor Storage Area Closure Plan Permit Condition, V.28.B.3.a, to specify that a permit modification request will be required for closure performance standards specified in Table H-5 of the Addendum H, Closure Plan that have not been met after remediation and confirmatory sampling data analysis. This is consistent with Sections H.3.5, H.3.7, and H.3.9, which describe meeting with Ecology to determine a path forward for closure if contamination remains after remediation.*

## **Comment A-1-82**

### 5. Addendum Section: Unit 28 277-T OSA Permit Conditions

Comment Text: Within sixty days of completion of closure for the 277-T OSA, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 277-T OSA has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610 (6)].

Basis Text: The IQRPE certification is submitted after closure activities are complete but as part of the overall closure process. Suggest specifying the IQRPE certification is submitted after closure activities are complete.

Recommendation Text: Within sixty days of completion of closure activities for the 277-T OSA, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 277-T OSA has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610(6)].

### ***Response to A-1-82***

*Thank you for your comment. The 277-T Outdoor Storage Area Permit Condition V.28.B.4 language is consistent with WAC 173-303-610(6), Certification of closure, and will not be changed.*

### **Comment A-1-83**

#### 6. Addendum Section: Table of Contents

Comment Text: Table of Contents

Basis Text: Page numbers are missing the H..

Recommendation Text: Suggest reformatting TOC for consistency with page numbering throughout document.

### ***Response to A-1-83***

*Thank you for your comment. The page numbering aligns with permit formatting.*

### **Comment A-1-84**

#### 7. Addendum Section: Terms

Comment Text: Terms

Basis Text: HWMA and RCW are not included in table. See first paragraph in Intro. BCSO is not defined in this plan.

Recommendation Text: Add HMWA, RCW and remove BCSO to terms table.

### ***Response to A-1-84***

*Thank you for your comment. Ecology has amended "Terms" to include HWMA - Hazardous Waste Management Act, RCW- Revised Code Washington, and to exclude BCSO - Benton County Sheriff's Office.*

### **Comment A-1-85**

#### 8. Addendum Section: H.1 Introduction

Comment Text: The purpose of this plan is to describe the Resource Conservation and Recovery Act (RCRA)/Hazardous Waste Management Act (HWMA), Chapter 70.105 Revised Code of Washington (RCW) closure process for the 277-T Outdoor Storage Area Dangerous Waste Management Unit (DWMU), hereinafter called the 277-T Outdoor Storage Area.

Basis Text: Should be defined as "Resource Conservation and Recovery Act of 1976."

Recommendation Text: The purpose of this plan is to describe the closure process for the 277-T Outdoor Storage Area Dangerous Waste Management Unit (DWMU), hereinafter termed the "277-T OSA" as required by and in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) and Washington's Hazardous Waste Management Act (HWMA)

### ***Response to A-1-85***

*Thank you for your comment. Ecology agrees that "RCRA" should be defined as "Resource Conservation and Recovery Act of 1976" and had amended the text to reflect the correct definition.*

### **Comment A-1-86**

#### 9. Addendum Section: H.1 Introduction

Comment Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), and WAC 173-303-630(10).

Basis Text: Should define WAC 173-303-610 and WAC 173-303-630 the first time they are used. -610 is "Closure and Post-Closure;" and -630, "Use and Management of Containers."

Recommendation Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-3003-610(6), Closure and Post-Closure, and in WAC 173-303-630(10), Use and Management of Containers.

### ***Response to A-1-86***

*Thank you for your comment. Ecology accepts the recommendation and amended the text to read, "This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), Closure and Post-Closure, and WAC 173-303-630(10), Use and Management of Containers."*

### **Comment A-1-87**

#### 10. Addendum Section: H.1 Introduction

Comment Text: Addendum H.9

Basis Text: Numbering should begin at H-1.

Recommendation Text: Renumber pages beginning with H-1.

### ***Response to A-1-87***

*Thank you for your comment. The page numbering aligns with permit formatting.*

### **Comment A-1-88**

#### 11. Addendum Section: Figure H-1 T Plant Complex Overview, 277-T Outdoor Storage Area Dangerous Waste Management Unit

Comment Text: Figure H-1 T Plant Complex Overview, 277-T Outdoor Storage Area Dangerous Waste Management Unit

Basis Text: Image should be dated

Recommendation Text: Provide date for Figure H-1.

### ***Response to A-1-88***

*Thank you for your comment. Ecology accepts the recommendation and included the date "Month Unknown, 2017."*

### **Comment A-1-89**

#### 12. Addendum Section: H.1.1 Unit Description

Comment Text: Figure H-5 shows the blow-down drain on the northeast side of 277-T Building, which drained water from 277-T Building condensate blowdown lines to the 216-T-1 drainage ditch located north of the 277-T Building.

Basis Text: This is not correct. This is a steam condensate blow-down line. This line does not drain water from the building to the drainage ditch.

Recommendation Text: Figure H-5 shows the blow-down drain on the northeast side of 277-T Building, which is also a focused sample location.

### ***Response to A-1-89***

*Thank you for your comment. Ecology has amended the text to read, "Figure H-5 shows a blow-down line and gravel drain on the northeast side of the 277-T Building. The blow-down line carried steam condensate from the 277-T Building steam heating system and discharged the condensate at the gravel drain. The drain terminates to soil. The condensate lines are no longer in service and significant portions have been removed from the 277-T Building."*

### **Comment A-1-90**

#### 13. Addendum Section: H.1.1 Unit Description

Comment Text: The drainage ditch was backfilled and stabilized in 1995 and permanently isolated by filling the manholes with concrete. The discharge pipes have been cut and capped. The drainage ditch and pipelines are currently Waste Information Data System (WIDS) sites and are being tracked in the WIDS database and will not be covered under the closure plan.

Basis Text: The drainage ditch is not associated with any portion of this DWMU.

Recommendation Text: Delete this text.

### ***Response to A-1-90***

*Thank you for your comment. Ecology accepts your recommendation and deleted the text.*

### **Comment A-1-91**

#### 14. Addendum Section: Table H-1 Training Matrix for the 277-T OSA Pad Dangerous Waste Management Unit

Comment Text: The "X" in the FS column for Building Emergency Training Category Course Description

Basis Text: This "X" is in error. There is no requirement for Building Emergency training for the Field Sampler.

Recommendation Text: Remove the "X" for the FS column for Building Emergency Training Category Course Description.

***Response to A-1-91***

*Thank you for your comment. Ecology agrees with the recommendation text and deleted the "X" from Training Category Course Description: Building Emergency, under the Field Sampler (FS) column.*

**Comment A-1-92**

15. Addendum Section: Table H-1 Training Matrix for the 277-T Outdoor Storage Area Dangerous Waste Management Unit

Comment Text: Superscript c. The Facility Health and Safety training is required only if workers are unescorted in the facility.

Basis Text: There is no c superscript in Table H-1. Superscript c is associated with the X in the Non-T Plant Personnel or Visitor, SPOC, and FS columns for Facility Health and Safety Training Category Course Description.

Recommendation Text: Apply superscript c to Non T Plant Personnel or Visitor, SPOC, and FS columns for the Facility Health and Safety Training Category Course Description within the H-1 table.

***Response to A-1-92***

*Thank you for your comment. Ecology agrees with the recommendation and included the omitted superscript from Training Category Course Description: Facility Health and Safety, under the Field Sampler (FS) column.*

**Comment A-1-93**

16. Addendum Section: H.1.5 Facility Contact Information

Comment Text: Doug S. Shoop

Basis Text: Contact information should be in the Part A only. If the contact information changes, it will require a permit modification to the closure plan. In addition, the DOE contact is no longer Doug Shoop.

Recommendation Text: Remove facility contact information from closure plan.

***Response to A-1-93***

*Thank you for your comment. As there is no approved Part A for the closure units that are the subject of this permit modification, facility contact information needs to be included in the closure plans. Ecology obtained the most recent facility contact information from the Permittees at the drafting of this permit modification.*

*The Section H.1.5 – Facility Contact Information has been updated to include the current contact information provided by the Permittees in letter dated, January 22, 2021, "Transfer of Co-Operator Responsibilities for Hanford Facility Resource Conservations and Recovery Act Permit, WA7890008967," (21-ESQ-00305) and approved by Ecology in letter dated, March 15, 2021,*

*"Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967," (21-NWP-033). Once the permit is in effect, if the contact information changes the Permittees are required to submit a permit modification request.*

*Ecology has amended Section H.1.5 – Facility Contact Information text to read:*

*Brian T. Vance, Manger*

*U.S. Department of Energy, Richlands Operations Office*

*P.O. Box 550*

*Richland, WA 99352*

*(509) 376-7395*

*Scott Sax, President and Project Manager*

*Central Plateau Cleanup Company, LLC*

*P.O. Box 1464*

*Richland, WA 99352*

*(509) 372-3845*

*Additionally, in these closure plans, references to "CH2M HILL Plateau Remediation Company (CHPRC)" as a Permittee have been changed to "Central Plateau Cleanup Company, LLC (CPCCo)." The change is reflected in the following Sections:*

*TERMS,*

*H.1 Introduction,*

*H.3.7 Closure Performance Standards for Soil,*

*H.3.10 Development of Closure Performance Standards, Table H-4, and*

*H.4.3.1 Project/Task Organization*

#### **Comment A-1-94**

##### **17. Addendum Section: H.2 Closure Performance Standards**

Comment Text: Remove all waste and waste residues and properly dispose of them in a RCRA permitted disposal facility.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

#### ***Response to A-1-94***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Remove all waste and waste residues" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for clean closure of container storage areas. The text "and properly dispose of them in a RCRA permitted disposal facility" is deleted as it is an activity required by WAC 173-303-610(3)(a)(iv) to treat (if necessary) and dispose of all dangerous*

wastes removed from the dangerous waste management unit during closure activities. This information is covered under Section H.3, Closure Activities.

#### **Comment A-1-95**

##### 18. Addendum Section: H.2 Closure Performance Standards

Comment Text: Decontaminate the concrete surface and perform concrete chip sampling to ensure concrete meets standard Model Toxics Control Act (MTCA) cleanup levels, or remove any concrete that cannot be so decontaminated.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

#### ***Response to A-1-95***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Decontaminate the concrete surface and perform concrete chip sampling to ensure concrete meets standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, and remove any concrete that cannot be so decontaminated." is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met in order for the 277-T Outdoor Storage Area to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

#### **Comment A-1-96**

##### 19. Addendum Section: H.2 Closure Performance Standards

Comment Text: Perform soil sampling and analysis to ensure soils in the 277-T Outdoor Storage Area meet standard MTCA cleanup levels, and remove any soils (and adjacent asphalt associated with the contaminated soil) contaminated above these levels.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

#### ***Response to A-1-96***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Perform soil sampling and analysis to ensure soils at the 277-T Outdoor Storage Area meet standard MTCA Method A or B cleanup levels, and remove any soils (and adjacent asphalt associated with the contaminated soil) contaminated above these levels." is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for the 277-T Outdoor Storage Area to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

## **Comment A-1-97**

### 20. Addendum Section: H.3 Closure Activities

Comment Text: Perform soil sampling below concrete pads and blow down drain (Section H.4.4).

Basis Text: If chip sampling does not determine contamination of the surface of the concrete areas, provide the technical justification for sampling under the concrete. In addition, the records review did not identify any releases to the DWMU. The visual inspection did not identify any waste related staining. Provide justification for additional sampling.

Recommendation Text: Provide justification and supporting documentation to justify sampling of soil below concrete pads or delete text.

### ***Response to A-1-97***

*Thank you for your comment. Chip sampling is the evaluation criterion that will be used to determine whether decontamination of the concrete structure is successful. It is not related to sampling soil below the concrete structure.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment*

*and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Outdoor Storage Area asphalt and concrete pads were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Outdoor Storage Area asphalt and concrete pads remain intact for future non-waste management uses. Ecology*

*granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Overall, there was very little information regarding waste stored at the 277-T Outdoor Storage Area. The records summary indicated waste may have been managed in central accumulation or satellite accumulation areas.*

*In the Permittees' August 29, 2013, and June 1, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), the Permittees identified stains believed to be related to rusting equipment. The Permittees also identified two expansion joints and a steam condensate blow-down line drain for focused sampling.*

*During Ecology's 2018 walk down, Ecology noted the concrete pad at the front of the 277-T Building had several cracks (including through-thickness cracks), a seam along the concrete pad and building, and holes throughout including where metal poles used to be. The back concrete pad had a manhole penetrating the concrete, there was no curbing between the concrete pad and the building slab and the pad was sloped toward the building, and there were holes and pitting throughout. Stains that appeared to be rust were located around the rusted pipe locations, the manhole, and the blow-down drain line. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Outdoor Storage Area are summarized in the Fact Sheet, Section 4.1.2, Closure Actions for Closure Unit Group 28, 277-T OSA, and is included as an excerpt below:*

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2w018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally,*

*this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

**Comment A-1-98**

21. Addendum Section: H.3.1 Removal of Wastes and Waste Residues

Comment Text: It is unknown if dangerous or mixed waste residues are present at this DWMU.

Basis Text: As identified in the records review, facility inspections were completed in this storage area to monitor for spills. No documentation of spills were found during the records reviewed. Provide supporting documentation indicating the potential for dangerous or mixed waste residue to be present at the DWMU.

Recommendation Text: The records review and visual inspection did not identify any releases of dangerous waste or waste related staining therefore dangerous or mixed waste residues are not anticipated at this unit.

***Response to A-1-98***

*Thank you for your comment. Until confirmation sampling results are made available, the referenced text in Section H.3.1 of Addendum H, "It is unknown if dangerous waste residues are present at this DWMU," is accurate. Accordingly, this language will not be changed. The recommendation text, "...dangerous or mixed waste residues are not anticipated at this unit," would not change the fact that confirmation sampling must be performed.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if*

*there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Outdoor Storage Area asphalt and concrete pads were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Outdoor Storage Area asphalt and concrete pads remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Overall, there was very little information regarding waste stored at the 277-T Outdoor Storage Area. The records summary indicated waste may have been managed in central accumulation or satellite accumulation areas.*

*In the Permittees' August 29, 2013, and June 1, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), the Permittees identified stains believed to be related to rusting equipment. The Permittees also identified two expansion joints and a steam condensate blow-down line drain for focused sampling.*

*During Ecology's 2018 walk down, Ecology noted the concrete pad at the front of the 277-T Building had several cracks (including through-thickness cracks), a seam along the concrete pad and building, and holes throughout including where metal poles used to be. The back concrete pad had a manhole penetrating the concrete, there was no curbing between the concrete pad and the building slab and the pad was sloped toward the building, and there were holes and pitting throughout. Stains that appeared to be rust were located around the rusted pipe locations, the manhole, and the blow-down drain line. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Outdoor Storage Area are summarized in the Fact Sheet, Section 4.1.2, Closure Actions for Closure Unit Group 28, 277-T OSA, and is included as an excerpt below:*

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2w018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain*

*if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As*

*such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Outdoor Storage Area provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T Outdoor Storage Area, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

## **Comment A-1-99**

### **22. Addendum Section: H.3.2 Operating Records Review and Visual Inspection**

Comment Text: Ecology and the Permittees performed an additional walkdown and inspection of the DWMU on 9 November of 2018. Ecology relocated the soil samples for the concrete expansion joints on the 277-T Building front concrete pad to the corners, and added two focused soil samples where each expansion joint meets up with the 277-T Building. Ecology added two focused soil samples to the front concrete pad, at points where remaining metal posts penetrate the concrete (Figure H-4). Ecology added three focused soil samples to the 277-T Building back concrete pad at the low end of the concrete pad, and at an existing manhole cover (Figure H-3).

Basis Text: If no dangerous or mixed waste related staining was identified during the visual inspection, and no releases identified during the records review, provide justification for the number and locations of samples under the concrete. Identify the release pathway for soil contamination.

Recommendation Text: Two expansion joints and a steam condensate blow-down line drain were identified for focused sampling of the underlying soil.

## ***Response to A-1-99***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors, including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*In addition to sampling locations identified based on the results of visual inspections and records reviews, focused sampling will be conducted wherever there is potential for a dangerous waste constituent to migrate as stated in Ecology Publication #94-111, Section 4.0:*

*"After wastes and waste residues are removed, facility owners/operators must visually inspect closing units to determine if releases at or from the closing unit may have occurred or might occur during decontamination. This must include identification of all cracks and other openings in the unit and unit containment structure through which waste, debris, or decontamination media (such as wash water) could be released to the environment. If cracks or other openings are found, facility owners/operators, generators, and transporters may be required to seal or repair the cracks or other openings to prevent releases prior to or during decontamination.*

*Facility owners/operators must maintain records of the locations and dimensions of all cracks or other openings identified during closure, because these areas are considered to have a higher potential for allowing releases of dangerous waste from the closing unit and may require more focused sampling and analysis. Records may be kept in the facility operating record or in the field notebook discussed in Section 7.10.1 of this guidance. Facility owners/operators must investigate and evaluate all cracks and other openings identified during closure to determine if releases of dangerous waste or dangerous waste constituents have occurred or may be occurring. Sampling of environmental media below these cracks or other openings may be required at Ecology's discretion.*

*When closure plans are required, the closure plan must fully describe procedures for inspecting all units prior to decontamination, identifying and recording releases and potential releases, and reporting such releases and potential releases to Ecology. "*

*The bases for Ecology's determination of the potential for dangerous waste or mixed waste residues to be present and to have migrated to soil underlying the 277-T Outdoor Storage Area DWMU's front and back concrete pads include:*

- Uncertainty about history of usage to manage dangerous and mixed wastes*
- Unsealed concrete*
- Sloped and jointed concrete*
- Structural penetrations through concrete*

Ecology determined nine focused soil samples are necessary to determine clean-closure at the 277-T Outdoor Storage Area DWMU's front and back concrete pads. The justification for these samples, as summarized in the Fact Sheet, is as follows:

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete pad where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

### **Comment A-1-100**

#### 23. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Ecology and the Permittees performed an additional walkdown and inspection of the DWMU on 9 November of 2018.

Basis Text: WAC 173-303-840(2)(e) states, "All draft permits must be accompanied by a fact sheet that is supported by administrative record and made available for public comment." The walkdown and inspection are part of the administrative record. Ecology should attach this information to the closure plan, making the information available for Permittee and public comments.

Recommendation Text: Provide all documentation from this inspection so the Permittees and the public can review and comment.

### ***Response to A-1-100***

*Thank you for your comment. WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the fact sheet to be supported by the administrative record. Ecology does not provide the administrative record for public review unless specifically requested.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this*

*inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

### **Comment A-1-101**

#### **24. Addendum Section: H.3.2 Operating Records Review and Visual Inspection**

Comment Text: Supporting documentation for the visual inspection is included in Attachment A, T Plant 277-T Outdoor Storage Area Visual Inspection Supporting Documentation.

Basis Text: There is no documentation in Attachment A for the 2018 inspection conducted by Ecology.

Recommendation Text: Provide documentation (notes, photos, etc.) from Ecology for this inspection.

#### ***Response to A-1-101***

*Thank you for your comment. The text: "Supporting documentation for the visual inspections is included in Attachment A, T Plant Complex 277-T Outdoor Storage Area Visual Inspection Supporting Documentation." should have been limited to reference the Permittees' visual inspections. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments. Ecology amended the text as follows, "Supporting documentation for the Permittees' visual inspections is included in Attachment A, T Plant 277-T Outdoor Storage Area Visual Inspection Supporting Documentation."*

### **Comment A-1-102**

#### **25. Addendum Section: H.3.3 Unit Components, Parts, and Ancillary Equipment**

Comment Text: The sampling locations will be sealed after sampling, and the 277-T Outdoor Storage Area will remain in place pending confirmation and acceptance of clean closure.

Basis Text: Provide the regulatory driver to seal the sampling locations. This should be at the discretion of the facility and not part of closure activities. Suggested language: Delete.

Recommendation Text: Delete this text. If Ecology does not delete the language, clarification is required to only apply to the concrete samples, not soil samples. Suggested language: The concrete sampling locations may be sealed after sampling at the discretion of the Permittees. The 277-T Outdoor Storage Area will remain in place pending..."

#### ***Response to A-1-102***

*Thank you for your comment. Ecology agrees that sealing locations after sampling should be at the discretion of the facility, pending confirmation and acceptance of clean closure, and deleted the text from Section H.3.3 Unit Components, Parts, and Ancillary Equipment. This language also appeared in Section H.3.11 Conditions that will be Achieved when Closure is Complete, and was deleted.*

### **Comment A-1-103**

#### 26. Addendum Section: H.3.4 Decontamination

Comment Text: Equipment used during decontamination and sampling will be decontaminated for re-use or disposed of and managed as newly generated waste in accordance with Section H.3.6.

Basis Text: Per WAC 173-303-610, only equipment containing or contaminated with dangerous wastes or waste residue require removal or decontamination. With the absent of contamination, decontamination of equipment is not necessary.

Recommended Text: Any equipment used to remove material contaminated with hazardous or mixed waste will be decontaminated in accordance with WAC 173-303-610. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible, and will be performed within the area where the closure activity has taken place. Solid waste debris generated by decontamination of equipment (e.g., rags and personal protective equipment) will be collected and disposed at an approved disposal facility. Dangerous waste generated will be managed in accordance with WAC 173-303, "Dangerous Waste Regulations." Contaminated equipment that cannot be decontaminated for re-use will be discarded and managed as dangerous waste in accordance with generator accumulation standards of WAC 173-303-170 and -200.

#### ***Response to A-1-103***

*Thank you for your comment. Ecology has amended the text to read: "Equipment that becomes contaminated during decontamination and sampling activities will be decontaminated for re-use or managed and disposed of as newly generated waste in accordance with Section H.3.6. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible. A temporary decontamination area may be established near the 277-T Outdoor Storage Area. This area will be constructed of Visqueen™ or equivalent material, and may be used for decontamination of sampling equipment, personal protective equipment, and other miscellaneous small equipment used during decontamination and sampling activities. When decontamination of equipment is completed, the Visqueen™ or equivalent materials, rinsate, and solid waste debris generated by equipment decontamination (e.g., rags and personal protective equipment) will be removed and managed as newly generated waste in accordance with Section H.3.6"*

### **Comment A-1-104**

#### 27. Addendum Section: H.3.4 Decontamination

Comment Text: A small temporary decontamination area (approximately 10 by 20 feet) may be established near the 277-T Outdoor Storage Area.

Basis Text: Providing approximate dimensions requires Permittees to establish that size of area when a smaller area may be effective. If the purpose is to limit the size of the decontamination area, provide a maximum size.

Recommendation Text: A small temporary decontamination area may be established near the 277-T Outdoor Storage Area.

***Response to A-1-104***

*Thank you for your comment. Ecology has amended the text to read, "A temporary decontamination area may be established near the 277-T Outdoor Storage Area."*

**Comment A-1-105**

28. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: The contaminated soil will be containerized, labeled, and sampled for waste characterization.

Basis Text: Basis Text: The soil has already been sampled and analyzed through the closure plan SAP. Provide the regulatory justification for requiring sampling of the soil for purposes of characterization. The soil can be characterized using the existing data.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized.

***Response to A-1-105***

*Thank you for your comment. Ecology agrees the data may be used for characterization, but only within the area of inference for that particular sample. Ecology has amended the text to read, "The contaminated soil will be containerized, labeled, and sampled as needed to designate for disposal of the entire volume of contaminated soil."*

**Comment A-1-106**

29. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil will be placed in U. S. Department of Transportation-compliant containers and sent to a RCRA permitted disposal facility or staged at CAAs in accordance with all applicable requirements of WAC 173-303-200, Conditions for exemption for a large quantity generator that accumulate dangerous waste.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized. Contaminated soil will be placed in U.S. Department of Transportation compliant containers and sent to an approved disposal facility or staged at a central accumulation area in accordance with standards in WAC 173-303-200, "Accumulating Dangerous Waste On-site." Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268, "Land Disposal Restrictions") will be characterized, designated, stored, or treated, as applicable, prior to disposal in an approved disposal facility.

### ***Response to A-1-106***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil will be placed in U.S. Department of Transportation-compliant containers and sent to an appropriate land disposal unit, possibly with central accumulation as an intermediary step, in accordance with all applicable requirements of WAC 173-303-200, Conditions for exemption for a large quantity generator that accumulates dangerous waste."*

### **Comment A-1-107**

#### 30. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil subject to the requirements of WAC 173-30-140, Land Disposal Restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268, Land Disposal Restriction) will be characterized, designated, and stored or treated, as applicable, prior to disposal in a RCRA permitted disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

### ***Response to A-1-107***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil subject to the requirements of WAC 173-303-140, Land disposal restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268 Land Disposal Restrictions) will be characterized, designated, and treated, as applicable, prior to disposal in an appropriate land disposal unit."*

### **Comment A-1-108**

#### 31. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Once waste characterization results are received, all waste will be designated and shipped to a RCRA permitted facility for treatment, storage, or disposal.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste based on characterization results, provide the regulatory driver for requiring disposal in a RCRA permitted disposal facility.

Recommendation Text: If any waste is identified as hazardous waste it must be properly disposed or decontaminated in accordance with WAC 173-303-610(5). All hazardous waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230.

***Response to A-1-108***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Once waste characterization results are received, all waste will be designated. The last sentence in the preceding paragraph, "The waste will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5)." was clarified as follows: "The waste will be managed as a newly generated waste stream and either disposed of or decontaminated in accordance with WAC 173-303-610(5)."*

**Comment A-1-109**

32. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268) then ultimately disposed in a RCRA permitted waste disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

***Response to A-1-109***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 Land disposal restrictions (which incorporates by reference 40 CFR 268), then ultimately disposed in an appropriate land disposal unit."*

**Comment A-1-110**

33. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: WAC 173-340-740(2), Table 740-I, Method A Soil Cleanup Levels for Unrestricted Land Uses (WAC 173-340-900), which includes closure performance standards for human health based on unrestricted land use.

Basis Text: Include the title of this WAC 173-340-900, Tables.

Recommendation Text: WAC 173-340-740(2), Table 740-I, Method A Soil Cleanup Levels for Unrestricted Land Uses (WAC 173-340-900, Tables), which includes closure performance standards for human health based on unrestricted land use.

***Response to A-1-110***

*Thank you for your comment. Ecology accepts the recommendation and has amended the text.*

**Comment A-1-111**

34. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: If target analytes are found above closure performance standards, then the contaminated soil will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3 to ensure the closure performance standards are met for the remaining soil. If failed constituents of concern do not meet closure performance standards after soil remediation, then Permittees will meet with Ecology to determine a path forward for closure.

Basis Text: Repetitive with Section H.4.4.3.1.

Recommendation Text: Replace with "Target analytes found above closure standards will be addressed as in Section H. 4.4.3.1."

***Response to A-1-111***

*Thank you for your comment. Ecology will retain the text for clarity between Section H.3.7, Closure Performance Standards for Soil and Section H.4.4.3, Sampling and Analysis Requirements to Address Removal of Contaminated Soil, Asphalt and Concrete.*

**Comment A-1-112**

35. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: The closure performance standard for concrete is treatment using a site-specific decontamination method as discussed in Section H.3.4, followed by confirmatory concrete chip sampling to ensure analytical results meet closure performance standards and that decontamination was successful.

Basis Text: There are no facts provided supporting the collection of chip samples as "necessary to achieve compliance with the Hazardous Waste Management Act." The records review and inspection showed no evidence of spills or leaks, thus the additional sampling provides no benefit. Closure performance standards must be supported by facts and a cogent explanation in the administrative record. Provide a reasonable basis based on the description of this facility for the need of chip sampling.

Recommendation Text: Provide documentation of the basis to support the necessity for chip sampling of the concrete.

***Response to A-1-112***

*Thank you for your comment. The Fact Sheet for this permit modification was not available on Ecology's public comment period webpage for the June 4 through July 24, 2020 public comment*

period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comment period webpage.

As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standard of WAC 173-303-610(2)(a)(ii), in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Outdoor Storage Area provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in*

*the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T OSA, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-113**

#### 36. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: The viable exposure pathways considered for concrete are the same as for soil (Section H.3.7)

Basis Text: The exposure pathway for soil protective of groundwater assumes that water or rainwater on a surface has an avenue to percolate through the surface and underlying soil to groundwater.

Basis Text: Soil levels protective of groundwater is identified in the closure plan as a complete pathway. However, as evidence by the visual inspections, there are no cracks or breaches in the concrete surface significant enough to allow for contamination to percolate through to the soil and into the groundwater. Provide documentation of the avenue for percolation in Attachment A for visual inspections.

Recommendation Text: Provide documentation of the avenue for percolation through the concrete to the soil.

### ***Response to A-1-113***

*Thank you for your comment. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these*

*qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points*

*(including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Outdoor Storage Area concrete pads and asphalt were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Outdoor Storage Area concrete pads and asphalt remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In the Permittees June 1, 2015 inspection, (Part V, Closing Unit Group 28, 277-T Outdoor Storage Area Addendum H, Closure Plan, Attachment A), the Permittees identified at two focused sampling locations at expansion joints, and one focused sampling location at the steam condensate blow-down line drain.*

*During Ecology's 2018 walk down, Ecology noted the concrete pad at the front of the 277-T Building had several cracks (including through-thickness cracks), a seam along the concrete pad and building, and holes throughout including where metal poles used to be. The back concrete pad had a manhole penetrating the concrete, there was no curbing between the concrete pad and the building slab and the pad was sloped toward the building, and there were holes and pitting throughout. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 277-T Outdoor Storage Area are included in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T OSA, and is included as an excerpt below:*

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas*

*where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete pad where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

#### **Comment A-1-114**

##### 37. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: Concrete chip sampling and analysis will be conducted in accordance with the closure plan SAP located in Section H.4.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

#### ***Response to A-1-114***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's Guidance for Clean Closure of Dangerous Waste Units and Facilities Pub. 94-111:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

#### **Comment A-1-115**

##### 38. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: Analytical results of concrete chip samples will be individually compared to the soil closure performance standards consistent with closure requirements.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

***Response to A-1-115***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's Guidance for Clean Closure of Dangerous Waste Units and Facilities Pub. 94-111:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

**Comment A-1-116**

39. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H4.4.3.

Basis Text: The closure plan does not provide activities detailing what is required for remediation of the concrete.

Recommendation Text: Provide text indicating acceptable remediation for clean closure.

***Response to A-1-116***

*Thank you for your comment. Ecology agrees text was not provided indicting what steps are to be taken when concrete closure performance standards are not achieved. The following text has been included in Section H.3.6:*

*" Contaminated concrete removal is not anticipated (see Section H.3.2). However, if contamination above closure performance standards is identified, the following options may be used:*

- Re-decontaminate using high pressure steam or water sprays, followed by confirmatory concrete chip sampling to demonstrate re-decontamination was successful.*
- Investigate the nature and extent of contamination. Remediate the concrete within the identified area of contamination by removing the affected concrete, followed by resampling to confirm contamination has been removed.*

- *Submit a permit modification request to treat concrete using one of the physical extraction methods, in accordance with 40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris in Table 1."*

### **Comment A-1-117**

#### 40. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H4.4.3.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

### ***Response to A-1-117***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's Guidance for Clean Closure of Dangerous Waste Units and Facilities Pub. 94-111:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-118**

#### 41. Addendum Section: Table H-4 Closure Performance Standards for Soil and Concrete and Analytical Performance Requirements

Comment Text: Table H-4 Barium Groundwater Protection

Basis Text: Soil levels protective of groundwater is identified in the closure plan as a complete pathway. However, as evidenced by the visual inspections, there are no cracks or breaches in the concrete surface significant enough to allow for contamination to percolate through to the soil and into the groundwater.

Recommendation Text: Provide documentation of the avenue for percolation in Attachment A for visual inspections.

### ***Response to A-1-118***

*Thank you for your comment. WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the fact sheet to be supported by the administrative record. The Fact Sheet for this permit modification was not available on Ecology's*

*public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening the public comment period from September 21 through November 4, 2020. Ecology does not provide the administrative record for public review unless specifically requested. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*In 2013, the Permittees originally proposed twenty statistical gravel/soil samples and concrete chip/core samples. In 2018, the Permittees proposed two soil samples at the NE (front) concrete pad expansion joints to verify that clean closure standards are met for soils underlying the concrete pads. Ecology added four additional samples for the NE (front) concrete pad and three samples for the SW (back) concrete pad, for a total of nine focused soil samples. The bases for the sampling locations for the 277-T Outdoor Storage Area are summarized in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T OSA as follows:*

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete pad where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

### **Comment A-1-119**

#### **42. Addendum Section: H.3.8 Closure Performance Standards for Concrete**

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the

composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

### ***Response to A-1-119***

*Thank you for your comment. Thank you for your comment. Ecology believes that this comment is a duplicate of 277-T Outdoor Storage Area Closure Unit 28, Comment 40. Our response to Comment 40 is:*

*The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's Guidance for Clean Closure of Dangerous Waste Units and Facilities Pub. 94-111:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-120**

#### 43. Addendum Section: Table H-4 Closure Performance Standards for Soil and Concrete and Analytical Performance Requirements

Comment Text: Table H-4 Tetrahydrofuran 1.00E+1

Basis Text: For tetrahydrofuran, Permittees agree with the value of 3.00E+01 mg/kg for groundwater protection. The PQL should be 5.00E-02 mg/kg.

Recommendation Text: Update Table H-4 with PQL of 5.00E-02 mg/kg and groundwater protection with 3.00E+01 mg/kg

### ***Response to A-1-120***

*Thank you for your comment. Ecology accepts the recommendation and has amended the tetrahydrofuran PQL to read "5.00E-02" mg/kg in Table H-4 Closure Performance Standards for Soil and Analytical Performance Requirements.*

### **Comment A-1-121**

#### 44. Addendum Section: Table H-4 Closure Performance Standards for Soil and Concrete and Analytical Performance Requirements

Comment Text: Table H-4 MEK peroxide<sup>i</sup>, Acetyl chloride<sup>i</sup>, and Phosphorus pentasulfide<sup>i</sup>

Basis Text: Acetyl chloride, MEK peroxide, and phosphorus pentasulfide are addressed in footnote j. These appears to reference footnote i.

Recommendation Text: Change superscripts to footnote j.

### ***Response to A-1-121***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

### **Comment A-1-122**

#### 45. Addendum Section: H.4 Sampling and Analysis Plan

Comment Text: Sampling includes 10 focused soil samples, 9 grid (non-statistical) concrete chip samples, and 21 grid (area-wide) soil samples (Figures H-7).

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

No evidence was provided in the closure plan for the addition of the focused and non-statistical grid samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of additional focused and non-statistical grid samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-122***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples*

*of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Outdoor Storage Area concrete pads and asphalt were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Outdoor Storage Area concrete pads and asphalt remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Overall, there was very little information regarding waste stored at the 277-T Outdoor Storage Area. The records summary indicated waste may have been managed in central accumulation or satellite accumulation areas.*

*In the Permittees' August 29, 2013, and June 1, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), the Permittees identified stains believed to be related to rusting equipment. The Permittees also identified two expansion joints and a steam condensate blow-down line drain for focused sampling.*

*During Ecology's 2018 walk down, Ecology noted the concrete pad at the front of the 277-T Building had several cracks (including through-thickness cracks), a seam along the concrete pad and building, and holes throughout including where metal poles used to be. The back concrete pad had a manhole penetrating the concrete, there was no curbing between the concrete pad and the building slab and the pad was sloped toward the building, and there were holes and pitting throughout. Stains that appeared to be rust were located around the rusted pipe locations, the manhole, and the blow-down drain line. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Outdoor Storage Area are summarized in the Fact Sheet, Section 4.1.2, Closure Actions for Closure Unit Group 28, 277-T OSA, and is included as an excerpt below:*

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2w018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas*

*where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject ...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer*

*before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Outdoor Storage Area provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T Outdoor Storage Area, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-123**

#### **46. Addendum Section: H.4.3.3 Sampling Documents and Records**

Comment Text: Records may be stored in either electronic or hard copy format. Documentation and records, regardless of medium or format, are controlled in accordance with internal work requirements and processes to ensure the accuracy and retrieveability of stored records. Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Federal Facility Agreement and Consent Order) will be managed in accordance with the requirements therein.

Basis Text: This replicates language in Section H.1.4.4.

Recommendation Text: Replace language with reference to Section H.1.4.4.

### ***Response to A-1-123***

*Thank you for your comment. Ecology deleted the redundant text in Section H.4.3.3. Also, in Section H.1.4.4. the sentence "Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Facility Agreement and Consent Order) will be managed in accordance with the requirements therein." was deleted and replaced with "Records generated during closure will be maintained in the operating record in accordance with Permit Condition II.I." Records related to this closure plan must be retained in the facility operating record in accordance with Permit Condition II.I.*

### **Comment A-1-124**

#### 47. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.

Basis Text: Based on the records review and visual inspection, there are no evidence of leaks or spills in 277-T OSA therefore focused sampling is not appropriate.

Recommendation Text: Delete text.

### ***Response to A-1-124***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Outdoor Storage Area concrete pads and asphalt were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Outdoor Storage Area concrete pads and asphalt remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Overall, there was very little information regarding waste stored at the 277-T Outdoor Storage Area. The records summary indicated waste may have been managed in central accumulation or satellite accumulation areas.*

*In the Permittees' August 29, 2013, and June 1, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), the Permittees identified stains believed to be related to rusting equipment. The Permittees also identified two expansion joints and a steam condensate blow-down line drain for focused sampling.*

*During Ecology's 2018 walk down, Ecology noted the concrete pad at the front of the 277-T Building had several cracks (including through-thickness cracks), a seam along the concrete pad and building, and holes throughout including where metal poles used to be. The back concrete pad had a manhole penetrating the concrete, there was no curbing between the concrete pad and the building slab and the pad was sloped toward the building, and there were holes and pitting throughout. Stains that appeared to be rust were located around the rusted pipe locations, the manhole, and the blow-down drain line. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Outdoor Storage Area are summarized in the Fact Sheet, Section 4.1.2, Closure Actions for Closure Unit Group 28, 277-T OSA, and is included as an excerpt below:*

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2w018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Outdoor Storage Area provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T Outdoor Storage Area, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

#### **Comment A-1-125**

##### **48. Addendum Section: H.4.4.1 Sampling Process Design**

Comment Text: Per the visual inspections (Section H.3.2) and additional professional judgement, nine focused soil sample locations are identified for both concrete pads (six for the concrete pad located at the front of the 277-T Building, and three for the concrete pad located at the back of the 277-T Building).

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

No evidence was provided in the closure plan for the addition of the focused and non-statistical grid samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of additional focused and non-statistical grid samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-125***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 277-T Outdoor Storage Area concrete pads and asphalt were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Outdoor Storage Area concrete pads and asphalt remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Overall, there was very little information regarding waste stored at the 277-T Outdoor Storage Area. The records summary indicated waste may have been managed in central accumulation or satellite accumulation areas.*

*In the Permittees' August 29, 2013, and June 1, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), the Permittees identified stains*

*believed to be related to rusting equipment. The Permittees also identified two expansion joints and a steam condensate blow-down line drain for focused sampling.*

*During Ecology's 2018 walk down, Ecology noted the concrete pad at the front of the 277-T Building had several cracks (including through-thickness cracks), a seam along the concrete pad and building, and holes throughout including where metal poles used to be. The back concrete pad had a manhole penetrating the concrete, there was no curbing between the concrete pad and the building slab and the pad was sloped toward the building, and there were holes and pitting throughout. Stains that appeared to be rust were located around the rusted pipe locations, the manhole, and the blow-down drain line. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 277-T Outdoor Storage Area are summarized in the Fact Sheet, Section 4.1.2, Closure Actions for Closure Unit Group 28, 277-T OSA, and is included as an excerpt below:*

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip*

sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Outdoor Storage Area provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T Outdoor Storage Area, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-*

*specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-126**

#### 49. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: For the blow-down line drain, any waste from the 277-T Building DWMU (Closing Unit Group 28) sump would have drained through this line, which is in direct contact with the soil. Therefore, these locations were identified for focused soil sampling.

Basis Text: This is not correct. Waste from the building would have drained into the sump and out to the crib through the WIDS pipeline identified in the 277-T Building closure plan. This is a steam condensate blow-down line. No waste would have ever gone through this line.

Recommendation Text: Delete text.

### ***Response to A-1-126***

*Thank you for your comment. The focused soil sample location at the blow-down line drain was proposed by the Permittees in the 277-T Outdoor Storage Area closure plan submitted on November 6, 2018 (19-AMRP-0021). Ecology affirmed the blow-down line drain focused soil sample location during a walk down on November 11, 2018. However, we agree we have misstated the path waste from the 277-T Building took through the blow-down drain line located on the exterior of the 277-T Building. Ecology has amended the text to read, "The blow-down line carried steam condensate from the 277-T Building steam heating system and discharged the condensate at the gravel drain. The drain terminates to soil. Therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-127**

#### 50. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: As an evaluation criteria, concrete chip sampling results will be directly compared to the closure performance standards for soil (Section H.3.7).

Basis Text: Values listed in CLARC tables are for soil. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document values in Table H-4 of Addendum H.

### ***Response to A-1-127***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-128**

#### 51. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Concrete chip samples are collected at regularly-spaced intervals over an area.

Basis Text: This statement is contradictory. Samples are either focused (judgmental) or grid (area). Focused are non-statistical and do not need to be randomized. The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of collecting random chip samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-128***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of sampling that contamination is not present [173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*As stated in Attachment B of the 277-T Outdoor Storage Area Addendum H Closure Plan:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure*

*unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Outdoor Storage Area provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T Outdoor Storage Area, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

*Overall, there was very little information regarding waste stored at the 277-T Outdoor Storage Area. The records summary indicated waste may have been managed in central accumulation or satellite accumulation areas.*

*In the Permittees' August 29, 2013, and June 1, 2015 inspection, (Part V, Closing Unit Group 27, 277-T Building Addendum H, Closure Plan, Attachment A), the Permittees identified stains believed to be related to rusting equipment. The Permittees also identified two expansion joints and a steam condensate blow-down line drain for focused sampling.*

*During Ecology's 2018 walk down, Ecology noted the concrete pad at the front of the 277-T Building had several cracks (including through-thickness cracks), a seam along the concrete pad and building, and holes throughout including where metal poles used to be. The back concrete pad had a manhole penetrating the concrete, there was no curbing between the concrete pad and the building slab and the pad was sloped toward the building, and there were holes and pitting throughout. Stains that appeared to be rust were located around the rusted pipe locations, the manhole, and the blow-down drain line. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

The bases for sampling locations at the 277-T Outdoor Storage Area are summarized in the Fact Sheet, Section 4.1.2, Closure Actions for Closure Unit Group 28, 277-T OSA, and is included as an excerpt below:

*"Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology's professional judgement and Ecology's walk down on November 11, 2w018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.*

*Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present."*

### **Comment A-1-129**

#### 52. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Professional judgement determined that nine chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-7).

Basis Text: The basis for requiring nine samples is not provided as support for the professional judgement.

Recommendation Text: Provide the basis for the professional judgement determining the number of samples.

### ***Response to A-1-129***

*Thank you for your comment. WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the fact sheet to be supported by the administrative record. Ecology does not provide the administrative record for public review unless specifically requested.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The basis for the referenced text in Addendum H, Section H.4.4.1, "Professional judgement determined that nine chip samples would provide sufficient coverage*

to demonstrate successful decontamination (Figure H-7)." is supported by the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T OSA, as follows:

*"Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

*Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

### **Comment A-1-130**

#### **53. Addendum Section: H.4.4.2 Sampling Methods and Handling**

Comment Text: The sampling device will be laboratory cleaned and wrapped in a clean, autoclaved aluminum foil until ready for use.

Basis Text: Sampling devices do not have to be sterile to collect a representative sample. This does not allow for the use of disposable and properly decontaminated devices.

Recommendation Text: Delete text

### ***Response to A-1-130***

*Thank you for your comment. As stated in the Comment Text, the sampling device is not autoclaved, but the aluminum foil, which is a reusable resource, is both cleaned and autoclaved. Ecology agrees that the text precludes the Permittees' use of disposable and field-decontaminated sampling devices and has amended Section H.4.4.2 to read, "Sampling devices will be disposable, or either laboratory cleaned or field-decontaminated and kept wrapped until ready for use."*

### **Comment A-1-131**

#### **54. Addendum Section: H.4.4.2 Sampling Methods and Handling**

Comment Text: Donning a new pair of disposable gloves, the concrete surface will be broken and sampled.

Basis Text: The PPE required to perform a specific task is developed based on multiple factors including safety of the worker. Listing specific PPE may interfere with the safety of the worker based on the hazards present.

Recommendation Text: Individuals will don appropriate PPE prior to breaking and sampling the concrete surface..

***Response to A-1-131***

*Thank you for your comment. Ecology accepts the recommendation and has amended the text to read, "Individuals will don appropriate personal protective equipment when breaking and/or sampling the concrete surface."*

**Comment A-1-132**

55. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: An effort will be made to avoid scattering pieces out of the sampling boundary area.

Basis Text: Sampling boundary area is not defined.

Recommendation Text: Define sampling boundary area

***Response to A-1-132***

*Thank you for your comment. Permittees should consult the analytical laboratory for adequate sample volume in order to define a sampling boundary area that will provide the required chip volume. The sampling area boundaries will be documented as described in Section H.5.1.1 Confirmation of Site-Specific Decontamination.*

*Ecology has amended the third bullet in Section H.4.4.2 to read: "Field walk down of sample area (includes locating and marking sample locations and sample boundary areas)."*

**Comment A-1-133**

56. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Any pieces that fall outside the sampling area will not be used.

Basis Text: Sampling boundary area is not defined.

Recommendation Text: Define sampling boundary area.

***Response to A-1-133***

*Thank you for your comment. Permittees should consult the analytical laboratory for adequate sample volume in order to define a sampling boundary area that will provide the required chip volume. The sampling area boundaries will be documented as described in Section H.5.1.1 Confirmation of Site-Specific Decontamination.*

*Ecology has amended the third bullet in Section H.4.4.2 to read: "Field walk down of sample area (includes locating and marking sample locations and sample boundary areas)."*

## **Comment A-1-134**

### 57. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Chipped pieces will be collected using a dedicated, decontaminated dustpan and natural bristle brush and transferred directly into the sampling bottle.

Basis Text: This detail may conflict with proceduralized sample collection processes and equipment. This level of detail is not necessary.

Recommendation Text: Delete text.

### ***Response to A-1-134***

*Thank you for your comment. The detail included is necessary to ensure collected samples are not contaminated, and was obtained from the Department of Defense Environmental Field Sampling Handbook Revision 1.0, April 2013 (277-T Outdoor Storage Area, Addendum H, Closure Plan, Section H.8, References). This level of detail is consistent with the Bonneville Power Administration – Ross Complex Washington State dangerous waste permit (WA1891406349). Prior to initiating closure activities, if sampling collection procedures differ from the requirements in this closure plan, the Permittees may submit a permit modification request to modify the closure plan with the updated information.*

## **Comment A-1-135**

### 58. Addendum Section: H.4.4.3.2 Resolving Contamination Identified During Focused Soil Sampling and Grid (Non-Statistical) Concrete Chip Sampling

Comment Text: If focused soil or concrete chip sample results based on direct comparison (Section H.4.4.1) indicate contamination above closure performance standards, then sample location(s) will be remediated to removed contaminated soil or concrete.

Basis Text: Details for remediation of contaminated soil are presented in Section H.3.5, however details of concrete surface remediation are not provided.

Recommendation Text: Provide details on remediation of concrete.

### ***Response to A-1-135***

*Thank you for your comment. Ecology agrees text was not provided indicating what steps are to be taken when concrete closure performance standards are not achieved. The following text was included in Section H.3.6:*

*"Contaminated concrete removal is not anticipated. However, if contamination above closure performance standards is identified, the following options may be used:*

- Re-decontaminate using high pressure steam or water sprays, followed by confirmatory concrete chip sampling to demonstrate re-decontamination was successful.*
- Investigate the nature and extent of contamination. Remediate the concrete within the identified area of contamination by removing the affected concrete, followed by resampling to confirm contamination has been removed.*

- *Submit a permit modification request to treat concrete using one of the physical extraction methods, in accordance with 40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris in Table 1."*

### **Comment A-1-136**

#### 59. Addendum Section: H.4.6 Revisions to the Sampling and Analysis Plan and Constituents to be Analyzed

Comment Text: Changes to the SAP may be necessary due to unexpected events during closure. An unexpected event would be an event outside the scope of the SAP or a condition that inhibits implementation of the SAP as written. Revisions to the SAP will be submitted no later than 30 days after the unexpected event as a permit modification request.

Basis Text: Approval of a permit modification will likely adversely affect meeting the 180-day closure period.

Recommendation Text: Provide clarification on whether the permit modification request approval is required to continue with closure activities or if activities can continue uninterrupted after the unexpected event occurs.

### ***Response to A-1-136***

*Thank you for your comment. Ecology disagrees with the recommendation, and is retaining the existing text. Due to the nature of unexpected events, (that is, they are unexpected), Ecology cannot determine at this point in time whether or not closure activities may continue uninterrupted. Ecology understands that permit modifications, especially those caused by unexpected events, may adversely affect meeting the 180-day closure period and have specifically addressed this circumstance in Section H.6, Closure Schedule and Time Frame. Specifically:*

*"Should an unexpected event occur and an extension to the 180 day closure activity expiration date be deemed necessary, a permit modification request will be submitted to Ecology for approval at least 30 days prior to the expiration of the 180 days. [WAC 173 303 610(4)(c)]*

*The permit modification request will include the statement that closure activities, will of necessity, take longer than 180 days to complete, including the supporting basis for the statement. The permit modification request will also include necessary information demonstrating that all steps to prevent threats to HHE have been and will continue to be taken, including compliance with all applicable permit requirements. [WAC 173 303 610(4)(b)]"*

### **Comment A-1-137**

#### 60. Addendum Section: H.5.1 Confirmation of Clean Closure

Comment Text: The 277-T Outdoor Storage Area will be clean closed through confirmation of successful decontamination determined by chip sampling of the concrete surfaces, and through sampling of soil beneath asphalt and concrete.

Basis Text: Values listed in CLARC tables are for soil. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document values in Table H-5 of Addendum H.

***Response to A-1-137***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

**Comment A-1-138**

61. Addendum Section: H.5.3 Closure Certification

Comment Text: Within 60 days of completion of closure of the 277-T OSA DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail.

Basis Text: Suggest "closure activities". Closure is not complete until Ecology acknowledges the clean closure certification. Also, include language consistent with regulations for delivery of closure certification means.

Recommendation Text: Within 60 days of completion of closure activities of the 277-T OSA DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means).

***Response to A-1-138***

*Thank you for your comment. The comment text is consistent with WAC 173-303-610(6) and will not be amended beyond the inclusion of a reference to other acceptable means of submittal. Ecology amended the text to read, "Within 60 days of completion of closure of the 277-T Outdoor Storage Area DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means)."*

**Comment A-1-139**

62. Addendum Section: Table H-8 277-T Outdoor Storage Area Dangerous Waste Management Unit Closure Schedule

Comment Text: 180 days

Basis Text: Per the WAC 173-303-610 requirement, the total duration of closure activities is limited to 180 days. The 180 day duration of this activity indicates closure will take 360 days. I

Recommendation Text: Delete Activity.

### ***Response to A-1-139***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the schedule item summarizing closure activities, as this item made the duration of closure appear to take 360 days vs. the actual duration of 180 days.*

### **Comment A-1-140**

63. Addendum Section: Table H-8 277-T Outdoor Storage Area Dangerous Waste Management Unit Closure Schedule

### ***Response to A-1-140***

*Thank you for your comment. Ecology would have responded if a comment had been provided.*

### **Comment A-1-141**

64. Addendum Section: H.8 References

Comment Text: (Dangerous Waste Permit Application Part A Form, Closure Unit 19, Hexone Storage & Treatment Facility, Revision 7, October 1)

Basis Text: This appears to be an incorrect reference.

Recommendation Text: Provide appropriate reference.

### ***Response to A-1-141***

*Thank you for your comment. Ecology agrees this is an incorrect reference, and has updated it with the following: "21-NWP-033, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967" (letter to Brian T. Vance, DOE-RL/ORP and Scott Sax, CPCCo, from Stephanie Schleif), Nuclear Waste Program, Ecology, Richland, Washington, March 15. Available at: <https://pdw.hanford.gov/document/AR-10235>*

### **Comment A-1-142**

65. Addendum Section: H.8 References

Comment Text: WAC 173-340, Model Toxics Control Act- Cleanup, Washington Administrative Code, Olympia, Washington.

Basis Text: Add WAC 173-340-900. It was referenced in section H.3.7.

Recommendation Text: Add reference to WAC 173-340-0900 to Section H.8.

### ***Response to A-1-142***

*Thank you for your comment. Ecology accepts the recommendation and added the reference.*

### **Comment A-1-143**

66. Addendum Section: Attachment B T Plant 277-T Outdoor Storage Area Visual Sample Plan Supporting Documentation

Comment Text: Table: Summary of Sampling Design User specified number of Samples

Basis Text: Provide justification for 4 samples. If this is for judgmental (focused) samples, then the randomization of the locations is unnecessary. If it is statistically based, then provide VSP input.

Recommendation Text: Provide justification and additional details to support the determination of the number of samples.

### ***Response to A-1-143***

*Thank you for your comment. As stated in the 277-T Outdoor Storage Area, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification, which included justification for each sample location, was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comment period webpage.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 277-T Outdoor Storage Area provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.2 Closure Actions for Closure Unit Group 28, 277-T Outdoor Storage Area, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

## **CLOSURE UNIT GROUP 29, 271-T CAGE**

### **Comment A-1-144**

#### **1. Addendum Section: Unit 29 271-T Cage Permit Conditions**

Comment Text: The 271-T Cage managed dangerous and mixed waste as a less-than-90 day storage area or satellite accumulation area.

Basis Text: less-than-90 day area is an outdated term

Recommendation Text: The 271-T Cage managed dangerous and mixed waste as a central accumulation area or a satellite accumulation area.

***Response to A-1-144***

*Thank you for your comment. Ecology has amended the Part V, Closure Unit 29, Conditions, 271-T Cage Unit Description to align more closely with the use of 271-T Cage as described in Addendum H, Closure Plan, Section H.1.1 Unit Description. The subject text now reads, "The 271-T Cage managed dangerous and mixed waste as a central accumulation area or a satellite accumulation area."*

**Comment A-1-145**

2. Addendum Section: Unit 29 271-T Cage Permit Conditions

Comment Text: Addenda H

Basis Text: Erroneous use of the plural form of Addendum.

Recommendation Text: Change "Addenda" to "Addendum".

***Response to A-1-145***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

**Comment A-1-146**

3. Addendum Section: Unit 29 271-T Cage Permit Conditions

Comment Text: The Permittee will notify the Department of Ecology (Ecology) within 24 hours of any deviations from the approved Addendum H, "Closure Plan."

Basis Text: This permit condition lacks regulatory basis and is contradictory to Permit Condition II.K.6 which states:

"Deviations from a TSD unit closure plan required by unforeseen circumstances encountered during closure activities, which do not impact the overall closure strategy, but provide equivalent results, shall be documented in the TSD unit-specific Operating Record and made available to Ecology upon request, or during the course of an inspection."

While field sampling plans are designed to be able to be implemented as written, field conditions arise that may require minor deviation. These circumstances are addressed in permit condition II.K.6.

Recommendation Text: Minor deviations from this closure plan must be addressed in accordance with Permit Condition II.K.6.

***Response to A-1-146***

*Thank you for your comment. Ecology disagrees Permit Condition II.K.6 lacks a regulatory basis or is contradictory to the unit-specific permit condition. Permit Condition II.K.6 requires documentation of closure plan deviations be provided to Ecology upon request. Ecology is requesting documentation of any closure plan deviations via Permit Condition V.29.B.2. Most*

*importantly, Ecology notes the term "minor deviations" used in Permit Condition II.K.6 could be interpreted differently by the Permittees and Ecology in this context. Therefore, Ecology is requiring notification in order for Ecology and the Permittees to review the deviation to determine if it will affect the ability to meet final acceptance of closure. If Ecology determines the deviation will affect the ability to meet final acceptance of closure, Ecology will require the Permittees to submit a permit modification request to modify the closure plan in accordance with WAC 173-303-610(3)(b)(iv). Ecology also notes Permit Condition II.J.3 requires changes to the approved closure plan be submitted to Ecology as a permit modification request, which is consistent with WAC 173-303-610(3)(b)(ii).*

*In addition, even if this unit-specific permit condition were contradictory with Permit Condition II.K.6, the language of a unit-specific condition prevails when in conflict with the Hanford Facility Part I-Standard and/or Part II-General Facility Conditions. This is clearly stated in the first unit-specific permit condition for the 271-T Cage, Part V, Closure Unit Group 29:*

*"V.29.A COMPLIANCE WITH PERMIT CONDITIONS*

*The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act Permit (Permit) as specified in Permit Attachment 9, Permit Applicability Matrix, including all approved modifications. All addenda, subsections, figures, tables, and appendices included in the following Unit-Specific Permit Conditions are enforceable in their entirety. In the event that the Part V, Unit-Conditions for Closure Unit 29, 271-T Cage conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit conditions will prevail for Closure Unit 29, 271-T Cage."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020. The bases for this closure unit group's permit conditions are summarized in the Fact Sheet, Section 4.2. As stated in the Fact Sheet:*

*"4.2 Basis for Closure Unit Group Permit Conditions*

*The following are permit conditions for Closure Unit Groups 27, 29 and 39:*

*Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, Permit Applicability Matrix, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.*

*Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.*

*Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within 24 hours of any deviations from the approved closure plan. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure."*

*Please note, permit condition numbers noted in the Fact Sheet were incorrect. For Closure Unit Group 29, 271-T Cage, permit condition numbers are: V.29.A, V.29.B.1, and V.29.B.2.*

### **Comment A-1-147**

#### 4. Addendum Section: Unit 29 271-T Cage Permit Conditions

Comment Text: The Permittees will notify Ecology in advance of conducting decontamination in the Addendum H, "Closure Plan," that will take place following removal of stored equipment, in order for Ecology to conduct a final visual inspection.

Basis Text: This requirement is too restrictive. The Permittees only have a limited number of days to do this inspection before it starts to impact the schedule for closure.

Recommendation Text: The Permittees will notify Ecology at least five (5) working days before the scheduled inspection.

#### ***Response to A-1-147***

*Thank you for your comment. Ecology accepts the recommendation and amended Closure Unit Group 29 Permit Condition V.29.B.3 to read, "The Permittees will notify Ecology at least five (5) working days prior to conducting the visual inspection required by Section H.3.4 of Addendum H, "Closure Plan," that will take place following removal of stored equipment in order for Ecology to conduct a final inspection."*

### **Comment A-1-148**

#### 5. Addendum Section: Unit 29 271-T Cage Permit Conditions

Comment Text: For Statistical Grid Sampling

Basis Text: There is no statistical grid sampling in the cage. All grid sampling is directly compared to the closure performance standards.

Recommendation Text: Delete permit condition V.29.B.4.a since only non-statistically grid sampling is part of the closure plan.

#### ***Response to A-1-148***

*Thank you for your comment. Ecology accepts the recommendation and removed the permit condition.*

### **Comment A-1-149**

#### 6. Addendum Section: Unit 29 271-T Cage Permit Conditions

Comment Text: Within sixty days of completion of closure for the 271-T Cage, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 271-T Cage has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610 (6)].

Basis Text: The IQRPE certification is submitted after closure activities are complete but as part of the overall closure process. Suggest specifying the IQRPE certification is submitted after closure activities are complete.

Recommendation Text: Within sixty days of completion of closure activities for the 271-T Cage, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 271-T Cage has been

closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610(6)].

***Response to A-1-149***

*Thank you for your comment. The 271-T Cage Permit Condition V.29.B.5 language is consistent with WAC 173-303-610(6), Certification of closure, and will not be changed.*

**Comment A-1-150**

7. Addendum Section: Table of Contents

Comment Text: Table of Contents

Basis Text: Page numbers are missing the H-..

Recommendation Text: Suggest reformatting TOC for consistency with page numbering throughout document.

***Response to A-1-150***

*Thank you for your comment. The page numbering aligns with permit formatting*

**Comment A-1-151**

8. Addendum Section: Terms

Comment Text: Terms

Basis Text: HWMA and RCW are not included in table. See first paragraph in Intro. BCSO is not defined in this plan.

Recommendation Text: Add HMWA, RCW and remove BCSO to terms table.

***Response to A-1-151***

*Thank you for your comment. Ecology has amended "Terms" to include HWMA - Hazardous Waste Management Act, RCW- Revised Code Washington, and to exclude BCSO - Benton County Sheriff's Office.*

**Comment A-1-152**

9. Addendum Section: H.1 Introduction

Comment Text: The purpose of this plan is to describe the Resource Conservation and Recovery Act (RCRA)/Hazardous Waste Management Act (HWMA), Chapter 70.105 Revised Code of Washington (RCW) closure process for the 271-T Cage Dangerous Waste Management Unit (DWMU), hereinafter called the 271-T Cage.

Basis Text: Should be defined as "Resource Conservation and Recovery Act of 1976."

Recommendation Text: The purpose of this plan is to describe the closure process for the 271-T Cage Dangerous Waste Management Unit (DWMU), hereinafter termed the "271-T Cage," as required by and in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) and Washington's Hazardous Waste Management Act (HWMA).

### ***Response to A-1-152***

*Thank you for your comment. Ecology agrees that "RCRA" should be defined as "Resource Conservation and Recovery Act of 1976" and had amended the text to reflect the correct definition.*

### **Comment A-1-153**

#### 10. Addendum Section: H.1 Introduction

Comment Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), and WAC 173-303-630(10).

Basis Text: Should define WAC 173-303-610 and WA 173-303-630 the first time they are used. - 610 is "Closure and Post-Closure;" and -630, "Use and Management of Containers."

Recommendation Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-3003-610(6), *Closure and Post-Closure*, and in WAC 173-303-630(10), *Use and Management of Containers*.

### ***Response to A-1-153***

*Thank you for your comment. Ecology accepts the recommendation and amended the text to read, "This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), Closure and Post-Closure, and WAC 173-303-630(10), Use and Management of Containers."*

### **Comment A-1-154**

#### 11. Addendum Section: H.1 Introduction

Comment Text: Addendum H.7

Basis Text: Page numbering should re-start at H.1.

Recommendation Text: Renumber pages beginning with H.1.

### ***Response to A-1-154***

*Thank you for your comment. The page numbering aligns with permit formatting.*

### **Comment A-1-155**

#### 12. Addendum Section: Figure H-1 T Plant Complex Overview, 271-T Cage Dangerous Waste Management Unit

Comment Text: Figure H-1 T Plant Complex Overview, 271-T Cage Dangerous Waste Management Unit

Basis Text: Image should be dated.

Recommendation Text: Provide date for Figure H-1.

***Response to A-1-155***

*Thank you for your comment. Ecology accepts the recommendation and included the date "Month Unknown, 2017".*

**Comment A-1-156**

13. Addendum Section: Table H-1 Training Matrix for the 2401-W Building Dangerous Waste Management Unit

Comment Text: The "X" in the FS column for the Building Emergency Training Category Course Description.

Basis Text: This "X" is in error. There is no requirement for Building Emergency training for the Field Sampler.

Recommendation Text: Remove the "X" for the FS column for Building Emergency Training Category Course Description.

***Response to A-1-156***

*Thank you for your comment. Ecology agrees with the recommendation text and deleted the "X" from Training Category Course Description: Building Emergency, under the Field Sampler (FS) column.*

**Comment A-1-157**

14. Addendum Section: Table H-1 Training Matrix for the 271-T Cage Dangerous Waste Management Unit

Comment Text: Table H-1, superscript c. This training is required only if workers are unescorted in the facility.

Basis Text: There is no c superscript in Table H-1.

Recommendation Text: Add c superscript to Non- T Plant Personnel or Visitor and SPOC columns for Facility Health and Safety Training Category Course Description.

***Response to A-1-157***

*Thank you for your comment. Ecology agrees with the recommendation and included the omitted superscript from Training Category Course Description: Facility Health and Safety, under the Field Sampler (FS) column.*

**Comment A-1-158**

15. Addendum Section: H.1.5 Facility Contact Information

Comment Text: Doug S. Shoop

Basis Text: Contact information should be in the Part A only. If the contact information changes, it will require a permit modification to the closure plan. In addition, the DOE contact is no longer Doug Shoop.

Recommendation Text: Remove facility contact information from closure plan.

### ***Response to A-1-158***

*Thank you for your comment. As there is no approved Part A for the closure units that are the subject of this permit modification, facility contact information needs to be included in the closure plans. Ecology obtained the most recent facility contact information from the Permittees at the drafting of this permit modification.*

*The Section H.1.5 – Facility Contact Information has been updated to include the current contact information provided by the Permittees in letter dated, January 22, 2021, "Transfer of Co-Operator Responsibilities for Hanford Facility Resource Conservation and Recovery Act Permit, WA7890008967," (21-ESQ-00305) and approved by Ecology in a letter dated March 15, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967," (21-NWP-033). Once the permit is in effect, if the contact information changes the Permittees are required to submit a permit modification request.*

*Ecology has amended Section H.1.5 – Facility Contact Information text to read:*

*Brian T. Vance, Manger  
U.S. Department of Energy, Richlands Operations Office  
P.O. Box 550  
Richland, WA 99352  
(509) 376-7395*

*Scott Sax, President and Project Manager  
Central Plateau Cleanup Company, LLC  
P.O. Box 1464  
Richland, WA 99352  
(509) 372-3845*

*Additionally, in these closure plans, references to "CH2M HILL Plateau Remediation Company (CHPRC)" as a Permittee have been changed to "Central Plateau Cleanup Company, LLC (CPCCo)." The change is reflected in the following Sections:*

*TERMS,  
H.1 Introduction,  
H.3.7 Closure Performance Standards for Soil,  
H.3.9 Development of Closure Performance Standards, and  
H.4.3 Project Management*

### **Comment A-1-159**

#### **16. Addendum Section: H.2 Closure Performance Standards**

Comment Text: Remove all waste and waste residues and properly dispose of them in a RCRA permitted disposal facility.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

***Response to A-1-159***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Remove all waste and waste residues" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for clean closure of container storage areas. The text "and properly dispose of them in a RCRA permitted disposal facility" is deleted as it is an activity required by WAC 173-303-610(3)(a)(iv) to treat (if necessary) and dispose of all dangerous wastes removed from the dangerous waste management unit during closure activities. This information is covered under Section H.3, Closure Activities.*

**Comment A-1-160**

17. Addendum Section: H.2 Closure Performance Standards

Comment Text: Decontaminate the concrete surface and perform concrete chip sampling to ensure concrete meets standard Model Toxics Control Act (MTCA) cleanup levels, or remove any concrete that cannot be so decontaminated.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

***Response to A-1-160***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Decontaminate the concrete surface and perform concrete chip sampling to ensure concrete meets standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, or remove any concrete that cannot be so decontaminated" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met in order for the 277-T Building to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

**Comment A-1-161**

18. Addendum Section: H.2 Closure Performance Standards

Comment Text: Perform soil sampling and analysis to ensure soils at the 271-T Cage meet standard MTCA cleanup levels, and remove any soils contaminated above these levels.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

### ***Response to A-1-161***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Perform soil sampling and analysis to ensure soils at the 271-T Cage meet standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, and remove any soils contaminated above these levels" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for the 271-T Cage to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

### **Comment A-1-162**

#### 19. Addendum Section: H.3.1 Removal of Wastes and Waste Residues

Comment Text: It is unknown if dangerous or mixed waste residues are present at this DWMU.

Basis Text: As identified in the records review, facility inspections were completed in this storage area to monitor for spills. No documentation of dangerous waste related spills were found during the records reviewed. Provide supporting documentation indicating the potential for dangerous or mixed waste residue to be present at the DWMU.

Recommendation Text: The records review and visual inspection did not identify any releases of dangerous waste or waste related staining therefore dangerous or mixed waste residues are not anticipated at this unit.

### ***Response to A-1-162***

*Thank you for your comment. Until confirmation sampling results are made available, the referenced text in Section H.3.1 of Addendum H, "It is unknown if dangerous waste residues are present at this DWMU," is accurate. Accordingly, this language will not be changed. The recommendation text, "...dangerous or mixed waste residues are not anticipated at this unit," would not change the fact that confirmation sampling must be performed.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples*

*of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 271-T Cage were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 271-T Cage remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In 2013, the Permittees originally proposed no decontamination, no gravel/soil samples, and twenty concrete chip/core samples. In 2018, the Permittees proposed decontamination and no sampling. Ecology added six soil/gravel samples to verify that clean closure performance standards are met for soils underlying the concrete pad.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 29, 271-T Cage Addendum H, Closure Plan, Attachment A), no focused sampling locations were identified. During Ecology's 2018 walk down, Ecology observed water and rust stains and that the uncoated elevated concrete pad lacked a berm to prevent releases to soil. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 271-T Cage are summarized in the Fact Sheet, Section 4.1.3, Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Three sample locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 271-T Cage provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*" Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-163**

#### 20. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Ecology and the Permittees performed an additional walk down and inspection of the DWMU in November of 2018.

Basis Text: WAC 173-303-840(2)(e) states, "All draft permits must be accompanied by a fact sheet that is supported by administrative record and made available for public comment." The walkdown and inspection are part of the administrative record. Ecology should attach this information to the closure plan, making the information available for Permittee and public comments.

Recommendation Text: Provide all documentation from this inspection so the Permittees and the public can review and comment.

### ***Response to A-1-163***

*Thank you for your comment. WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the fact sheet to be supported by the administrative record. Ecology does not provide the administrative record for public review unless specifically requested.*

*Ecology made the Fact Sheet for this permit modification available during the September 21 through November 4, 2020 public comment period. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

### **Comment A-1-164**

#### 21. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Ecology identified six focused samples based on professional judgement.

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

No evidence was provided in the closure plan for the addition of the focused and non-statistical grid samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of additional focused and non-statistical grid samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-164***

*Thank you for your comment. In addition to sampling locations identified based on the results of visual inspections and records reviews, focused sampling will be conducted wherever there is potential for a dangerous waste constituent to migrate as stated in Ecology Publication #94-111, Section 4.0:*

*"After wastes and waste residues are removed, facility owners/operators must visually inspect closing units to determine if releases at or from the closing unit may have occurred or might occur during decontamination. This must include identification of all cracks and other openings in the unit and unit containment structure through which waste, debris, or decontamination media (such as wash water) could be released to the environment. If cracks or other openings are found, facility owners/operators, generators, and transporters may be required to seal or repair the cracks or other openings to prevent releases prior to or during decontamination.*

*Facility owners/operators must maintain records of the locations and dimensions of all cracks or other openings identified during closure, because these areas are considered to have a higher potential for allowing releases of dangerous waste from the closing unit and may require more focused sampling and analysis. Records may be kept in the facility operating record or in the field notebook discussed in Section 7.10.1 of this guidance. Facility owners/operators must investigate and evaluate all cracks and other openings identified during closure to determine if releases of dangerous waste or dangerous waste constituents have occurred or may be occurring. Sampling of environmental media below these cracks or other openings may be required at Ecology's discretion.*

*When closure plans are required, the closure plan must fully describe procedures for inspecting all units prior to decontamination, identifying and recording releases and potential releases, and reporting such releases and potential releases to Ecology. "*

*The bases for Ecology's determination of the potential for dangerous waste or mixed waste residues to be present and to have migrated to soil at the 271-T Cage Dangerous Waste Management Unit (DWMU) include:*

- *Uncertainty about history of usage to manage dangerous and mixed wastes*
- *Unsealed concrete*
- *Lack of a berm*

*Ecology determined six focused soil samples are necessary to determine clean-closure at the 271-T Cage DWMU. The justification for these samples, as summarized in the Fact Sheet, is as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Three sample locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271 T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present."*

### **Comment A-1-165**

#### 22. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Supporting documentation for the visual inspections is included in Attachment A, T Plant 271-T Cage Visual Inspection Supporting Documentation.

Basis Text: There is no documentation in Attachment A for the 2018 inspection conducted by Ecology.

Recommendation Text: Provide documentation (notes, photos, etc.) from Ecology for this inspection.

### ***Response to A-1-165***

*Thank you for your comment. The text: "Supporting documentation for the visual inspections is included in Attachment A, T Plant 271-T Cage Visual Inspection Supporting Documentation" should have been limited to reference the Permittees' visual inspections. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments. Ecology amended the text as follows, "Supporting documentation for the Permittees' visual inspections is included in Attachment A, T Plant 271-T Cage Visual Inspection Supporting Documentation."*

### **Comment A-1-166**

#### 23. Addendum Section: H.3.3 Unit Components, Parts, and Ancillary Equipment

Comment Text: The sampling locations will be sealed after sampling, and the 271-T Cage will remain in place pending confirmation and acceptance of clean closure.

Basis Text: Provide the regulatory driver to seal the sampling locations. This should be at the discretion of the facility and not part of closure activities. Suggested language: Delete.

Recommendation Text: Delete this text. If Ecology does not delete the language, clarification is required to only apply to the concrete samples, not soil samples. Suggested language: The concrete sampling locations may be sealed after sampling at the discretion of the Permittees. The 271-T Cage will remain in place pending..."

#### ***Response to A-1-166***

*Thank you for your comment. Ecology agrees sealing locations after sampling should be at the discretion of the facility pending confirmation and acceptance of clean closure, and deleted the text from Section H.3.3 Unit Components, Parts, and Ancillary Equipment.*

### **Comment A-1-167**

#### 24. Addendum Section: H.3.4 Decontamination

Comment Text: Equipment used during sampling will be decontaminated for re-use or disposed of and managed as newly generated waste in accordance with Section H.3.6

Basis Text: Per WAC 173-303-610, only equipment containing or contaminated with dangerous wastes or waste residue requires removal or decontamination. With the absence of contamination, decontamination of equipment is not necessary.

Recommended Text: Any equipment used to remove material contaminated with hazardous or mixed waste will be decontaminated in accordance with WAC 173-303-610. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible, and will be performed within the area where the closure activity has taken place. Solid waste debris generated by decontamination of equipment (e.g., rags and personal protective equipment) will be collected and disposed at an approved disposal facility. Dangerous waste generated will be managed in accordance with WAC 173-303, "Dangerous Waste Regulations." Contaminated equipment that cannot be decontaminated for re-use will be discarded and managed as dangerous waste in accordance with generator accumulation standards of WAC 173-303-170 and -200.

#### ***Response to A-1-167***

*Thank you for your comment. Ecology has amended the text to read, "Equipment that becomes contaminated during decontamination and sampling activities will be decontaminated for re-use or managed and disposed of as newly generated waste in accordance with Section H.3.6. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible. A temporary decontamination area may be established near the 277-T Building. This area will be constructed of Visqueen™ or equivalent material, and may be used for decontamination of sampling equipment, personal protective equipment, and other*

*miscellaneous small equipment used during decontamination and sampling activities. When decontamination of equipment is completed, the Visqueen™ or equivalent materials, rinsate, and solid waste debris generated by equipment decontamination (e.g., rags and personal protective equipment) will be removed and managed as newly generated waste in accordance with Section H.3.6"*

### **Comment A-1-168**

#### 25. Addendum Section: H.3.4 Decontamination

Comment Text: A small temporary decontamination area (approximately 10 by 20 feet) may be established near the 271-T Cage.

Basis Text: Providing approximate dimensions requires Permittees to establish that size of area when a smaller area may be effective.

Recommendation Text: A small temporary decontamination area may be established near the 271-T Cage.

#### ***Response to A-1-168***

*Thank you for your comment. Ecology has amended the text to read, "A temporary decontamination area may be established near the 271-T Cage."*

### **Comment A-1-169**

#### 26. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: The contaminated soil will be containerized, labeled, and sampled for waste characterization.

Basis Text: The soil has already been sampled and analyzed through the closure plan SAP. Provide the regulatory justification for requiring sampling of the soil for purposes of characterization. The soil can be characterized using the existing data.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized.

#### ***Response to A-1-169***

*Thank you for your comment. Ecology agrees the data may be used for characterization, but only within the area of inference for that particular sample. Ecology has amended the text to read, "The contaminated soil will be containerized, labeled, and sampled as needed to designate for disposal of the entire volume of contaminated soil."*

### **Comment A-1-170**

#### 27. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil will be placed in U. S. Department of Transportation-compliant containers and sent to a RCRA permitted disposal facility or staged at CAAs in accordance with all applicable requirements of WAC 173-303-200, *Conditions for exemption for a large quantity generator that accumulate dangerous waste.*

Basis text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste,

then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized. Contaminated soil will be placed in U.S. Department of Transportation compliant containers and sent to an approved disposal facility or staged at a central accumulation area in accordance with standards in WAC 173-303-200, "Accumulating Dangerous Waste On-site." Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268, "Land Disposal Restrictions") will be characterized, designated, stored, or treated, as applicable, prior to disposal in an approved disposal facility.

### ***Response to A-1-170***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to be subject to LDR treatment standards but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil will be placed in U.S. Department of Transportation-compliant containers and sent to an appropriate land disposal unit, possibly with central accumulation as an intermediary step in accordance with all applicable requirements of WAC 173-303-200.*

### **Comment A-1-171**

#### **28. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media**

Comment Text: Contaminated soil subject to the requirements of WAC 173-30-140, *Land Disposal Restrictions* (which incorporates by reference 40 Code of Federal Regulations [CFR] 268, *Land Disposal Restriction*) will be characterized, designated, and stored or treated, as applicable, prior to disposal in a RCRA permitted disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

### ***Response to A-1-171***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to be subject to LDR treatment standards but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil subject to the requirements of WAC 173-303-140, Land disposal restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268 Land Disposal Restrictions) will be characterized, designated, and treated, as applicable, prior to disposal in an appropriate land disposal unit."*

## **Comment A-1-172**

### 29. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Once waste characterization results are received, all waste will be designated and shipped to a RCRA permitted facility for treatment, storage, or disposal.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: If any waste is identified as hazardous waste it must be properly disposed or decontaminated in accordance with WAC 173-303-610(5). All hazardous waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230.

### ***Response to A-1-172***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Once waste characterization results are received, all waste will be designated." The last sentence in the preceding paragraph, "The waste will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5)," was clarified as follows: "The waste will be managed as a newly generated waste stream and either disposed of or decontaminated in accordance with WAC 173-303-610(5)."*

## **Comment A-1-173**

### 30. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268) then ultimately disposed in a RCRA permitted waste disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

### ***Response to A-1-173***

*Thank you for your comment. Ecology agrees it is possible for a waste to be subject to LDR treatment standards but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 Land disposal restrictions (which incorporates by reference 40 CFR 268), then ultimately disposed in an appropriate land disposal unit."*

### **Comment A-1-174**

#### 31. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: WAC 173-340-740(2), Table 740-1, *Method A Soil Cleanup Levels for Unrestricted Land Uses* (WAC 173-340-900), which includes closure performance standards for human health based on unrestricted land use.

Basis Text: Include the title of this WAC 173-340-900, *Tables*.

Recommendation Text: WAC 173-340-740(2), Table 740-1, *Method A Soil Cleanup Levels for Unrestricted Land Uses* (WAC 173-340-900, *Tables*), which includes closure performance standards for human health based on unrestricted land use.

#### ***Response to A-1-174***

*Thank you for your comment. Ecology accepts the recommendation and has amended the text.*

### **Comment A-1-175**

#### 32. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: If target analytes are found above closure performance standards, then the contaminated soil will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3 to ensure the closure performance standards are met for the remaining soil. If failed constituents of concern do not meet closure performance standards after soil remediation, then the Permittees will meet with Ecology to determine a path forward.

Basis Text: Repetitive with Section H.4.4.3.

Recommendation Text: Replace with "Target analytes found above closure standards will be addressed as in Section H.4.4.3.

#### ***Response to A-1-175***

*Thank you for your comment. Ecology will retain the text for clarity between Section H.3.7 Closure Performance Standards for Soil and Section H.4.4.3 Sampling and Analysis Requirements to Address Removal of Contaminated Soil and Concrete.*

### **Comment A-1-176**

#### 33. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: The closure performance standard for concrete is treatment using a site-specific decontamination method as discussed in Section H.3.4, followed by confirmatory concrete chip sampling to ensure analytical results meet closure performance standards and that decontamination was successful.

Basis Text: There are no facts provided supporting the collection of chip samples as "necessary to achieve compliance with the Hazardous Waste Management Act." The records review and inspection showed no evidence of spills or leaks, thus the additional sampling provides no benefit. Closure performance standards must be supported by facts and a cogent explanation in the administrative record. Provide a reasonable basis based on the description of this facility for the need of chip sampling.

Recommendation Text: Provide documentation of the basis to support the necessity for chip sampling of the concrete.

***Response to A-1-176***

*Thank you for your comment. The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comment period webpage.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As*

*such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 271-T Cage provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

#### **Comment A-1-177**

##### **34. Addendum Section: H.3.8 Closure Performance Standards for Concrete**

Comment Text: The viable exposure pathways considered for concrete are the same as for soil (Section H.3.7)

Basis Text: The exposure pathway for soil protective of groundwater assumes that water or rainwater on a surface has an avenue to percolate through the surface and underlying soil to groundwater.

Basis Text: Soil levels protective of groundwater is identified in the closure plan as a complete pathway. However, as evidence by the visual inspections, there are no cracks or breaches in the concrete surface significant enough to allow for contamination to percolate through to the soil and into the groundwater. In addition, the 271-T Cage is elevated with no documentation of dangerous waste spills or staining. Provide documentation of the avenue for percolation in Attachment A for visual inspections.

Recommendation Text: Provide documentation of the avenue for percolation through the concrete to the soil.

#### ***Response to A-1-177***

*Thank you for your comment. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history,*

*compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or*

*discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 271-T Cage were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 271-T Cage remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In 2013, the Permittees originally proposed no decontamination, no gravel/soil samples, and twenty concrete chip/core samples. In 2018, the Permittees proposed decontamination and no sampling. Ecology added six soil/gravel samples to verify that clean closure performance standards are met for soils underlying the concrete pad.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 29, 271-T Cage Addendum H, Closure Plan, Attachment A), no focused sampling locations were identified. During Ecology's 2018 walk down, Ecology observed water and rust stains and that the uncoated elevated concrete pad lacked a berm to prevent releases to soil. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 271-T Cage are summarized in the Fact Sheet, Section 4.1.3, Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Three sample*

*locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present."*

### **Comment A-1-178**

#### 35. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: Concrete chip sampling and analysis will be conducted in accordance with the closure plan SAP located in Section H.4.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-4 of Addendum H.

### ***Response to A-1-178***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-179**

#### 36. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: Analytical results of concrete chip samples will be individually compared to the soil closure performance standards consistent with closure requirements.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-4 of Addendum H.

***Response to A-1-179***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

**Comment A-1-180**

37. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3. If failed constituent of concern do not meet closure performance standards after remediation, then the Permittees will meet with Ecology to determine a path forward for closure.

Basis Text: The closure plan does not provide activities detailing what is required for remediation of the concrete.

Recommendation Text: Provide text indicating acceptable remediation for clean closure.

***Response to A-1-180***

*Thank you for your comment. Ecology agrees text was not provided indicating what steps are to be taken when concrete closure performance standards are not achieved. The following text has been included in Section H.3.6:*

*"Contaminated concrete removal is not anticipated (see Section H.3.2). However, if contamination above closure performance standards is identified, the following options may be used:*

- Re-decontaminate using high pressure steam or water sprays, followed by confirmatory concrete chip sampling to demonstrate re-decontamination was successful.*
- Investigate the nature and extent of contamination. Remediate the concrete within the identified area of contamination by removing the contaminated concrete, followed by resampling to confirm contamination has been removed.*
- Submit a permit modification request to treat concrete using one of the physical extraction methods, in accordance with 40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris in Table 1."*

### **Comment A-1-181**

#### 38. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-4 of Addendum H.

#### ***Response to A-1-181***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-182**

#### 39. Addendum Section: Table H-4 Closure Performance Standards for Soil and Concrete and Analytical Performance Requirements

Comment Text: Table H-4 Tetrahydrofuran 1.00E+1

Basis Text: For tetrahydrofuran, Permittees agree with the value of 3.00E+01 mg/kg for groundwater protection. The PQL should be 5.00E-02 mg/kg.

Recommendation Text: Update Table H-4 with PQL of 5.00E-02 mg/kg and groundwater protection with 3.00E+01 mg/kg

#### ***Response to A-1-182***

*Thank you for your comment. Ecology accepts the recommendation and has amended the tetrahydrofuran PQL to read "5.00E-02" mg/kg in Table H-4 Closure Performance Standards for Soil and Analytical Performance Requirements.*

### **Comment A-1-183**

#### 40. Addendum Section H.4 Sampling and Analysis Plan

Comment Text: Sampling includes six focused soil samples, and five concrete non-statistical chip samples (Figure H-5).

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

No evidence was provided in the closure plan for the addition of the focused and non-statistical grid samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc) that support the decision of additional focused. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-183***

*Thank you for your comment. Until confirmation sampling results are made available, the referenced text in Section H.3.1 of Addendum H, "It is unknown if dangerous waste residues are present at this DWMU," is accurate. Accordingly, this language will not be changed. The recommendation text, "...dangerous or mixed waste residues are not anticipated at this unit," would not change the fact that confirmation sampling must be performed.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily,*

*these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 271-T Cage were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 271-T Cage remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In 2013, the Permittees originally proposed no decontamination, no gravel/soil samples, and twenty concrete chip/core samples. In 2018, the Permittees proposed decontamination and no sampling. Ecology added six soil/gravel samples to verify that clean closure performance standards are met for soils underlying the concrete pad.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 29, 271-T Cage Addendum H, Closure Plan, Attachment A), no focused sampling locations were identified. During Ecology's 2018 walk down, Ecology observed water and rust stains and that the uncoated elevated concrete pad lacked a berm to prevent releases to soil. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 271-T Cage are summarized in the Fact Sheet, Section 4.1.3, Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Three sample locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste*

constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 271-T Cage provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*" Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-*

*specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

#### **Comment A-1-184**

##### 41. Addendum Section: H.4.3.3 Sampling Documents and Records

Comment Text: Records may be stored in either electronic or hard copy format. Documentation and records, regardless of medium or format, are controlled in accordance with internal work requirements and processes to ensure the accuracy and retrieveability of stored records. Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Federal Facility Agreement and Consent Order) will be managed in accordance with the requirements therein.

Basis Text: This replicates language in Section H.1.4.4 Facility Recordkeeping.

Recommendation Text: Replace language with a reference to Section H.1.4.4

#### ***Response to A-1-184***

*Thank you for your comment. Ecology deleted the redundant text in Section H.4.3.3 and included a reference to Section H.1.4.4. Also, in Section H.1.4.4, the sentence "Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Facility Agreement and Consent Order) will be managed in accordance with the requirements therein." was deleted and replaced with "Records generated during closure will be maintained in the operating record in accordance with Permit Condition II.I."*

#### **Comment A-1-185**

##### 42. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Focused (Judgmental) Sampling

Basis Text: Based on the information in this Section and on Ecology Publication #94-111, there is no justification for sampling the underlying soil. None of the criteria for focused samples are met for this DWMU:

Likely areas for focused sampling include, but are not limited to:

- Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil;
- Below any sumps or valves;
- Load or unload areas;

- Storage units with underlying pavements or concrete that appears to be cracked or broken; and
- Areas receiving runoff or discharge from DWMUs, such as a ditch, a swale, or the discharge point down gradient from a pipe.

Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred;
- Length of time the unit has been in existence;
- Entries into the unit operating record; and
- Soil gas surveys or soil borings.

Recommendation Text: Delete text regarding focused sampling.

### ***Response to A-1-185***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils*

*during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 271-T Cage were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 271-T Cage remain intact for future non-waste management uses. Ecology*

*granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In 2013, the Permittees originally proposed no decontamination, no gravel/soil samples, and twenty concrete chip/core samples. In 2018, the Permittees proposed decontamination and no sampling. Ecology added six soil/gravel samples to verify that clean closure performance standards are met for soils underlying the concrete pad.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 29, 271-T Cage Addendum H, Closure Plan, Attachment A), no focused sampling locations were identified. During Ecology's 2018 walk down, Ecology observed water and rust stains and that the uncoated elevated concrete pad lacked a berm to prevent releases to soil. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 271-T Cage are summarized in the Fact Sheet, Section 4.1.3, Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Three sample locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 271-T Cage provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*" Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for*

*achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-186**

#### 43. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.

Basis Text: Based on the records review and visual inspection, there are no evidence of leaks or spills in 271-T Cage therefore focused sampling is not appropriate.

Recommendation Text: Delete text.

### ***Response to A-1-186***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 271-T Cage were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 271-T Cage remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In 2013, the Permittees originally proposed no decontamination, no gravel/soil samples, and twenty concrete chip/core samples. In 2018, the Permittees proposed decontamination and no*

sampling. Ecology added six soil/gravel samples to verify that clean closure performance standards are met for soils underlying the concrete pad.

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 29, 271-T Cage Addendum H, Closure Plan, Attachment A), no focused sampling locations were identified. During Ecology's 2018 walk down, Ecology observed water and rust stains and that the uncoated elevated concrete pad lacked a berm to prevent releases to soil. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 271-T Cage are summarized in the Fact Sheet, Section 4.1.3, Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Three sample locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:

1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or
2. Propose a site-specific method of decontamination and evaluation criteria.

The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...

Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."

While the records review and visual inspections for the 271-T Cage provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:

" Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."

## **Comment A-1-187**

### 44. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Per Ecology's visual inspection (Section H.3.2) and additional professional judgement, focused sample locations are identified for the soil beneath the 271-T Cage platform.

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

No evidence was provide in the closure plan for the addition of these focus samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of additional focus samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-187***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA]*

*Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete."*

*Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 271-T Cage were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 271-T Cage remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In 2013, the Permittees originally proposed no decontamination, no gravel/soil samples, and twenty concrete chip/core samples. In 2018, the Permittees proposed decontamination and no sampling. Ecology added six soil/gravel samples to verify that clean closure performance standards are met for soils underlying the concrete pad.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 29, 271-T Cage Addendum H, Closure Plan, Attachment A), no focused sampling locations were identified. During Ecology's 2018 walk down, Ecology observed water and rust stains and that the uncoated elevated concrete pad lacked a berm to prevent releases to soil. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 271-T Cage are summarized in the Fact Sheet, Section 4.1.3, Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Three sample locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc.*

*on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 271-T Cage provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*" Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion*

*for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-188**

#### 45. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Six soil sample locations beneath the cage have been selected to demonstrate clean closure of the soil. Three sample locations are directly below the front edge of the 271-T Cage and an additional three are located near the middle of the 271-T Cage (Figure H-5).

Basis Text: The records review and inspection showed no evidence of dangerous waste related spills or leaks, thus the additional sampling provides no benefit in the demonstration of clean closure. Closure performance standards must be supported by facts and a cogent explanation in the administrative record. Provide a reasonable basis based on the description of this facility for the need of soil sampling. In addition, the defined boundary of the DWMU includes only the elevated concrete surface as identified in Section H.1.1 Unit Description, it does not include the soil. Sampling of the soil does not provide demonstration of clean closure for the elevated concrete surface.

Recommendation Text: Provide documentation of the basis to support the necessity for focused sampling of the soil.

### ***Response to A-1-188***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors, including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of*

*the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil...*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 271-T Cage were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 271-T Cage remain intact for future uses, not associated with waste treatment or storage, of T Plant Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the fact sheet to be supported by the administrative record. Ecology does not provide the administrative record for public review unless specifically requested. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 271-T Cage are summarized in the Fact Sheet, Section 4.1.3, Closure Actions for Closure Unit Group 29, 271-T Cage as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Three sample locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present."*

*Regarding the defined boundary of the unit, the definition of a "dangerous waste management unit" is set forth in WAC 173-303-040:*

*"[A] contiguous area of land on or in which dangerous waste is placed, or the largest area in which there is a significant likelihood of mixing dangerous waste constituents in the same area.*

*Examples of dangerous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed."*

*The referenced text in Section H.1.1 of Addendum H describes the 271-T Cage DWMU as being "defined on the south side by the 271-T Building and the remaining three sides by metal chain-link fence material." This administrative boundary does not limit the applicability of clean closure requirements for the DWMU.*

### **Comment A-1-189**

#### 46. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: As an evaluation criteria, concrete chip sampling results will be directly compared to the closure performance standards for soil (Section H.3.7).

Basis Text: Values listed in CLARC tables are for soil. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document values in Table H-4 of Addendum H.

### ***Response to A-1-189***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-190**

#### 47. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Chip samples are collected at regularly-spaced intervals over an area.

Basis Text: This statement is contradictory. Samples are either focused (judgmental) or grid (area). Focused are non-statistical and do not need to be randomized. The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;

- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc) that support the decision of collecting random chip samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-190***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of sampling that contamination is not present [173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*As stated in Attachment B of the 271-T Cage Addendum H Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination was successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*In 2013, the Permittees originally proposed no decontamination, no gravel/soil samples, and twenty concrete chip/core samples. In 2018, the Permittees proposed decontamination and no sampling. Ecology added six soil/gravel samples to verify that clean closure performance standards are met for soils underlying the concrete pad.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 29, 271-T Cage Addendum H, Closure Plan, Attachment A), no focused sampling locations were identified. During Ecology's 2018 walk down, Ecology observed water and rust stains and that the uncoated elevated concrete pad lacked a berm to prevent releases to soil. Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 27, 271-7-T Cage, and is included as an excerpt below:*

*"Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples*

*with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-191**

#### 48. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Concrete chip samples are collected at regularly-spaced intervals over an areas.

Basis Text: In EPA/240/R-02/005, Section 4.1, first sentence states "Judgmental sampling refers to the selection of sample locations based on professional judgment alone, without any type of randomization." No basis is provided for why the six samples have been randomized if they are based on professional judgment.

Recommendation Text: Provide the basis for randomizing the six focused samples.

### ***Response to A-1-191***

*Thank you for your comment. As stated in the 271-T Cage, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the*

*Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:*

*" Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

## **Comment A-1-192**

### 48-1 Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Professional judgement determined that five chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5).

Basis Text: The basis for requiring five samples is not provided as support for the professional judgement.

Recommendation Text: Provide the basis for the number of samples.

### ***Response to A-1-192***

*Thank you for your comment. In 2013, the Permittees originally proposed twenty statistical concrete chip/core samples to demonstrate clean closure of the 271-T Cage's concrete structure. Ecology is requiring a total of eleven samples: six focused soil and five non-statistical grid concrete chip.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The basis for the referenced text in Addendum H, Section H.4.4.1, "Professional judgement determined that five chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5)," is summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, as follows:*

*"Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

## **Comment A-1-193**

### 49. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: The sampling device will be laboratory cleaned and wrapped in a clean, autoclaved aluminum foil until ready for use.

Basis Text: Sampling devices do not have to be sterile to collect a representative sample. This does not allow for the use of disposable and properly decontaminated devices.

Recommendation Text: Delete text

### ***Response to A-1-193***

*Thank you for your comment. As stated in the Comment Text, the sampling device is not autoclaved, but the aluminum foil, which is a reusable resource, is both cleaned and autoclaved. Ecology agrees that the text precludes the Permittees' use of disposable and field-decontaminated sampling devices and has amended Section H.4.4.2 to read, "Sampling devices will be disposable, or either laboratory cleaned or field-decontaminated and kept wrapped until ready for use."*

### **Comment A-1-194**

#### 50. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Donning a new pair of disposable gloves, the concrete surface will be broken and sampled.

Basis Text: The PPE required to perform a specific task is developed based on multiple factors including safety of the worker. Listing specific PPE may interfere with the safety of the worker based on the hazards present.

Recommendation Text: Individuals will don the appropriate PPE prior to breaking and sampling the concrete surface.

### ***Response to A-1-194***

*Thank you for your comment. Ecology accepts the recommendation and has amended the text to read, "Individuals will don appropriate personal protective equipment when breaking and/or sampling the concrete surface."*

### **Comment A-1-195**

#### 51. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: An effort will be made to avoid scattering pieces out of the sampling boundary area.

Basis Text: Sampling boundary area not defined.

Recommendation Text: Define sampling boundary area

### ***Response to A-1-195***

*Thank you for your comment. Permittees should consult the analytical laboratory for adequate sample volume in order to define a sampling boundary area that will provide the required chip volume. The sampling area boundaries will be documented in Section H.5.1.1 Confirmation of Site-Specific Decontamination.*

*Ecology has amended the third bullet in Section H.4.4.2 to read: "Field walk down of sample area (includes locating and marking sample locations and sample boundary areas)."*

### **Comment A-1-196**

#### 52. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Any pieces that fall outside the sampling area will not be used.

Basis Text: Sampling boundary area not defined.

Recommendation Text: Define sampling boundary area.

***Response to A-1-196***

*Thank you for your comment. Permittees should consult the analytical laboratory for adequate sample volume in order to define a sampling boundary area that will provide the required chip volume. The sampling area boundaries will be documented in Section H.5.1.1 Confirmation of Site-Specific Decontamination.*

*Ecology has amended the third bullet in Section H.4.4.2 to read: "Field walk down of sample area (includes locating and marking sample locations and sample boundary areas)."*

**Comment A-1-197**

53. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: The area will be chipped to less than one-quarter inch (preferably 1/8 in.).

Basis Text: Based on the depth limit of 1/4 in (preferably 1/8 in), calculate the area to ensure the volume of concrete generated meets the minimum quantity of sample media required to run all analysis.

Recommendation Text: Provide calculation or supporting documentation to ensure adequate sample media.

***Response to A-1-197***

*Thank you for your comment. Ecology cannot provide a calculation or supporting documentation to ensure adequate sample media, as this is laboratory dependent. When implementing this closure plan, the Permittees should consult the analytical laboratory for volume requirements to ensure an adequate sample volume is collected to meet the PQL.*

**Comment A-1-198**

54. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Chipped pieces will be collected using a dedicated, decontaminated dustpan and natural bristle brush and transferred directly into the sampling bottle.

Basis Text: This detail may conflict with proceduralized sample collection processes and equipment. This level of detail is not necessary.

Recommendation Text: Delete text.

***Response to A-1-198***

*Thank you for your comment. The detail included is necessary to ensure collected samples are not contaminated, and was obtained from the Department of Defense Environmental Field Sampling Handbook Revision 1.0, April 2013 (271-T Cage, Addendum H, Closure Plan, Section H.8, References). This level of detail is consistent with the Bonneville Power Administration - Ross Complex Washington State dangerous waste permit (WA1891406349). Prior to initiating closure activities, if sampling collection procedures differ from the requirements in this closure*

*plan, the Permittees may submit a permit modification request to modify the closure plan with the updated information.*

### **Comment A-1-199**

#### 55. Addendum Section: H.4.4.3 Sampling and Analysis Requirements to Address Removal of Contaminated Soil and Concrete

Comment Text: If focused soil or chip sample results based on direct comparison (Section H.4.4.1) indicate contamination above closure performance standards, then sample location(s) will be remediated to remove contaminated soil or concrete.

Basis Text: Details for remediation of contaminated soil are presented in Section H.3.5, however details of concrete surface remediation are not provided.

Recommendation Text: Provide details on remediation of concrete.

### ***Response to A-1-199***

*Thank you for your comment. Ecology agrees that text was not provided indicating what steps are to be taken when concrete closure performance standards are not achieved. The following text was included in Section H.3.6:*

*" Contaminated concrete removal is not anticipated (see Section H.3.2). However, if contamination above closure performance standards is identified, the following options may be used:*

- Re-decontaminate using high pressure steam or water sprays, followed by confirmatory concrete chip sampling to demonstrate re-decontamination was successful.*
- Investigate the nature and extent of contamination. Remediate the concrete within the identified area of contamination by removing the contaminated concrete, followed by resampling to confirm contamination has been removed.*
- Submit a permit modification request to treat concrete using one of the physical extraction methods, in accordance with 40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris in Table 1."*

### **Comment A-1-200**

#### 56. Addendum Section: H.4.6 Revisions to the Sampling and Analysis Plan and Constituents to be Analyzed

Comment Text: Changes to the SAP may be necessary due to unexpected events during closure. An unexpected event would be an event outside the scope of the SAP or a condition that inhibits implementation of the SAP as written. Revisions to the SAP will be submitted no later than 30 days after the unexpected event as a permit modification request.

Basis Text: Approval of a permit modification will likely adversely affect meeting the 180-day closure period.

Recommendation Text: Provide clarification on whether the permit modification request approval is required to continue with closure activities or if activities can continue uninterrupted after the unexpected event occurs.

***Response to A-1-200***

*Thank you for your comment. Ecology disagrees with the recommendation, and is retaining the existing text. Due to the nature of unexpected events (that is, they are unexpected), Ecology cannot determine at this point in time whether or not closure activities may continue uninterrupted. Ecology understands that permit modifications caused by unexpected events may adversely affect the Permittees' ability to complete closure within the 180-day closure period and have specifically addressed this circumstance in Section H.6, Closure Schedule and Time Frame. Specifically:*

*"Should an unexpected event occur and an extension to the 180 day closure activity expiration date be deemed necessary, a permit modification request will be submitted to Ecology for approval at least 30 days prior to the expiration of the 180 days. [WAC 173 303 610(4)(c)]*

*The permit modification request will include the statement that closure activities, will of necessity, take longer than 180 days to complete, including the supporting basis for the statement. The permit modification request will also include necessary information demonstrating that all steps to prevent threats to HHE have been and will continue to be taken, including compliance with all applicable permit requirements. [WAC 173 303 610(4)(b)]"*

**Comment A-1-201**

57. Addendum Section: H.5.1 Confirmation of Clean Closure

Comment Text: The 271-T Cage will be clean closed through confirmation of successful decontamination determined by chip sampling of the concrete surface, and sampling of soil beneath the 271-T Cage.

Basis Text: Values listed in CLARC tables are for soil. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document values in Table H-4 of Addendum H.

***Response to A-1-201***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

## **Comment A-1-202**

### 58. Addendum Section: H.5.3 Closure Certification

Comment Text: Within 60 days of completion of closure of the 271-T Cage DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail.

Basis Text: Suggest "closure activities". Closure is not complete until Ecology acknowledges the clean closure certification. Also include language consistent with regulations for delivery of closure certification means.

Recommendation Text: Within 60 days of completion of *closure activities* of the 271-T Cage DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means).

### ***Response to A-1-202***

*Thank you for your comment. The comment text is pulled from WAC 173-303-610(6) and will not be amended beyond the inclusion of a reference to other acceptable means of submittal. Ecology amended the text to read, "Within 60 days of completion of closure of the 271-T Cage DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means)."*

## **Comment A-1-203**

### 59. Addendum Section: Table H-7 271-T Cage Dangerous Waste Management Unit Closure Schedule

Comment Text: 180 days

Basis Text: The duration for the activity "Complete Closure of the 271-T Cage DWMU" is identified as 180 days. Having an additional duration of 180 days for this activity allows 360 days for closure activities.

Recommendation Text : Delete Activity.

### ***Response to A-1-203***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the schedule item summarizing closure activities, as this item made the duration of closure appear to take 360 days vs. the actual duration of 180 days.*

## **Comment A-1-204**

### 60. Addendum Section: H.8 References

Comment Text: (Dangerous Waste Permit Application Part A Form, Closure Unit 19, Hexone Storage & Treatment Facility, Revision 7, October 1)

Basis Text: This appears to be an incorrect reference.

Recommendation Text: Provide appropriate reference.

### ***Response to A-1-204***

*Thank you for your comment. Ecology agrees this is an incorrect reference, and has updated it with the following: "21-NWP-033, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967" (letter to Brian T. Vance, DOE-RL/ORP and Scott Sax, CPCCo, from Stephanie Schleif), Nuclear Waste Program, Ecology, Richland, Washington, March 15. Available at: <https://pdw.hanford.gov/document/AR-10235>*

### **Comment A-1-205**

#### 61. Addendum Section: H.8 References

Comment Text: WAC 173-340, Model Toxics Control Act -Cleanup, Washington Administrative Code, Olympia, Washington.

Basis Text: Add WAC 173-340-900. It was referenced in section H.3.7.

Recommendation Text: Addition of WAC 173-340-900 in references.

### ***Response to A-1-205***

*Thank you for your comment. Ecology accepts the recommendation and added the reference to Section H.8.*

### **Comment A-1-206**

#### 62. Addendum Section: Attachment B T Plant 271-T Cage Visual Sample Plan Supporting Documentation

Comment Text: Table: Summary of Sampling Design User specified number of Samples

Basis Text: Provide justification for 5 samples. If this is for judgmental (focused) samples, then the randomization of the locations is unnecessary. If it is statistically based, then provide VSP input.

Recommendation Text: Provide justification and additional details to support the determination of the number of samples.

### ***Response to A-1-206***

*Thank you for your comment. As stated in the 271-T Cage, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification, which included justification for each sample location, was not available on Ecology's public comment webpage for the June 4 through July*

24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comment period webpage.

As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:

"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.

With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...

Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:

1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or
2. Propose a site-specific method of decontamination and evaluation criteria.

The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...

Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."

While the records review and visual inspections for the 271-T Cage provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete

structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.3 Closure Actions for Closure Unit Group 29, 271-T Cage, and is included as an excerpt below:

*" Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

## **CLOSURE UNIT GROUP 30, 211-T PAD**

### **Comment A-1-207**

#### 1. Addendum Section: Unit 30 211-T Pad Permit Conditions

Comment Text: Addenda H

Basis Text: Erroneous use of the plural form of Addendum.

Recommendation Text: Change "Addenda" to "Addendum".

### ***Response to A-1-207***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

### **Comment A-1-208**

#### 2. Addendum Section: Unit 30 211-T Pad Permit Conditions

Comment Text: The Permittees will notify the Department of Ecology (Ecology) within 24 hours of any deviations from the approved Addendum H, "Closure Plan."

Basis Text: This permit condition lacks regulatory basis and is contradictory to Permit Condition II.K.6 which states:

*"Deviations from a TSD unit closure plan required by unforeseen circumstances encountered during closure activities, which do not impact the overall closure strategy, but provide equivalent results, shall be documented in the TSD unit-specific Operating Record and made available to Ecology upon request, or during the course of an inspection."*

While field sampling plans are designed to be able to be implemented as written, field conditions arise that may require minor deviation. These circumstances are addressed in permit condition II.K.6.

Recommendation Text: Minor deviations from this closure plan must be addressed in accordance with Permit Condition II.K.6.

### ***Response to A-1-208***

*Thank you for your comment. Ecology disagrees Permit Condition II.K.6 lacks a regulatory basis or is contradictory to the unit-specific permit condition. Permit Condition II.K.6 requires documentation of closure plan deviations be provided to Ecology upon request. Ecology is requesting documentation of any closure plan deviations via Permit Condition V.30.B.2. Most importantly, Ecology notes the term "minor deviations" used in Permit Condition II.K.6 could be interpreted differently by the Permittees and Ecology in this context. Therefore, Ecology is requiring notification in order for Ecology and the Permittees to review the deviation to determine if it will affect the ability to meet final acceptance of closure. If Ecology determines the deviation will affect the ability to meet final acceptance of closure, Ecology will require the Permittees to submit a permit modification request to modify the closure plan in accordance with WAC 173-303-610(3)(b)(iv). Ecology also notes Permit Condition II.J.3 requires changes to the approved closure plan be submitted to Ecology as a permit modification request, which is consistent with WAC 173-303-610(3)(b)(ii).*

*In addition, even if this unit-specific permit condition were contradictory with Permit Condition II.K.6, the language of a unit-specific condition prevails when in conflict with the Hanford Facility Part I-Standard and/or Part II-General Facility Conditions. This is clearly stated in the first unit-specific permit condition for the 211-T Pad, Part V, Closure Unit Group 30:*

#### ***"V.30.A COMPLIANCE WITH PERMIT CONDITIONS***

*The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act Permit (Permit) as specified in Permit Attachment 9, Permit Applicability Matrix, including all approved modifications. All addenda, subsections, figures, tables, and appendices included in the following Unit-Specific Permit Conditions are enforceable in their entirety. In the event that the Part V, Unit-Conditions for Closure Unit 30, 211-T Pad conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit conditions will prevail for Closure Unit 30, 211-T Pad."*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020. The bases for this closure unit group's permit conditions are summarized in the Fact Sheet, Section 4.2. As stated in the Fact Sheet:*

#### ***"4.2 Basis for Closure Unit Group Permit Conditions***

*The following are permit conditions for Closure Unit Groups 28, 30, 37, and 41:*

*Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, Permit Applicability Matrix, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs*

*within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.*

*Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.*

*Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within 24 hours of any deviations from the approved closure plan. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure."*

*Please note, permit condition numbers noted in the Fact Sheet were incorrect. For Closure Unit Group 30, 211-T Pad, permit condition numbers are: V.30.A, V.30.B.1, and V.30.B.2.*

### **Comment A-1-209**

#### **3. Addendum Section Unit 30 211-T Pad Permit Conditions**

Comment Text: If sampling assumptions/closure performance standards were not met, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work that would need to be done to achieve clean closure.

Basis Text: Sampling and Analysis Requirements to Address Removal of Contaminated Soil and Concrete is already addressed in Section H.4.4.3. Identify what additional information is needed for the permit modification.

Recommendation Text: Provide details on what additional information is required for the permit modification.

### ***Response to A-1-209***

*Thank you for your comment. Ecology agrees resolving contamination identified during sampling is already addressed in Section H.4.4.3. The permit condition was meant to address, (based on review of sampling data results), any additional sampling and remediation needed beyond what is already described in the closure plan.*

*Ecology has amended the 211-T Pad Closure Plan Permit Condition, V.30.B.3.a, to specify that a permit modification request will be required for any contamination remaining above cleanup levels closure performance standards specified in Table H-5 of the Addendum H, Closure Plan that have not been met after remediation and confirmatory sampling data analysis. This is consistent with Sections H.3.7 and H.3.8, which describe meeting with Ecology to determine a path forward for closure if contamination remains after remediation.*

### **Comment A-1-210**

#### **4. Addendum Section: Unit 30 211-T Pad Permit Conditions**

Comment Text: For Statistical Grid Sampling

Basis Text: There is no statistical grid sampling identified within Addendum H, "Closure Plan"

Recommendation Text: Delete text related to statistical grid sampling.

### ***Response to A-1-210***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the section of text that is referring to statistical grid sampling from Permit Condition V.30.B.3.a.*

### **Comment A-1-211**

#### 5. Addendum Section: Unit 30 211-T Pad Permit Conditions

Comment Text: Within sixty days of completion of closure for the 211-T Pad, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 211-T pad has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610(6)].

Basis Text: The IQRPE certification is submitted after closure activities are complete but as part of the overall closure process. Suggest specifying the IQRPE certification is submitted after closure activities are complete.

Recommendation Text: Within sixty days of completion of closure activities for the 211-T Pad, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 211-T pad has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610(6)].

### ***Response to A-1-211***

*Thank you for your comment. The 211-T Pad Permit Condition V.30.B.4 language is consistent with WAC 173-303-610(6), Certification of Closure, and will not be changed.*

### **Comment A-1-212**

#### 6. Addendum Section: Table of Contents

Comment Text: Table of Contents

Basis Text: Page numbers are missing the H-..

Recommendation Text: Suggest reformatting TOC for consistency with page numbering throughout document.

### ***Response to A-1-212***

*Thank you for your comment. The page numbering aligns with permit formatting.*

### **Comment A-1-213**

#### 7. Addendum Section: Terms

Comment Text: Terms

Basis Text: HWMA and RCW are not included in table. See first paragraph in Intro. BCSO is not defined in this plan.

Recommendation Text: Add HWMA, RCW to; and remove BCSO from terms table.

### ***Response to A-1-213***

*Thank you for your comment. Ecology has amended "Terms" to include HWMA - Hazardous Waste Management Act, RCW- Revised Code Washington, and to exclude BCSO - Benton County Sheriff's Office.*

### **Comment A-1-214**

#### 8. Addendum Section: H.1 Introduction

Comment Text: The purpose of this plan is to describe the Resource Conservation and Recovery Act (RCRA)/Hazardous Waste Management Act (HWMA), Chapter 70.105 Revised Code of Washington (RCW) closure process for the 211-T Pad Dangerous Waste Management Unit (DWMU), hereinafter called the 211-T Pad.

Basis Text: Should be defined as "Resource Conservation and Recovery Act of 1976."

Recommendation Text: The purpose of this plan is to describe the closure process for the 211-T Pad Dangerous Waste Management Unit (DWMU), hereinafter termed the "211-T Pad," as required by and in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) and Washington's Hazardous Waste Management Act (HWMA)

### ***Response to A-1-214***

*Thank you for your comment. Ecology agrees that "RCRA" should be defined as "Resource Conservation and Recovery Act of 1976" and has amended the text to reflect the correct definition.*

### **Comment A-1-215**

#### 9. Addendum Section: H.1 Introduction

Comment Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), and WAC 173-303-630(10).

Basis Text: Should define WAC 173-303-610 and WAC 173-303-630 the first time they are used. -610 is "Closure and Post-Closure;" and -630, "Use and Management of Containers."

Recommendation Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-3003-610(6), *Closure and Post-Closure*, and WAC 173-303-630(10), *Use and Management of Containers*.

### ***Response to A-1-215***

*Thank you for your comment. Ecology accepts the recommendation and amended the text to read; "This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), Closure and Post-Closure, and WAC 173-303-630(10), Use and Management of Containers."*

### **Comment A-1-216**

#### 10. Addendum Section: H.1 Introduction Page Numbering

Comment Text: Addendum H.7

Basis Text: Page numbering should re-start at H.1.

Recommendation Text: Restart page numbering with H.1.

***Response to A-1-216***

*Thank you for your comment. The page numbering aligns with permit formatting.*

**Comment A-1-217**

11. Addendum Section: H.1 Introduction

Comment Text: Figure H-1 T Plant Complex Overview, 211-T Pad Dangerous Waste Management Unit

Basis Text: Photo requires a date.

Recommendation Text: Add date to Figure H-1 T Plant Complex Overview.

***Response to A-1-217***

*Thank you for your comment. Ecology accepts the recommendation and included the date "Month Unknown, 2017".*

**Comment A-1-218**

12. Addendum Section: Table H-1 Training Matrix for the 211-T Pad Dangerous Waste Management Unit

Comment Text: The "X" in the FS column for Building Emergency Training Category Course Description

Basis Text: This "X" is in error. There is no requirement for Building Emergency training for the Field Sampler.

Recommendation Text: Remove the "X" for the FS column for Building Emergency Training Category Course Description.

***Response to A-1-218***

*Thank you for your comment. Ecology agrees with the recommendation text and deleted the "X" from Training Category Course Description: Building Emergency, under the Field Sampler (FS) column.*

**Comment A-1-219**

13. Addendum Section: Table H-1 Training Matrix for the 211-T Pad Dangerous Waste Management Unit

Comment Text: Superscript c. The Facility Health and Safety training is required only if workers are unescorted in the facility.

Basis Text: There is no c superscript in Table H-1 in the FS columns for Facility Health and Safety Training Category Course Description.

Recommendation Text: Apply superscript c to the FS column for Facility Health and Safety Training Category Course Description.

### ***Response to A-1-219***

*Thank you for your comment. Ecology agrees with the recommendation and included the omitted superscript from Training Category Course Description: Facility Health and Safety, under the Field Sampler (FS) column.*

### **Comment A-1-220**

#### 14. Addendum Section: H.1.5 Facility Contact Information

Comment Text: Doug S. Shoop

Basis Text: Contact information should be in the Part A only. If the contact information changes, it will require a permit modification to the closure plan. In addition, the DOE contact is no longer Doug Shoop.

Recommendation Text: Remove facility contact information from closure plan.

### ***Response to A-1-220***

*Thank you for your comment. As there is no approved Part A for the closure units that are the subject of this permit modification, facility contact information needs to be included in the closure plans. Ecology obtained the most recent facility contact information from the Permittees at the drafting of this permit modification.*

*The Section H.1.5 – Facility Contact Information has been updated to include the current contact information provided by the Permittees in letter dated, January 22, 2021, "Transfer of Co-Operator Responsibilities for Hanford Facility Resource Conservation and Recovery Act Permit, WA7890008967," (21-ESQ-00305) and approved by Ecology in a letter dated March 15, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967," (21-NWP-033). Once the permit is in effect, if the contact information changes the Permittees are required to submit a permit modification request. Ecology has amended Section H.1.5 – Facility Contact Information text to read:*

*Brian T. Vance, Manger  
U.S. Department of Energy, Richlands Operations Office  
P.O. Box 550  
Richland, WA 99352  
(509) 376-7395*

*Scott Sax, President and Project Manager  
Central Plateau Cleanup Company, LLC  
P.O. Box 1464  
Richland, WA 99352  
(509) 372-3845*

*Additionally, in these closure plans, references to "CH2M HILL Plateau Remediation Company*

(CHPRC)" as a Permittee has been changed to "Central Plateau Cleanup Company, LLC (CPCCo)."  
The change is reflected in the following Sections:

TERMS,

H.1 Introduction,

H.3.7 Closure Performance Standards for Soil,

H.3.9 Development of Closure

### **Comment A-1-221**

#### 15. Addendum Section: H.2 Closure Performance Standards

Comment Text: Remove all waste and waste residues and properly dispose of them in a RCRA permitted disposal facility.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

#### ***Response to A-1-221***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Remove all waste and waste residues" is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for clean closure of container storage areas.*

*The text "and properly dispose of them in a RCRA permitted disposal facility" is deleted as it is an activity required by WAC 173-303-610(3)(a)(iv) that describes the type of dangerous waste management units to be used for disposal of waste during closure activities. This information is covered under Section H.3, Closure Activities.*

### **Comment A-1-222**

#### 16. Addendum Section: H.2 Closure Performance Standards

Comment Text: Decontaminate the concrete surface and perform concrete chip sampling to ensure concrete meets standard Model Toxics Control Act (MTCA) cleanup levels, or remove any concrete that cannot be so decontaminated.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

#### ***Response to A-1-222***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Decontaminate the concrete surface and perform concrete chip sampling to ensure concrete meets standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, or remove any concrete that cannot be so*

*decontaminated" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met in order for the 211-T Pad to achieve clean closure.. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

### **Comment A-1-223**

#### 17. Addendum Section: H.2 Closure Performance Standards

Comment Text: Perform soil sampling and analysis to ensure soils under the 211-T Pad meet standard MTCA cleanup levels, and remove any soils contaminated above these levels.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

### ***Response to A-1-223***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Perform soil sampling and analysis to ensure soils at the 211-T Pad meet standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, and remove any soils contaminated above these levels" is retained as it is a closure performance standard identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for the 277-T Building to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

### **Comment A-1-224**

#### 18. Addendum Section: H.3.1 Removal of Wastes and Waste Residues

Comment Text: It is unknown if dangerous or mixed waste residues are present at this DWMU.

Basis Text: As identified in the records review, facility inspections were completed in this storage area to monitor for spills. No documentation of spills were found during the records reviewed. Provide supporting documentation indicating the potential for dangerous or mixed waste residue to be present at the DWMU.

Recommendation Text: The records review and visual inspection did not identify any releases of dangerous waste or waste related staining therefore dangerous or mixed waste residues are not anticipated at this unit.

### ***Response to A-1-224***

*Thank you for your comment. Until confirmation sampling results are made available, the referenced text in Section H.3.1 of Addendum H, "It is unknown if dangerous waste residues are present at this DWMU," is accurate. Accordingly, this language will not be changed. The recommendation text, "...dangerous or mixed waste residues are not anticipated at this unit," would not change the fact that confirmation sampling must be performed.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no*

written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.

The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:

"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:

(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."

A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:

"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)

Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks,

waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 211-T Pad were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 211-T Pad remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 30, 211-T Pad Addendum H, Closure Plan, Attachment A), one focused sampling location was identified at the sump. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the pad. Ecology also noted that there were cold joints in the unsealed concrete pad and structural penetrations (guard posts). Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4, Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through*

holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Focused soil samples locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."

For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:

"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.

With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...

Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:

1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or
2. Propose a site-specific method of decontamination and evaluation criteria.

The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...

Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure

*unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 211-T Pad provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.*

*Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

## **Comment A-1-225**

### **19. Addendum Section: H.3.2 Operating Records Review and Visual Inspection**

Comment Text: Ecology and the Permittees performed an additional walk down and inspection of the DWMU in November of 2018.

Basis Text: WAC 173-303-840(2)(e) states, "All draft permits must be accompanied by a fact sheet that is supported by administrative record and made available for public comment." The walkdown and inspection are part of the administrative record. Ecology should attach this information to the closure plan, making the information available for Permittee and public comments.

Recommendation Text: Provide all documentation from this inspection so the Permittees and the public can review and comment.

### ***Response to A-1-225***

*Thank you for your comment. WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the fact sheet to be supported by the administrative record. Ecology does not provide the administrative record for public review unless specifically requested.*

*Ecology made the Fact Sheet for this permit modification available during the September 21 through November 4, 2020 public comment period. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

### **Comment A-1-226**

#### 20. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Ecology identified eleven additional soil sample locations, including eight guard posts, and three concrete cold joints (Figure H-2).

Basis Text: The mere presence of construction joints or guard posts does not validate the need for additional sampling. The criteria for focus samples outlined in the closure plan is any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil. Despite not meeting the criteria, the State included additional samples at these locations. The State has failed to articulate specific facts that these samples are "necessary to achieve compliance with the Hazardous Waste Management Act." The State should provide documentation (descriptions, dimensions, photos, etc.) that would support the decision of additional focus samples.

Recommendation Text: Present any evidence of cracks, holes, pits or breaches that are significant enough that would allow water to penetrate beneath the pad to the soil.

### ***Response to A-1-226***

*Thank you for your comment. The 211-T Pad dangerous waste management unit stored 83.9 m<sup>3</sup> of mixed waste. Ecology and the Permittees agreed on one focused soil sample located below the sump. The visual inspection conducted by Ecology in 2018 identified jointed concrete with through penetrations and a sump. Photos of this inspection are maintained in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, which is included as Attachment 2 to this Response to Comments.*

*The Fact Sheet for this permit modification, which included justification for each sample location, was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comment period webpage.*

*Based on the 2018 walkdown, Ecology added eleven sample locations to verify clean closure standards are met. The bases for all focused soil sample locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4, Closure Actions for Closure Unit Group 30, 211-T Pad as follows:*

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Focused soil sample locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."*

### **Comment A-1-227**

#### **21. Addendum Section: H.3.2 Operating Records Review and Visual Inspection**

Comment Text: Ecology also identified one focused concrete chip sample for the sump based on professional judgement (Figure H-3).

Basis Text: The records review did not identify any releases of dangerous or mixed waste and the visual inspections did not identify the presence of staining that could be related to dangerous or mixed waste. The State also identified a focused soil sample at the sump location. There is no justification provided for the additional chip sampling and no clear benefit since the concrete in the sump will be destroyed during the focused soil sampling event.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of adding this focus sample.

### ***Response to A-1-227***

*Thank you for your comment. In 2013, the Permittees originally proposed twenty statistical concrete chip/core samples to demonstrate clean closure of the 211-T Pad's concrete structure. Ecology is requiring a total of seven concrete chip samples: one focused and six non-statistical.*

*The basis for the referenced text in Addendum H, Section H.3.2, "Ecology also identified one focused concrete chip sample for the sump based on professional judgement (Figure H-3)," is*

summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad, as follows:

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump."*

*Ecology disagrees with the Commenter's statement that there is "no clear benefit" to chip sample the sump "since the concrete in the sump will be destroyed during the focused soil sampling event." As explained in the above excerpt from the Fact Sheet, the purpose of the chip sample is to demonstrate the sump concrete has been successfully decontaminated, and can be left in place. The Permittees did not propose removal of the sump portion of the 211-T Pad DWMU in the permit modification request (18-AMRP-0150, August 14, 2018). If the Permittees now intend to remove the sump (as is indicated in this comment), a permit modification request may be submitted to Ecology (as described in the closure plan), once this permit modification has been incorporated into the Permit.*

### **Comment A-1-228**

#### **22. Addendum Section: H.3.2 Operating Records Review and Visual Inspection**

Comment Text: Supporting documentation for the visual inspection is included in Attachment A, T Plant Complex 211-T Pad Visual Inspection Supporting Documentation.

Basis Text: There is no documentation in Attachment A for the 2018 inspection conducted by Ecology.

Recommendation Text: Provide documentation (notes, photos, etc.) from Ecology for this inspection.

### ***Response to A-1-228***

*Thank you for your comment. The text: "Supporting documentation for the visual inspections is included in Attachment A, T Plant Complex 211-T Pad Visual Inspection Supporting Documentation" should have been limited to reference the Permittees' visual inspections. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments. Ecology amended the text as follows, "Supporting*

*documentation for the Permittees' visual inspections is included in Attachment A, T Plant Complex 211-T Pad Visual Inspection Supporting Documentation."*

**Comment A-1-229**

23. Addendum Section: H.3.3 Unit Components, Parts, and Ancillary Equipment

Comment Text: The sampling locations will be sealed after sampling, and the 211-T Pad will remain in place pending confirmation and acceptance of clean closure.

Basis Text: Provide the regulatory driver to seal the sampling locations. This should be at the discretion of the facility and not part of closure activities.

Recommendation Text: Delete this text. If Ecology does not delete the language suggested language: The concrete sampling locations may be sealed after sampling at the discretion of the Permittees. The 211-T Pad will remain in place pending..."

***Response to A-1-229***

*Thank you for your comment. Ecology agrees sealing locations after sampling should be at the discretion of the facility, pending confirmation and acceptance of clean closure, and deleted the text from Section H.3.3 Unit Components, Parts, and Ancillary Equipment.*

**Comment A-1-230**

24. Addendum Section: H.3.4 Decontamination

Comment Text: Equipment used during sampling will be decontaminated for re-use or disposed of and managed as newly generated waste in accordance with Section H.3.6

Basis Text: Per WAC 173-303-610, only equipment containing or contaminated with dangerous wastes or waste residue require removal or decontamination. With the absence of contamination, decontamination of equipment is not necessary.

Recommended Text: Any equipment used to remove material contaminated with hazardous or mixed waste will be decontaminated in accordance with WAC 173-303-610. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible, and will be performed within the area where the closure activity has taken place. Solid waste debris generated by decontamination of equipment (e.g., rags and personal protective equipment) will be collected and disposed at an approved disposal facility. Dangerous waste generated will be managed in accordance with WAC 173-303, "Dangerous Waste Regulations." Contaminated equipment that cannot be decontaminated for re-use will be discarded and managed as dangerous waste in accordance with generator accumulation standards of WAC 173-303-170 and -200.

***Response to A-1-230***

*Thank you for your comment. Ecology has amended the text to read, "Equipment that becomes contaminated during decontamination and sampling activities will be decontaminated for re-use or managed and disposed of as newly generated waste in accordance with Section H.3.6. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible. A temporary decontamination area may be established near the 211-T*

*Pad. This area will be constructed of Visqueen™ or equivalent material, and may be used for decontamination of sampling equipment, personal protective equipment, and other miscellaneous small equipment used during decontamination and sampling activities. When decontamination of equipment is completed, the Visqueen™ or equivalent materials, rinsate, and solid waste debris generated by equipment decontamination (e.g., rags and personal protective equipment) will be removed and managed as newly generated waste in accordance with Section H.3.6"*

### **Comment A-1-231**

#### 25. Addendum Section: H.3.4 Decontamination

Comment Text: A small temporary decontamination area (approximately 10 by 20 feet) may be established near the 211-T Pad.

Basis Text: Providing approximate dimensions requires Permittees to establish that size of area when a smaller area may be effective. If the purpose is to limit the size of the decontamination area, provide a maximum size.

Recommendation Text: A small temporary decontamination area may be established near the 211-T Pad.

#### ***Response to A-1-231***

*Thank you for your comment. Ecology has amended the text to read, "A temporary decontamination area may be established near the 211-T Pad."*

### **Comment A-1-232**

#### 26. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: The contaminated soil will be containerized, labeled, and sampled for waste characterization.

Basis Text: The soil has already been sampled and analyzed through the closure plan SAP. Provide the regulatory justification for requiring sampling of the soil for purposes of characterization. The soil can be characterized using the existing data.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized.

#### ***Response to A-1-232***

*Thank you for your comment. Ecology agrees the data may be used for characterization, but only within the area of inference for that particular sample. Ecology has amended the text to read, "The contaminated soil will be containerized, labeled, and sampled as needed to designate for disposal of the entire volume of contaminated soil."*

### **Comment A-1-233**

#### 27. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil will be placed in U. S. Department of Transportation-compliant containers and sent to a RCRA permitted disposal facility or staged at central

accumulation areas in accordance with all applicable requirements of WAC 173-303-200, *Conditions for exemption for a large quantity generator that accumulate dangerous waste.*

Basis Text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized. Contaminated soil will be placed in U.S. Department of Transportation compliant containers and sent to an approved disposal facility or staged at a central accumulation area in accordance with standards in WAC 173-303-200, "Accumulating Dangerous Waste On-site." Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268, "Land Disposal Restrictions") will be characterized, designated, stored, or treated, as applicable, prior to disposal in an approved disposal facility.

### ***Response to A-1-233***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil will be placed in U.S. Department of Transportation-compliant containers and sent to an appropriate land disposal unit, possibly with central accumulation as an intermediary step, in accordance with all applicable requirements of WAC 173-303-200, Conditions for exemption for a large quantity generator that accumulates dangerous waste."*

### **Comment A-1-234**

#### **28. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media**

Comment Text: Contaminated soil subject to the requirements of WAC 173-30-140, *Land Disposal Restrictions* (which incorporates by reference 40 Code of Federal Regulations [CFR] 268, *Land Disposal Restriction*) will be characterized, designated, and stored or treated, as applicable, prior to disposal in a RCRA permitted disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

### ***Response to A-1-234***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil subject to the requirements of WAC 173-303-140, Land disposal restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268 Land Disposal Restrictions) will be characterized, designated, and treated, as applicable, prior to disposal in an appropriate land disposal unit."*

### **Comment A-1-235**

#### 29. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Once waste characterization results are received, all waste will be designated and shipped to a RCRA permitted facility for treatment, storage, or disposal.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste based on characterization results, provide the regulatory driver for requiring disposal in a RCRA permitted disposal facility.

Recommendation Text: If any waste is identified as hazardous waste it must be properly disposed or decontaminated in accordance with WAC 173-303-610(5). All hazardous waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230.

### ***Response to A-1-235***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Once waste characterization results are received, all waste will be designated." The last sentence in the preceding paragraph, "The waste will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5)," was clarified as follows: "The waste will be managed as a newly generated waste stream and either disposed of or decontaminated in accordance with WAC 173-303-610(5)."*

### **Comment A-1-236**

#### 30. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268) then ultimately disposed in a RCRA permitted waste disposal facility.

Basis Text: If the waste does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

### ***Response to A-1-236***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 Land disposal restrictions (which incorporates by reference 40 CFR 268), then ultimately disposed in an appropriate land disposal unit."*

### **Comment A-1-237**

#### 31. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: WAC 173-340-740(2), Table 740-I, *Method A Soil Cleanup Levels for Unrestricted Land Uses* (WAC 173-340-900), which includes closure performance standards for human health based on unrestricted land use.

Basis Text: Include the title of this WAC 173-340-900, *Tables*.

Recommendation Text: WAC 173-340-740(2), Table 740-I, *Method A Soil Cleanup Levels for Unrestricted Land Uses* (WAC 173-340-900, *Tables*), which includes closure performance standards for human health based on unrestricted land use.

### ***Response to A-1-237***

*Thank you for your comment. Ecology accepts the recommendation and has amended the text.*

### **Comment A-1-238**

#### 32. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: The exposure pathway for soil protective of groundwater assumes that water or rainwater on a surface has an avenue to percolate through the surface and underlying soil to groundwater.

Basis Text: Soil levels protective of groundwater is identified in the closure plan as a complete pathway. However, as evidence by the visual inspections, there are no cracks or breaches in the concrete surface significant enough to allow for contamination to percolate through to the soil and into the groundwater. Provide documentation of the avenue for percolation in Attachment A for visual inspections.

Recommendation Text: Provide documentation of avenue for percolation.

### ***Response to A-1-238***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors, including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*Focused sampling locations are not limited to significant cracks or breaches in the concrete surface. They include locations that are low points, as well as joints/seams that represent a*

*potential avenue for waste to migrate to underlying soils. As described in Publication #94-111, Clean Closure Guidance, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills, or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*The visual inspection conducted by Ecology in 2018 identified cold joints along the edges of the sloped pad, guard post penetrations through the pad, and a sump at the bottom of the pad slope. All of these areas are potential locations for dangerous waste constituents to migrate. Concrete by nature is porous and subject to cracking. The guard posts are set through the concrete, creating an avenue for waste to migrate to the soil below. A cold joint is a plane of weakness in concrete caused by an interruption or delay in the concreting operations. A cold joint creates the potential for waste to migrate to the soil below.*

*Inspection documentation is located in Ecology's Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused soil sampling locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad as follows:*

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Focused soil sample locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."*

### **Comment A-1-239**

#### 33. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: If target analytes are found above closure performance standards, then the contaminated soil will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3 to ensure the closure performance standards are met for the remaining soil. If failed constituents of concern do not meet closure performance standards after soil remediation, then the Permittees will meet with Ecology to determine a path forward for closure.

Basis Text: Repetitive with Section H.4.4.3.

Recommendation Text: Target analytes found above closure standards will be addressed as in Section H.4.4.3.

#### ***Response to A-1-239***

*Thank you for your comment. Ecology will retain the text for clarity between Section H.3.7, Closure Performance Standards for Soil and Section H.4.4.3, Sampling and Analysis Requirements to Address Removal of Contaminated Soil and Concrete.*

### **Comment A-1-240**

#### 34. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: The closure performance standard for concrete is treatment using a site-specific decontamination method as discussed in Section H.3.4, followed by confirmatory concrete chip sampling to ensure analytical results meet closure performance standards and that decontamination was successful.

Basis Text: There are no facts provided supporting the collection of chip samples as "necessary to achieve compliance with the Hazardous Waste Management Act." The records review and inspection showed no evidence of spills or leaks, thus the additional sampling provides no benefit. Closure performance standards must be supported by facts and a cogent explanation in the administrative record. Provide a reasonable basis based on the description of this facility for the need of chip sampling.

Recommendation Text: Provide documentation of the basis to support the necessity of chip sampling of the concrete.

#### ***Response to A-1-240***

*Thank you for your comment. The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comment period webpage.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that*

*eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 211-T Pad provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be*

*conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.*

*Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-241**

#### **35. Addendum Section: H.3.8 Closure Performance Standards for Concrete**

Comment Text: The viable exposure pathways considered for concrete are the same as for soil (Section H.3.7).

Basis Text: The exposure pathway for soil protective of groundwater assumes that water or rainwater on a surface has an avenue to percolate through the surface and underlying soil to groundwater.

Basis Text: Soil levels protective of groundwater is identified in the closure plan as a complete pathway. However, as evidence by the visual inspections, there are no cracks or breaches in the concrete surface significant enough to allow for contamination to percolate through to the soil and into the groundwater. Provide documentation of the avenue for percolation in Attachment A for visual inspections.

Recommendation Text: Provide documentation of avenue for percolation.

### ***Response to A-1-241***

*Thank you for your comment. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history,*

*compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or*

*discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 211-T Pad were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 211-T Pad remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 30, 211-T Pad Addendum H, Closure Plan, Attachment A), one focused sampling location was identified at the sump. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the pad. Ecology also noted that there were cold joints in the unsealed concrete pad and structural penetrations (guard posts). Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4, Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or*

*spills or potential for a dangerous waste constituent to migrate." Focused soil samples locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 211-T Pad provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.*

*Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-242**

#### **36. Addendum Section: H.3.8 Closure Performance Standards for Concrete**

Comment Text: Concrete chip sampling and analysis will be conducted in accordance with the closure plan SAP located in Section H.4.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the

composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

### ***Response to A-1-242***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-243**

#### 37. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: Analytical results of concrete chip samples will be individually compared to the soil closure performance standards consistent with closure requirements.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

### ***Response to A-1-243***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-244**

#### 38. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3. If failed constituent of concern do not meet closure

performance standards after remediation, then the Permittees will meet with Ecology to determine a path forward for closure.

Basis Text: The closure plan does not provide activities detailing what is required for remediation of the concrete.

Recommendation Text: Provide text indicating acceptable remediation for clean closure.

### ***Response to A-1-244***

*Thank you for your comment. Ecology agrees text was not provided indicating what steps are to be taken when concrete closure performance standards are not achieved. The following text has been included in Section H.3.6:*

*"Contaminated concrete removal is not anticipated (see Section H.3.2). However, if contamination above closure performance standards is identified, the following options may be used:*

- Re-decontaminate using high pressure steam or water sprays, followed by confirmatory concrete chip sampling to demonstrate re-decontamination was successful.*
- Investigate the nature and extent of contamination. Remediate the concrete within the identified area of contamination by removing the contaminated concrete, followed by resampling to confirm contamination has been removed.*
- Submit a permit modification request to treat concrete using one of the physical extraction methods, in accordance with 40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris in Table 1."*

### **Comment A-1-245**

#### 39. Addendum Section: H.3.8 Closure Performance Standards for Concrete

Comment Text: If target analytes are found above closure performance standards, the contaminated concrete will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3. If failed constituent of concern do not meet closure performance standards after remediation, then the Permittees will meet with Ecology to determine a path forward for closure.

Basis Text: The equation in WAC 173-340-740, Unrestricted Land Use Soil Cleanup Standards, (3)(b)(iii)(B) for Soil Direct Contact uses Equation 740-1. One of the variables in this equation is "SIR" which is soil ingestion rate. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document concrete values in Table H-5 of Addendum H.

### ***Response to A-1-245***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-246**

#### 40. Addendum Section: Table H-5 Closure Performance Standards for Soil and Concrete and Analytical Performance Requirements

Comment Text: Table H-5 Closure Performance Standards for Soil and Concrete and Analytical Performance Requirements.

Basis Text: Section H.3.7 identifies soil protective of groundwater as a viable pathway. The values in Table H-5 only address the exposure pathway for direct contact.

Recommendation Text: If soil protective of groundwater is not excluded, revise Table H-5 values to include groundwater.

### ***Response to A-1-246***

*Thank you for your comment. Ecology revised Table H-5 to include Closure Performance Standards for the soil protective of groundwater pathway.*

### **Comment A-1-247**

#### 41. Addendum Section: Table H-5 Closure Performance Standards for Soil and Concrete and Analytical Performance Requirements

Comment Text: Table H-5 Closure Performance Standards for Soil and Concrete and Analytical Performance Requirements.

Basis Text: Footnotes and superscripts within the Table H-5 are not associated with the correct target analytes.

Recommendation Text: Correct footnotes and superscripts.

### ***Response to A-1-247***

*Thank you for your comment. Ecology revised Table H-5 to include Closure Performance Standards for the soil protective of groundwater pathway. The revised table contains the correct superscripts and footnotes.*

### **Comment A-1-248**

#### 42. Addendum Section: H.4 Sampling and Analysis Plan

Comment Text: Sampling includes twelve focused soil samples, one focused concrete chip sample, and six non-statistical grid concrete chip samples (Figure H-5).

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

No evidence was provided in the closure plan for the addition of the focused and non-statistical grid samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of additional focused and non-statistical grid samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-248***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if*

*there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 211-T Pad were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 211-T Pad remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 30, 211-T Pad Addendum H, Closure Plan, Attachment A), one focused sampling location was identified at the sump. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the pad. Ecology also noted that there were cold joints in the unsealed concrete pad and structural penetrations (guard posts). Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4, Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Focused soil samples locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 211-T Pad provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature*

*and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.*

*Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

#### **Comment A-1-249**

##### 43. Addendum Section: H.4.3.3 Sampling Documents and Records

Comment Text: Records may be stored in either electronic or hard copy format. Documentation and records, regardless of medium or format, are controlled in accordance with internal work requirements and processes to ensure the accuracy and retrieveability of stored records. Records required by the Tri-Party Agreement (Ecology et al., 1989 Hanford Federal Facility Agreement and Consent Order) will be managed in accordance with the requirements therein.

Basis Text: This replicates language in Section H.1.4.4 Facility Record Keeping.

Recommendation Text: Replace language with a reference to Section H.1.4.4

#### ***Response to A-1-249***

*Thank you for your comment. Ecology deleted the redundant text in Section H.4.3.3 and included a reference to Section H.1.4.4. Also, in Section H.1.4.4, the sentence "Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Facility Agreement and Consent Order) will be managed in accordance with the requirements therein." was deleted and replaced with "Records generated during closure will be maintained in the operating record in accordance with Permit Condition II.I."*

#### **Comment A-1-250**

##### 44. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Focused (Judgmental) Sampling

Basis Text: Based on the information in this Section and on Ecology Publication #94-111, there is no justification for sampling the underlying soil. With the exception of one sample below the sump, none of the criteria for the additional focused samples are met for this DWMU:

Likely areas for focused sampling include, but are not limited to:

- Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil;
- Below any sumps or valves;
- Load or unload areas;
- Storage units with underlying pavements or concrete that appears to be cracked or broken; and
- Areas receiving runoff or discharge from DWMUs, such as a ditch, a swale, or the discharge point down gradient from a pipe.

Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred;
- Length of time the unit has been in existence;
- Entries into the unit operating record; and
- Soil gas surveys or soil borings.

Recommendation Text: Delete text regarding focused sampling other than the one sample under the sump.

### ***Response to A-1-250***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples*

*of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 211-T Pad were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 211-T Pad remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 30, 211-T Pad Addendum H, Closure Plan, Attachment A), one focused sampling location was identified at the sump. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the pad. Ecology also noted that there were cold joints in the unsealed concrete pad and structural penetrations (guard posts). Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4, Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Focused soil samples locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."*

## **Comment A-1-251**

### 45. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.

Basis Text: Based on the records review and visual inspection, there are no evidence of leaks or spills in 211-T Pad. With the exception of one focused sample below the sump, focused sampling is not appropriate.

Recommendation Text: Delete text.

### ***Response to A-1-251***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."
- Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."
- Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."

If the 211-T Pad were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 211-T Pad remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.

In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 30, 211-T Pad Addendum H, Closure Plan, Attachment A), one focused sampling location was identified at the sump.

*During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the pad. Ecology also noted that there were cold joints in the unsealed concrete pad and structural penetrations (guard posts). Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4, Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Focused soil samples locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."*

## **Comment A-1-252**

### **46. Addendum Section: H.4.4.1 Sampling Process Design**

Comment Text: Per the visual inspections (Section H.3.2) and additional professional judgement, twelve focused soil sample locations and one focused concrete chip sample location are identified.

Basis Text: The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling beyond the one focused sample below the sump is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and

- Soil gas surveys or soil borings. "

No evidence was provide in the closure plan for the addition of these focus samples.

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of additional focus samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

### ***Response to A-1-252***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean*

*closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*
- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 211-T Pad were to be removed as part of the closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 211-T Pad remain intact for future non-waste management uses. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 30, 211-T Pad Addendum H, Closure Plan, Attachment A), one focused sampling location was identified at the sump. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the pad. Ecology also noted that there were cold joints in the unsealed concrete pad and structural*

penetrations (guard posts). Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.

The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4, Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Focused soil samples locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."*

*For the concrete chip samples, as explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

*1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*

*2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 211-T Pad provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.*

*Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of*

*information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-253**

#### 47. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling.

Basis Text: The mere presence of guard posts or joints does not validate the need for additional sampling. Section 3 states, "Perform initial visual inspection of the concrete surface to identify dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil." There were no areas identified in the closure plan. Despite not meeting the criteria outlined, the State included additional samples at these guard posts/joints.

The State has failed to articulate specific facts that these focus samples are "necessary to achieve compliance with the Hazardous Waste Management Act."

Recommendation Text: Present any documentation that these locations would allow water to penetrate to the soil beneath.

### ***Response to A-1-253***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors, including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*Focused sampling locations are not limited to significant cracks or breaches in the concrete surface. They include locations that are low points, as well as joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication #94-111, Clean Closure Guidance, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills, or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in*

*contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*The visual inspection conducted by Ecology in 2018 identified cold joints along the edges of the sloped pad, guard post penetrations through the pad, and a sump at the bottom of the pad slope. All of these areas are potential locations for dangerous waste constituents to migrate. The 211-T Pad is an outdoor, uncoated concrete pad that was illegally used to store dangerous and mixed waste. Concrete by nature is porous and subject to cracking. The guard posts are set through the concrete, creating an avenue for waste to migrate to the soil below. A cold joint is a plane of weakness in concrete caused by an interruption or delay in the concreting operations. A cold joint creates the potential for waste to migrate to the soil below. Additionally, this unit has a history of water collecting and pooling within the unit; saturating the unit and creating a greater potential for waste to migrate below the concrete to the soil.*

*Inspection documentation is located in Ecology's Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused soil sampling locations at the 211-T Pad are summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad as follows:*

*"Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, "Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete," and Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Focused soil sample locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: 3 soil samples at the cold joints along the edge of the concrete, 8 soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified."*

#### **Comment A-1-254**

##### **48. Addendum Section: H.4.4.1 Sampling Process Design**

Comment Text: As an evaluation criteria, concrete chip sampling results will be directly compared to the closure performance standards for soil (Section H.3.7).

Basis Text: Values listed in CLARC tables are for soil. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document values in Table H-5 of Addendum H.

***Response to A-1-254***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

**Comment A-1-255**

49. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Concrete chip samples are collected at regularly-spaced intervals over an area.

Basis Text: This statement is contradictory. Samples are either focused (judgmental) or grid (area). Focused are non-statistical and do not need to be randomized. The visual inspections did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste. Focused sampling beyond the one focused sample below the sump is not appropriate based on the description given in Section H.4.4.1 that states:

"Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred
- Length of time the unit has been in existence
- Entries into the unit operating record; and
- Soil gas surveys or soil borings. "

Recommendation Text: Provide documentation (descriptions, dimensions, photos, etc.) that support the decision of collecting random chip samples. Present evidence of any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil.

***Response to A-1-255***

*Thank you for your comment. Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a*

*good operating history and no written record of spills or releases must certify through a minimal amount of sampling that contamination is not present [173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*As stated in Attachment B of the 211-T Pad, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1 This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the*

*LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.*

*Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

*In the Permittees' June 1, 2015 inspection, (Part V, Closing Unit Group 30, 211-T Pad Addendum H, Closure Plan, Attachment A), one focused sampling location at the sump was identified. During Ecology's 2018 walk down, Ecology confirmed the sump was the low point of the pad.*

*Ecology also noted that there were cold joints in the unsealed concrete pad and structural penetrations (guard posts). Ecology's 2018 walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included in this Response to Comments, Attachment 2.*

### **Comment A-1-256**

#### 50. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Concrete chip samples are collected at regularly-spaced intervals over an areas.

Basis Text: In EPA/240/R-02/005, Section 4.1, first sentence states, "Judgmental sampling refers to the selection of sample locations based on professional judgment alone, without any type of randomization." No basis is provided for why the six samples have been randomized if they are based on professional judgment.

Recommendation Text: Provide the basis for randomizing the six focused samples.

### ***Response to A-1-256***

*Thank you for your comment. As stated in the 211-T Pad, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean*

*closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.141 Closure Actions for Closure Unit Group 30, 211-T Pad, and is included as an excerpt below:*

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.*

*Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-*

*specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

### **Comment A-1-257**

#### 51. Addendum Section: H.4.4.1 Sampling Process Design

Comment Text: Professional judgement determined that six chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5).

Basis Text: The basis for requiring six samples is not provided as support for the professional judgement.

Recommendation Text: Provide the basis for the number of samples.

### ***Response to A-1-257***

*Thank you for your comment. In 2013, the Permittees originally proposed twenty statistical concrete chip/core samples to demonstrate clean closure of the 211-T Pad's concrete structure. Ecology is requiring a total of seven concrete chip samples: one focused and six non-statistical.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The basis for the referenced text in Addendum H, Section H.4.4.1, "Professional judgement determined that six chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5)," is summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Pad, as follows:*

*"Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the*

*entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

**Comment A-1-258**

52. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: The sampling device will be laboratory cleaned and wrapped in a clean, autoclaved aluminum foil until ready for use.

Basis Text: Sampling devices do not have to be sterile to collect a representative sample. This does not allow for the use of disposable and properly decontaminated devices.

Recommendation Text: Delete text

***Response to A-1-258***

*Thank you for your comment. As stated in the Comment Text, the sampling device is not autoclaved, but the aluminum foil, which is a reusable resource, is both cleaned and autoclaved. Ecology agrees that the text precludes the Permittees' use of disposable and field-decontaminated sampling devices and has amended Section H.4.4.2 to read, "Sampling devices will be disposable, or either laboratory cleaned or field-decontaminated and kept wrapped until ready for use."*

**Comment A-1-259**

53. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Donning a new pair of disposable gloves, the concrete surface will be broken and sampled.

Basis Text: The PPE required to perform a specific task is developed based on multiple factors including safety of the worker. Listing specific PPE may interfere with the safety of the worker based on the hazards present.

Recommendation Text: Individuals will don appropriate PPE prior to breaking and sampling the concrete surface.

***Response to A-1-259***

*Thank you for your comment. Ecology accepts the recommendation and has amended the text to read, "Individuals will don appropriate personal protection equipment when breaking and/or sampling the concrete surface."*

**Comment A-1-260**

54. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: An effort will be made to avoid scattering pieces out of the sampling boundary area.

Basis Text: Area not defined.

Recommendation Text: Define sampling boundary area

### ***Response to A-1-260***

*Thank you for your comment. The Permittees should consult the analytical laboratory for adequate sample volume in order to define a sampling boundary area that will provide the required chip volume. The sampling area boundaries will be documented as described in Section H.5.1.1 Confirmation of Site-Specific Decontamination.*

*Ecology has amended the third bullet in Section H.4.4.2 to read: "Field walk down of sample area (includes locating and marking sample locations and sample boundary areas)."*

### **Comment A-1-261**

#### 55. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Any pieces that fall outside the sampling area will not be used.

Basis Text: Area not defined.

Recommendation Text: Define sampling boundary area.

### ***Response to A-1-261***

*Thank you for your comment. Permittees should consult the analytical laboratory for adequate sample volume in order to define a sampling boundary area that will provide the required chip volume. The sampling area boundaries will be documented in Section H.5.1.1 Confirmation of Site-Specific Decontamination.*

*Ecology has amended the third bullet in Section H.4.4.2 to read: "Field walk down of sample area (includes locating and marking sample locations and sample boundary areas)."*

### **Comment A-1-262**

#### 56. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: The area will be chipped to less than one-quarter inch (preferably 1/8 in.).

Basis Text: Based on the depth limit of 1/4 in (preferably 1/8 in), calculate the area to ensure the volume of concrete generated meets the minimum quantity of sample media required to run all analysis.

Recommendation Text: Provide calculation or supporting documentation to ensure adequate sample media.

### ***Response to A-1-262***

*Thank you for your comment. Ecology cannot provide a calculation or supporting documentation to ensure adequate sample media, as this is laboratory dependent. When implementing this closure plan, the Permittees should consult the analytical laboratory for volume requirements to ensure an adequate sample volume is collected to meet the PQL.*

### **Comment A-1-263**

#### 57. Addendum Section: H.4.4.2 Sampling Methods and Handling

Comment Text: Chipped pieces will be collected using a dedicated, decontaminated dustpan and natural bristle brush and transferred directly into the sampling bottle.

Basis Text: This detail may conflict with proceduralized sample collection processes and equipment. This level of detail is not necessary.

Recommendation Text: Delete text.

### ***Response to A-1-263***

*Thank you for your comment. The detail included is necessary to ensure collected samples are not contaminated, and was obtained from the Department of Defense Environmental Field Sampling Handbook Revision 1.0, April 2013 (211-T Pad, Addendum H, Closure Plan, Section H.8, References). This level of detail is consistent with the Bonneville Power Administration - Ross Complex Washington State dangerous waste permit (WA1891406349). Prior to initiating closure activities, if sampling collection procedures differ from the requirements in this closure plan, the Permittees may submit a permit modification request to modify the closure plan with the updated information.*

### **Comment A-1-264**

#### 58. Addendum Section: H.4.4.3 Sampling and Analysis Requirements to Address Removal of Contaminated Soil and Concrete

Comment Text: If focused soil or chip sample results based on direct comparison (Section H.4.4.1) indicate contamination above closure performance standards, then sample location(s) will be remediated to remove contaminated soil or concrete.

Basis Text: Details for remediation of contaminated soil are presented in Section H.3.5, however details of concrete surface remediation are not provided.

Recommendation Text: Provide details on remediation of concrete.

### ***Response to A-1-264***

*Thank you for your comment. Ecology agrees that text was not provided indicating what steps are to be taken when concrete closure performance standards are not achieved. The following text was included in Section H.3.6:*

*" Contaminated concrete removal is not anticipated (see Section H.3.2). However, if contamination above closure performance standards is identified, the following options may be used:*

- Re-decontaminate using high pressure steam or water sprays, followed by confirmatory concrete chip sampling to demonstrate re-decontamination was successful.*
- Investigate the nature and extent of contamination. Remediate the concrete within the identified area of contamination by removing the contaminated concrete, followed by resampling to confirm contamination has been removed.*
- Submit a permit modification request to treat concrete using one of the physical extraction methods, in accordance with 40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris in Table 1."*

### **Comment A-1-265**

#### 59. Addendum Section: H.4.6 Revisions to the Sampling and Analysis Plan and Constituents to be Analyzed

Comment Text: Changes to the SAP may be necessary due to unexpected events during closure. An unexpected event would be an event outside the scope of the SAP or a condition that inhibits implementation of the SAP as written. Revisions to the SAP will be submitted no later than 30 days after the unexpected event as a permit modification request.

Basis Text: Approval of a permit modification will likely adversely affect meeting the 180-day closure period.

Recommendation Text: Provide clarification on whether the permit modification request approval is required to continue with closure activities or if activities can continue uninterrupted after the unexpected event occurs.

#### ***Response to A-1-265***

*Thank you for your comment. Ecology disagrees with the recommendation, and is retaining the existing text. Due to the nature of unexpected events (that is, they are unexpected), Ecology cannot determine at this point in time whether or not closure activities may continue uninterrupted. Ecology understands that permit modifications caused by unexpected events may adversely affect the Permittees' ability to complete closure within the 180-day closure period and have specifically addressed this circumstance in Section H.6, Closure Schedule and Time Frame. Specifically:*

*"Should an unexpected event occur and an extension to the 180 day closure activity expiration date be deemed necessary, a permit modification request will be submitted to Ecology for approval at least 30 days prior to the expiration of the 180 days. [WAC 173 303 610(4)(c)]*

*The permit modification request will include the statement that closure activities, will of necessity, take longer than 180 days to complete, including the supporting basis for the statement. The permit modification request will also include necessary information demonstrating that all steps to prevent threats to HHE have been and will continue to be taken, including compliance with all applicable permit requirements. [WAC 173 303 610(4)(b)]"*

### **Comment A-1-266**

#### 60. Addendum Section: H.5.1 Confirmation of Clean Closure

Comment Text: The 211-T Pad will be clean closed through confirmation of successful decontamination determined by chip sampling of the concrete surface, and sampling of soil beneath the concrete and blind sump.

Basis Text: Values listed in CLARC tables are for soil. The natural composition of the Hanford soil and the composition of concrete are not the same. Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil.

Recommendation Text: Provide an explanation on how the difference in composition is accounted for in the CLARC table values for soil and document values in Table H-5 of Addendum H.

### ***Response to A-1-266***

*Thank you for your comment. The difference in the composition of concrete and soil is not accounted for in the CLARC table values for soil. As stated in Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, Section 5.4:*

*"[T]here are no numeric standards that are routinely used to define constituent concentrations at which concrete no longer contains dangerous waste; however, Ecology believes that MTCA unrestricted site use cleanup levels for soil represent very conservative assessments of the potential exposure risks posed by concrete."*

### **Comment A-1-267**

#### 61. Addendum Section: H.5.3 Closure Certification

Comment Text: Within 60 days of completion of closure of the 211-T Pad DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail.

Basis Text: Suggest "closure activities". Closure is not complete until Ecology acknowledges the clean closure certification. Also, include language consistent with regulations for delivery of closure certification means.

Recommendation Text: Within 60 days of completion of closure activities of the 211-T Pad DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means).

### ***Response to A-1-267***

*Thank you for your comment. The comment text is consistent with WAC 173-303-610(6) and will not be amended beyond the inclusion of other acceptable means of submittal. Ecology amended the text to read, "Within 60 days of completion of closure of the 211-T Pad DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means)."*

### **Comment A-1-268**

#### 62. Addendum Section: Table H-8 211-T Pad Dangerous Waste Management Unit Closure Schedule

Comment Text: 180 days

Basis Text: Per the WAC 173-303-610 requirement, the total duration of closure activities is limited to 180 days. The 180 day duration of this activity indicates closure will take 360 days.

Recommendation Text: Delete Activity.

### ***Response to A-1-268***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the schedule item summarizing closure activities, as this item made the duration of closure appear to take 360 days vs. the actual duration of 180 days.*

### ***Comment A-1-269***

#### 63. Addendum Section: H.8 References

Comment Text: (Dangerous Waste Permit Application Part A Form, Closure Unit 19, Hexone Storage & Treatment Facility, Revision 7, October 1)

Basis Text: This appears to be an incorrect reference.

Recommendation Text: Provide appropriate reference.

### ***Response to A-1-269***

*Thank you for your comment. Ecology agrees this is an incorrect reference, and has updated it with the following: "21-NWP-033, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967" (letter to Brian T. Vance, DOE-RL/ORP and Scott Sax, CPCCo, from Stephanie Schleif), Nuclear Waste Program, Ecology, Richland, Washington, March 15. Available at: <https://pdw.hanford.gov/document/AR-10235>*

### ***Comment A-1-270***

#### 64. Addendum Section: H.8 References

Comment Text: WAC 173-340, Model Toxics Control Act-Cleanup, Washington Administrative Code, Olympia, Washington.

Basis Text: WAC 173-340-900 as referenced in Section H.3.7 is missing.

Recommendation Text: Add WAC 173-340-900 to Section H.8.

### ***Response to A-1-270***

*Thank you for your comment. Ecology accepts the recommendation and added the reference.*

### ***Comment A-1-271***

#### 65. Addendum Section: Attachment B Summary of Sampling Design Table

Comment Text: User specified number of samples.

Basis Text: Provide justification for the 6 samples. If this is for judgmental (focused) samples, then the randomization of the locations is unnecessary. If it is statistically based, then provide VSP input.

Recommendation Text: Provide justification and additional details to support the determination of the number of samples.

## ***Response to A-1-271***

*Thank you for your comment. As stated in the 211-T Pad, Addendum H, Closure Plan, Attachment B:*

*"This sampling approach is to determine if decontamination is successful. Systematic non-statistical sampling was created with a pre-determined number of samples based on professional judgement. Locating the sample points over a systematic grid with a random start ensures spatial coverage of the site and eliminates bias when selecting sampling locations. Locating the sample points systematically provides data that are all equidistant apart and ensures that all portions of the site are equally represented."*

*The Fact Sheet for this permit modification, which included justification for each sample location, was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020, and included the Fact Sheet on Ecology's public comments period's webpage.*

*As explained in the Fact Sheet, WAC 173-303-610(2)(b)(ii) requires Ecology to set clean closure standards for all structures, equipment, bases, liners, etc. on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii), and in a manner that eliminates post-closure escape of dangerous waste constituents. The regulatory basis for Ecology's determination in this case that concrete chip sampling is required to demonstrate successful decontamination was summarized in the Fact Sheet, Section 3.0, Class 3 Permit Modification Process, and is included as an excerpt below:*

*"Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.*

*With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete "debris" is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the U.S. Environmental Protection Agency (EPA) on the subject...*

*Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:*

- 1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); or*
- 2. Propose a site-specific method of decontamination and evaluation criteria.*

*The Permittees proposed using 'high pressure steam or water sprays' to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a 'clean debris surface' in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer*

*before applying the performance standard of 'clean debris surface' is to remove any contamination that has migrated into the porous concrete surface...*

*Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that 'clean debris surface' cannot be used as the evaluation criteria to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures."*

*While the records review and visual inspections for the 211-T Pad provided insight into the history of waste management and spills and releases at the unit, that information by itself cannot be used to determine that clean closure performance standards have been satisfied. Confirmation sampling is necessary to ensure waste residuals are not left in the concrete structure at closure. The basis for the number and locations of the concrete chip samples was summarized in the Fact Sheet, Section 4.1.4 Closure Actions for Closure Unit Group 30, 211-T Building, and is included as an excerpt below:*

*"One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, "Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required." The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.*

*Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology's professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, "If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels." The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations."*

## **CLOSURE UNIT GROUP 37, 221-T SAND FILTER PAD**

### **Comment A-1-272**

#### 1. Addendum Section: Unit 37 221-T Sand Filter Pad Permit Conditions

Comment Text: Addenda

Basis Text: Erroneous use of the plural form of Addendum.

Recommendation Text: Change "Addenda" to "Addendum".

### ***Response to A-1-272***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

### **Comment A-1-273**

#### 2. Addendum Section: Unit 37 221-T Sand Filter Pad Permit Conditions

Comment Text: The Permittees will notify Department of Ecology (Ecology) within 24 hours of any deviations from the approved Addendum H, "Closure Plan."

Basis Text: This permit condition lacks regulatory basis and is contradictory to Permit Condition II.K.6 which states:

"Deviations from a TSD unit closure plan required by unforeseen circumstances encountered during closure activities, which do not impact the overall closure strategy, but provide equivalent results, shall be documented in the TSD unit-specific Operating Record and made available to Ecology upon request, or during the course of an inspection."

While field sampling plans are designed to be able to be implemented as written, field conditions arise that may require minor deviation. These circumstances are addressed in permit condition II.K.6.

Recommendation Text: Minor deviations from this closure plan must be addressed in accordance with Permit Condition II.K.6.

### ***Response to A-1-273***

*Thank you for your comment. Ecology disagrees Permit Condition II.K.6 lacks a regulatory basis or is contradictory to the unit-specific permit condition. Permit Condition II.K.6 requires documentation of closure plan deviations be provided to Ecology upon request. Ecology is requesting documentation of any closure plan deviations via Permit Condition V.37.B.2. Most importantly, Ecology notes the term "minor deviations" used in Permit Condition II.K.6 could be interpreted differently by the Permittees and Ecology in this context. Therefore, Ecology is requiring notification in order for Ecology and the Permittees to review the deviation to determine if it will affect the ability to meet final acceptance of closure. If Ecology determines the deviation will affect the ability to meet final acceptance of closure, Ecology will require the Permittees to submit a permit modification request to modify the closure plan in accordance with WAC 173-303-610(3)(b)(iv). Ecology also notes Permit Condition II.J.3 requires changes to*

*the approved closure plan be submitted to Ecology as a permit modification request, which is consistent with WAC 173-303-610(3)(b)(ii).*

*In addition, even if this unit-specific permit condition were contradictory with Permit Condition II.K.6, the language of a unit-specific condition prevails when in conflict with the Hanford Facility Part I-Standard and/or Part II-General Facility Conditions. This is clearly stated in the first unit-specific permit condition for the 221-T Sand Filter Pad, Part V, Closure Unit Group 37:*

*"V.37.A COMPLIANCE WITH PERMIT CONDITIONS*

*The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act Permit (Permit) as specified in Permit Attachment 9, Permit Applicability Matrix, including all approved modifications. All addenda, subsections, figures, tables, and appendices included in the following Unit-Specific Permit Conditions are enforceable in their entirety. In the event that the Part V, Unit-Conditions for Closure Unit 37, 221-T Sand Filter Pad conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit conditions will prevail for Closure Unit 37, 221-T Sand Filter Pad."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020. The bases for this closure unit group's permit conditions are summarized in the Fact Sheet, Section 4.2. As stated in the Fact Sheet:*

*"4.2 Basis for Closure Unit Group Permit Conditions*

*The following are permit conditions for Closure Unit Groups 28, 30, 37, and 41:*

*Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, Permit Applicability Matrix, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.*

*Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.*

*Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within 24 hours of any deviations from the approved closure plan. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure."*

*Please note, permit condition numbers noted in the Fact sheet were incorrect. For Closure Unit Group 37, 221-T Sand Filter Pad, permit condition numbers are: V.37.A, V.37.B.1, and V.37.B.2.*

**Comment A-1-274**

**3. Addendum Section: Unit 37 221-T Sand Filter Pad Permit Conditions**

Comment Text: If sampling assumptions/closure performance standards were not met, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work that would need to be done to achieve clean closure.

Basis Text: Resolving Contamination Identified During Grid Soil Sampling is already addressed in Section H.4.3.3.2. Identify what additional information is needed for the permit modification.

Recommendation Text: Provide details on what additional information is required for the permit modification.

***Response to A-1-274***

*Thank you for your comment. There is no Section H.4.3.3.2. However, Ecology notes resolving contamination identified during sampling is already addressed in Section H.3.5. The permit condition was meant to address, (based on review of sampling data results), any additional sampling and remediation needed beyond what is already described in the closure plan. Ecology has amended the 221-T Sand Filter Pad Closure Plan Permit Condition, V.37.B.3.a, to specify that a permit modification request will be required for closure performance standards specified in Table H-5 of the Addendum H, Closure Plan that have not been met after remediation and confirmatory sampling data analysis. This is consistent with Section H.3.7 which describes meeting with Ecology to determine a path forward for closure if contamination remains after remediation.*

**Comment A-1-275**

4. Addendum Section: Unit 37 221-T Sand Filter Pad Permit Conditions

Comment Text: For Non-Statistical Grid Sampling and/or Focused Sampling: The Permittees will conduct a review of the non-statistical grid and/or focused sampling data for purposes of verifying the closure performance standards specified in the sampling plan in Addendum H, “Closure Plan, “ have not been exceeded.

Basis Text: The closure plan does not identify non-statistical or focused sampling.

Recommendation Text: Delete section.

***Response to A-1-275***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the entire section of text that referred to non-statistical grid sampling and/or focused sampling from Permit Condition V.37.B.3.a.*

**Comment A-1-276**

5. Addendum Section: Unit 37 221-T Sand Filter Pad Permit Conditions

Comment Text: Within sixty days of completion of closure for the 221-T Sand Filter Pad, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 221-T Sand Filter Pad has been closed in accordance with the specifications of the Addendum H, “Closure Plan” [WAC 173-303-610 (6)].

Basis Text: The IQRPE certification is submitted after closure activities are complete but as part of the overall closure process. Suggest specifying the IQRPE certification is submitted after closure activities are complete.

Recommendation Text: Within sixty days of completion of closure activities for the 221-T Sand Filter Pad, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 221-T Sand Filter Pad has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610(6)].

***Response to A-1-276***

*Thank you for your comment. Thank you for your comment. The 221-T Sand Filter Pad Permit Condition V.37.B.4 language is consistent with WAC 173-303-610(6), Certification of closure, and will not be changed.*

**Comment A-1-277**

6. Addendum Section: Table of Contents

Comment Text: Table of Contents

Basis Text: Page numbers are missing the H-..

Recommendation Text: Suggest reformatting TOC for consistency with page numbering throughout document.

***Response to A-1-277***

*Thank you for your comment. The page numbering aligns with permit formatting.*

**Comment A-1-278**

7. Addendum Section: Terms

Comment Text: Terms

Basis Text: HWMA and RCW are not included in table. See first paragraph in Intro. BCSO and WIDS are not defined in this plan.

Recommendation Text: Add HWMA, RCW to; and remove BCSO and WIDS from terms table.

***Response to A-1-278***

*Thank you for your comment. Ecology has amended "Terms" to include HWMA - Hazardous Waste Management Act, RCW- Revised Code Washington, and to exclude BCSO - Benton County Sheriff's Office.*

**Comment A-1-279**

8. Addendum Section: H.1 Introduction

Comment Text: The purpose of this plan is to describe the Resource Conservation and Recovery Act (RCRA)/Hazardous Waste Management Act (HWMA), Chapter 70.105 Revised Code of Washington (RCW) closure process for the 221-T Sand Filter Pad Dangerous Waste Management Unit (DWMU), hereinafter called the 221-T Sand Filter Pad.

Basis Text: Should be defined as "Resource Conservation and Recovery Act of 1976."

Recommendation Text: The purpose of this plan is to describe the closure process for the 221-T Sand Filter Pad Dangerous Waste Management Unit (DWMU), hereinafter termed the "221-T Sand Filter Pad," as required by and in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) and Washington's Hazardous Waste Management Act (HWMA).

***Response to A-1-279***

*Thank you for your comment. Ecology agrees that (RCRA) should be defined as "Resource Conservation and Recovery Act of 1976" and had amended the text to reflect the correct definition.*

**Comment A-1-280**

9. Addendum Section: H.1 Introduction

Comment Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), and WAC 173-303-630(10).

Basis Text: Should define WAC 173-303-610 and WAC 173-303-630 the first time they are used. -610 is "Closure and Post-Closure;" and -630, "Use and Management of Containers."

Recommendation Text: This closure plan complies with the closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), Closure and Post Closure, and in WAC 173-303-630(10), *Use of Management of Containers*.

***Response to A-1-280***

*Thank you for your comment. Ecology accepts the recommendation and amended the text to read; "This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), Closure and Post-Closure, and WAC 173-303-630(10), Use and Management of Containers."*

**Comment A-1-281**

10. Addendum Section: H.1 Introduction

Comment Text: Addendum H.7

Basis Text: Page numbering should re-start at H.1.

Recommendation Text: Renumber pages beginning with H.1.

***Response to A-1-281***

*Thank you for your comment. The page numbering aligns with permit formatting.*

**Comment A-1-282**

11. Addendum Section: Figure H-1 T Plant Complex Overview, 221-T Sand Filter Pad Dangerous Waste Management Unit

Comment Text: Figure H-1 T Plant Complex Overview, 221-T Sand Filter Pad Dangerous Waste Management Unit

Basis Text: Image should be dated

Recommendation Text: Provide date for Figure H-1.

***Response to A-1-282***

*Thank you for your comment. Ecology accepts the recommendation and included the date "Month Unknown, 2017."*

**Comment A-1-283**

12. Addendum Section: Table H-1 Training Matrix for the 221-T Sand Filter Pad Dangerous Waste Management Unit

Comment Text: The "X" in the FS column for the Building Emergency Training Category Course Description.

Basis Text: This "X" is in error. There is no requirement for Building Emergency training for the Field Sampler.

Recommendation Text: Remove the "X" for the FS column for Building Emergency Training Category Course Description.

***Response to A-1-283***

*Thank you for your comment. Ecology agrees with the recommendation and deleted the "X" from Training Category Course Description: Building Emergency, under the Field Sampler (FS) column.*

**Comment A-1-284**

13. Addendum Section: Table H-1 Training Matrix for the 221-T Sand Filter Pad Dangerous Waste Management Unit

Comment Text: c. Facility Health and Safety training is required only if workers are unescorted in the facility

Basis Text: There is no c superscript in Table H-1.

Recommendation Text: Add superscript c to columns for Non-T Plant Personnel or Visitor, SPOC, and FS for Facility Health and Safety Training Category Course Description.

***Response to A-1-284***

*Thank you for your comment. The superscript "c" is already present in Table H-1 for Non-T Plant Personnel or Visitor, and SPOC columns. Ecology agrees with the recommendation and included the omitted superscript from Training Category Course Description: Facility Health and Safety, under the Field Sampler (FS) column.*

**Comment A-1-285**

14. Addendum Section: H.1.5 Facility Contact Information

Comment Text: Doug S. Shoop

Basis Text: Contact information should be in the Part A only. If the contact information changes, it will require a permit modification to the closure plan. In addition, the DOE contact is no longer Doug Shoop.

Recommendation Text: Remove facility contact information from closure plan.

***Response to A-1-285***

*Thank you for your comment. As there is no approved Part A for the closure units that are the subject of this permit modification, facility contact information needs to be included in the closure plans. Ecology obtained the most recent facility contact information from the Permittees at the drafting of this permit modification.*

*The Section H.1.5 – Facility Contact Information has been updated to include the current contact information provided by the Permittees in letter dated, January 22, 2021, "Transfer of Co-Operator Responsibilities for Hanford Facility Resource Conservation and Recovery Act Permit, WA7890008967," (21-ESQ-00305) and approved by Ecology in letter dated, March 15, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967," (21-NWP-033).*

*Ecology has amended Section H.1.5 – Facility Contact Information text to read:*

*Brian T. Vance, Manger  
U.S. Department of Energy, Richlands Operations Office  
P.O. Box 550  
Richland, WA 99352  
(509) 376-7395*

*Scott Sax, President and Project Manager  
Central Plateau Cleanup Company, LLC  
P.O. Box 1464  
Richland, WA 99352  
(509) 372-3845*

*Additionally, in these closure plans, references to "CH2M HILL Plateau Remediation Company (CHPRC)" as a Permittee have been changed to "Central Plateau Cleanup Company, LLC (CPCCo)." The change is reflected in the following Sections:*

*TERMS,  
H.1 Introduction,  
H.3.7 Closure Performance Standards for Soil,  
H.3.8 Development of Closure Performance Standards, Table H-4, and  
H.4.3.1 Project/Task Organization*

**Comment A-1-286**

**15. Addendum Section: H.2 Unit 37 221-T Sand Filter Pad Closure Plan**

Comment Text: Remove all waste and waste residues and properly dispose of them in a RCRA permitted disposal facility.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

***Response to A-1-286***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Remove all waste and waste residues" is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for clean closure of container storage areas.*

*The text "and properly dispose of them in a RCRA permitted disposal facility" is deleted as it is an activity required by WAC 173-303-610(3)(a)(iv) to treat (if necessary) and dispose of all dangerous wastes removed from the dangerous waste management unit during closure activities. This information is covered under Section H.3, Closure Activities.*

**Comment A-1-287**

16. Addendum Section: H.2 Closure Performance Standards

Comment Text: Perform soil sampling and analysis to ensure soils in the 221-T Sand Filter Pad meet standard Model Toxics Control Act (MTCA) cleanup levels, and remove any soils contaminated above these levels.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

***Response to A-1-287***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Perform soil sampling and analysis to ensure soils at the 221-T Sand Filter Pad meet standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, and remove any soils contaminated above these levels" is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for the 221-T Sand Filter Pad to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

**Comment A-1-288**

17. Addendum Section: H.3.1 Removal of Waste and Waste Residues

Comment Text: It is unknown if dangerous or mixed waste residues are present at this DWMU.

Basis Text: As identified in the records review, facility inspections were completed in this storage area to monitor for spills. No documentation of spills were found during the records reviewed. Provide supporting documentation indicating the potential for dangerous or mixed waste residue to be present at the DWMU.

Recommendation Text: The records review and visual inspection did not identify any releases of dangerous waste or waste related staining, therefore dangerous or mixed waste residues are not anticipated at this unit.

***Response to A-1-288***

*Thank you for your comment. Until confirmation sampling results are made available, the referenced text in H.3.1 of Addendum H, "It is unknown if dangerous waste residues are present at this DWMU," is accurate. Accordingly, this language will not be changed. The recommendation text, "...dangerous or mixed waste residues are not anticipated at this unit," would not change the fact that confirmation sampling must be performed.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean*

*closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.2.1, Area-Wide Sampling: "During area-wide sampling, an imaginary sampling grid, three-dimensional if necessary, is imposed over the area to be sampled. The area to be sampled must encompass the closing unit and the maximum extent of any releases from the closing unit. Each node of the grid is a sampling location with an assigned number. Area-wide sampling is appropriate when the spatial distribution of contamination at or from the closing unit is uncertain."*

*Overall, there was very little information regarding waste stored at the 221-T Sand Filter Pad. The certified closure plan (letter 19-AMRP-0021, Attachment 2.2) stated no dangerous waste permitted storage was identified during the records review, however weekly inspection records identified it was used as a less than 90-day storage area and as a satellite accumulation area, and possibly managed dangerous and mixed waste. The September 18, 2013 visual inspection did not identify any waste related staining, therefore only confirmation sampling and analysis will be performed to verify clean closure. Based on the 2018 walk down, Ecology has agreed with the 25 statistical grid soil sampling locations identified by the Permittees.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 221-T Sand Filter Pad are summarized in the Fact Sheet, Section 4.1.5, Closure Actions for Closure Unit Group 37, 221-T Sand Filter Pad, and is included as an excerpt below:*

*"For the 221-T Sand Filter Pad, clean closure will be achieved through sampling of the soil. The samples will be analyzed to confirm whether closure performance standards have been achieved. Ecology and the Permittees are in agreement on sampling requirements to verify clean closure standards are met. The Permittees proposed 25 statistical grid soil samples."*

## **Comment A-1-289**

### **18. Addendum Section: H.3.4 Decontamination**

**Comment Text:** Equipment used during sampling will be decontaminated for re-use or disposed of and managed as newly generated waste in accordance with Section H.3.6

**Basis Text:** Per WAC 173-303-610, only equipment containing or contaminated with dangerous wastes or waste residue require removal or decontamination. With the absent of contamination, decontamination of equipment is not necessary.

**Recommended Text:** Any equipment used to remove material contaminated with hazardous or mixed waste will be decontaminated in accordance with WAC 173-303-610. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent

possible, and will be performed within the area where the closure activity has taken place. Solid waste debris generated by decontamination of equipment (e.g., rags and personal protective equipment) will be collected and disposed at an approved disposal facility. Dangerous waste generated will be managed in accordance with WAC 173-303, "Dangerous Waste Regulations." Contaminated equipment that cannot be decontaminated for re-use will be discarded and managed as dangerous waste in accordance with generator accumulation standards of WAC 173-303-170 and -200.

### ***Response to A-1-289***

*Thank you for your comment. Ecology has amended the text to read, "Equipment that becomes contaminated during sampling activities will be decontaminated for re-use or managed and disposed of as newly generated waste in accordance with Section H.3.6. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible. A temporary decontamination area may be established near the 221-T Sand Filter Pad. This area will be constructed of Visqueen™ or equivalent material, and may be used for decontamination of sampling equipment, personal protective equipment, and other miscellaneous small equipment used during sampling activities. When decontamination of equipment is completed, the Visqueen™ or equivalent materials, rinsate, and solid waste debris generated by equipment decontamination (e.g., rags and personal protective equipment) will be removed and managed as newly generated waste in accordance with Section H.3.6"*

### **Comment A-1-290**

#### 19. Addendum Section: H.3.4 Decontamination

Comment Text: A small temporary decontamination area (approximately 10 by 20 feet) may be established near the 221-T Sand Filter Pad.

Basis Text: Providing approximate dimensions requires Permittees to establish that size of area when a smaller area may be effective.

Recommendation Text: A small temporary decontamination area may be established near the 221-T Sand Filter Pad.

### ***Response to A-1-290***

*Thank you for your comment. Ecology has amended the text to read, "A temporary decontamination area may be established near the 221-T Sand Filter Pad."*

### **Comment A-1-291**

#### 20. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: The contaminated soil will be containerized, labeled, and sampled for waste characterization.

Basis Text: The soil has already been sampled and analyzed through the closure plan SAP. Provide the regulatory justification for requiring sampling of the soil for purposes of characterization. The soil can be characterized using the existing data.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized.

### ***Response to A-1-291***

*Thank you for your comment. Ecology agrees the data may be used for characterization, but only within the area of inference for that particular sample. Ecology has amended the text to read, "The contaminated soil will be containerized, labeled, and sampled as needed to designate for disposal of the entire volume of contaminated soil."*

### **Comment A-1-292**

#### 21. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil will be placed in U. S. Department of Transportation-compliant containers and sent to a RCRA permitted disposal facility or staged at central accumulation areas in accordance with all applicable requirements of WAC 173-303-200, *Conditions for exemption for a large quantity generator that accumulate dangerous waste.*

Basis Text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized. Contaminated soil will be placed in U.S. Department of Transportation compliant containers and sent to an approved disposal facility or staged at central accumulation areas in accordance with standards in WAC 173-303-200, "Accumulating Dangerous Waste On-site." Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268, "Land Disposal Restrictions") will be characterized, designated, stored, or treated, as applicable, prior to disposal in an approved disposal facility.

### ***Response to A-1-292***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil will be placed in U.S. Department of Transportation-compliant containers and sent to an appropriate land disposal unit, possibly with central accumulation as an intermediary step in accordance with all applicable requirements of WAC 173-303-200, "Conditions for exemption for a large quantity generator that accumulates dangerous waste."*

### **Comment A-1-293**

#### 22. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil subject to the requirements of WAC 173-30-140, Land Disposal Restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268, Land Disposal Restriction) will be characterized, designated, and stored or treated, as applicable, prior to disposal in a RCRA permitted disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

***Response to A-1-293***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil subject to the requirements of WAC 173-303-140, Land Disposal Restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268 Land Disposal Restrictions) will be characterized, designated, and treated, as applicable, prior to disposal in an appropriate land disposal unit."*

**Comment A-1-294**

23. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Once waste characterization results are received, all waste will be designated and shipped to a RCRA permitted facility for treatment, storage, or disposal.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: If any waste is identified as hazardous waste it must be properly disposed or decontaminated in accordance with WAC 173-303-610(5). All hazardous waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230.

***Response to A-1-294***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Once waste characterization results are received, all waste will be designated." The last sentence in the preceding paragraph, "The waste will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5)," was clarified as follows: "The waste will be managed as a newly generated waste stream and either disposed of or decontaminated in accordance with WAC 173-303-610(5)."*

**Comment A-1-295**

24. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268) then ultimately disposed in a RCRA permitted waste disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

***Response to A-1-295***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268), then ultimately disposed in an appropriate land disposal unit."*

**Comment A-1-296**

25. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: WAC 173-340-740(2), Table 740-1, *Method A Soil Cleanup Levels for Unrestricted Land Uses* (WAC 173-340-900), which includes closure performance standards for human health based on unrestricted land use.

Basis Text: Include the title of this WAC 173-340-900, Tables.

Recommendation Text: WAC 173-340-740(2), Table 740-I, *Method A Soil Cleanup Levels for Unrestricted Land Uses* (WAC 173-340-900, *Tables*), which includes closure performance standards for human health based on unrestricted land use.

***Response to A-1-296***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

**Comment A-1-297**

26. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: The ecological indicator pathway and the inhalation exposure pathway were excluded when determining 221-T Sand Filter Pad closure performance standards.

Basis Text: This says that the ecological indicator pathway and inhalation exposure pathway were excluded.

Recommendation Text: Revise Table H-4 to remove ecological indicator and inhalation values.

***Response to A-1-297***

*Thank you for your comment. Ecology revised Table H-4 to remove the ecological indicator and inhalation exposure pathways values.*

### **Comment A-1-298**

#### 27. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: If target analytes are found above closure performance standards, then the contaminated soil will be remediated and confirmatory sampling will be conducted in accordance with Section H.4.4.3 to ensure the closure performance standards are met for the remaining soil. If failed constituents of concern do not meet closure performance standards after soil remediation, then Permittees will meet with Ecology to determine a path forward for closure.

Basis Text: Repetitive with Section H.4.4.3.

Recommendation Text: Replace with "Target analytes found above closure standards will be addressed as in Section H.4.4.3.

#### ***Response to A-1-298***

*Thank you for your comment. Ecology will retain the text for clarity between Section H.3.7 Closure Performance Standards for Soil and Section H.4.4.3 Sampling and Analysis Requirements to Address Removal of Contaminated Soil.*

### **Comment A-1-299**

#### 28. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: VSP Data Analysis Report is to be provided to Ecology within 30 days of receipt of the final laboratory analytical report.

Basis Text: The VSP data analysis report is to be provided to Ecology within 30 days after all data verification activities.

Recommendation Text: VSP Data Analysis Report is to be provided to Ecology within 30 days after all data verification activities are complete.

#### ***Response to A-1-299***

*Thank you for your comment. Ecology accepts the recommendation and has amended Section H.3.7 to read, "The VSP Data Analysis Report is to be provided to Ecology within 30 days after all data verification activities are complete."*

### **Comment A-1-300**

#### 29. Addendum Section: Table H-4 Closure Performance Standards for Soil and Analytical Performance Requirements

Comment Text: Closure Performance Standards for Soil and Analytical Performance Requirements.

Basis Text: Ecological and inhalation pathways were determined to be not viable.

Recommendation Text: Update Table H-4 to remove ecological and inhalation pathway values.

### ***Response to A-1-300***

*Thank you for your comment. Ecology revised Table H-4 to remove the ecological indicator and inhalation exposure pathways values.*

### **Comment A-1-301**

#### 30. Addendum Section: Table H-4 Closure Performance Standards for Soil and Analytical Performance Requirements

Comment Text: Tetrahydrofuran 1.00E+1

Basis Text: For tetrahydrofuran, Permittees agree with the value of 3.00E+01 mg/kg for groundwater protection. The PQL should be 5.00E-02 mg/kg.

Recommendation Text: Update Table H-4 with PQL of 5.00E-02 mg/kg and groundwater protection with 3.00E+01 mg/kg

### ***Response to A-1-301***

*Thank you for your comment. Ecology accepts the recommendation and has amended the tetrahydrofuran PQL to read "5.00E-02" mg/kg in Table H-4 Closure Performance Standards for Soil and Analytical Performance Requirements.*

### **Comment A-1-302**

#### 31. Addendum Section: Table H-4 Closure Performance Standards for Soil and Analytical Performance Requirements

Comment Text: Trichlorofluoromethane 2.82+E01

Basis Text: Should read "2.82E+01"

Recommendation Text: 2.82E+01

### ***Response to A-1-302***

*Thank you for your comment. Ecology accepts the recommendation and has amended the closure performance standard value for trichlorofluoromethane in Table H-4.*

### **Comment A-1-303**

#### 32. Addendum Section: H.4 Closure Performance Standards for Soil and Analytical Performance Requirements

Comment Text: Sampling includes 21 grid (area-wide) soil samples (Section H.4.4.1).

Basis Text: Section H.4.4.1 says 25

Recommendation Text: Sampling includes 25 grid (area-wide) soil samples (Section H.4.4.1)

### ***Response to A-1-303***

*Thank you for your comment. Although Addendum Section H.4 is labeled "Sampling and Analysis Plan" and not "Closure Performance Standards for Soil and Analytical Performance Requirements," Ecology accepts your recommendation and has corrected the typographical error in this section. The text now reads, "Sampling includes 25 grid (area-wide) soil samples."*

### **Comment A-1-304**

#### 33. Addendum Section: H.4.3.1 Project/Task Organization

Comment Text: The roles described above make up the project organization structure (regarding sampling and analysis) and interact in a manner shown graphically in Figure H-4. Error! Reference source not found.

Basis Text: Error in linking Figure H-4.

Recommendation Text: Correctly link Figure H-4.

#### ***Response to A-1-304***

*Thank you for your comment. The link to Figure H-4 was inadvertently left active in 221-T Sand Filter Pad Addendum H Closure Plan. Ecology has removed the link.*

### **Comment A-1-305**

#### 34. Addendum Section: H.4.3.3 Sampling Documents and Records

Comment Text: Records may be stored in either electronic or hard copy format. Documentation and records, regardless of medium or format, are controlled in accordance with internal work requirements and processes to ensure the accuracy and retrieveability of stored records. Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Federal Facility Agreement and Consent Order) will be managed in accordance with the requirements therein.

Basis Text: This replicates language in Section H.1.4.4 Facility Recordkeeping.

Recommendation Text: Replace language with a reference to Section H.1.4.4

#### ***Response to A-1-305***

*Thank you for your comment. Ecology deleted the redundant text in Section H.4.3.3. and included a reference to Section H.1.4.4. Also, in Section H.1.4.4. the sentence "Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Facility Agreement and Consent Order) will be managed in accordance with the requirements therein." was deleted and replaced with "Records generated during closure will be maintained in the operating record in accordance with Permit Condition II.I." Records related to this closure plan must be retained in the facility operating record in accordance with Permit Condition II.I.*

### **Comment A-1-306**

#### 35. Addendum Section: H.4.5 Data Review, Verification, Validation, and Usability Requirements

Comment Text: Grid soil sample results will be evaluated to ensure VSP model assumptions were correct (Section H.4.5.3) and a data quality assessment (DQA) will be conducted to ensure the output of the DQO process provided appropriate values (Section Error! Reference source not found).

Basis Text: Should be Section H.4.5.3

Recommendation Text: Properly link to Section H.4.5.3.

### ***Response to A-1-306***

*Thank you for your comment. The link to "(Section H.4.5.4.)" was inadvertently left active in the 221-T Sand Filter Pad Addendum H Closure Plan. Ecology has removed the link.*

### **Comment A-1-307**

#### 36. Addendum Section: H.4.6 Revisions to the Sampling and Analysis Plan and Constituents to be Analyzed

Comment Text: Changes to the SAP may be necessary due to unexpected events during closure. An unexpected event would be an event outside the scope of the SAP or a condition that inhibits implementation of the SAP as written. Revisions to the SAP will be submitted no later than 30 days after the unexpected event as a permit modification request.

Basis Text: Approval of a permit modification will likely adversely affect meeting the 180-day closure period.

Recommendation Text: Provide clarification on whether the permit modification request approval is required to continue with closure activities or if activities can continue uninterrupted after the unexpected event occurs.

### ***Response to A-1-307***

*Thank you for your comment. Ecology disagrees with the recommendation, and is retaining the existing text. Due to the nature of unexpected events, (that is, they are unexpected), Ecology cannot anticipate at this point in time whether or not closure activities may continue uninterrupted. Ecology understands that permit modifications caused by unexpected events, may adversely affect the Permittees' ability to complete closure within the 180-day closure period and have specifically addressed this circumstance in Section H.6, Closure Schedule and Time Frame. Specifically:*

*"Should an unexpected event occur and an extension to the 180-day closure activity expiration date be deemed necessary, a permit modification request will be submitted to Ecology for approval at least 30 days prior to the expiration of the 180 days. [WAC 173 303 610(4)(c)]*

*The permit modification request will include the statement that closure activities, will of necessity, take longer than 180 days to complete, including the supporting basis for the statement. The permit modification request will also include necessary information demonstrating that all steps to prevent threats to HHE have been and will continue to be taken, including compliance with all applicable permit requirements. [WAC 173 303 610(4)(b)]"*

### **Comment A-1-308**

#### 37. Addendum Section: H.5.3 Closure Certification

Comment Text: Within 60 days of completion of closure of the 221-T Sand Filter Pad DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail.

Basis Text: Suggest "closure activities". Closure is not complete until Ecology acknowledges the clean closure certification. Also include language consistent with regulations for delivery of closure certification means.

Recommendation Text: Within 60 days of completion of *closure activities* of the 221-T Sand Filter Pad DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means).

***Response to A-1-308***

*Thank you for your comment. The comment text is consistent with WAC 173-303-610(6) and will not be amended beyond the inclusion of a reference to other acceptable means of submittal. Ecology amended the text to read, "Within 60 days of completion of closure of the 221-T Sand Filter Pad DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means)."*

**Comment A-1-309**

38. Addendum Section: Table H-8 221-T Sand Filter Pad Dangerous Waste Management Unit Closure Schedule

Comment Text: 180 days

Basis Text: The duration for the activity "Complete Closure of the 221-T Sand Filter Pad" is identified as 180 days. Having an additional duration of 180 days for this activity allows 360 days for closure activities.

Recommendation Text: Delete Activity.

***Response to A-1-309***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the schedule item summarizing closure activities, as this item made the duration of closure appear to take 360 days vs. the actual duration of 180 days.*

**Comment A-1-310**

39. Addendum Section: H.8 References

Comment Text: (Dangerous Waste Permit Application Part A Form, Closure Unit 19, Hexone Storage & Treatment Facility, Revision 7, October 1)

Basis Text: This appears to be an incorrect reference.

Recommendation Text: Provide appropriate reference.

***Response to A-1-310***

*Thank you for your comment. Ecology agrees this is an incorrect reference, and has updated it with the following: "21-NWP-033, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c, for the Treatment, Storage, and*

*Disposal of Dangerous Waste (Site-wide Permit), WA7890008967" (letter to Brian T. Vance, DOE-RL/ORP and Scott Sax, CPCCo, from Stephanie Schleif), Nuclear Waste Program, Ecology, Richland, Washington, March 15. Available at: <https://pdw.hanford.gov/document/AR-10235>*

### **Comment A-1-311**

#### 40. Addendum Section: H.8 References

Comment Text: WAC 173-340, Model Toxics Control Act- Cleanup, Washington Administrative Code, Olympia, Washington.

Basis Text: Add WAC 173-340-900. It was referenced in section H.3.7.

Recommendation Text: Add reference to WAC 173-340-0900 to Section H.8.

### ***Response to A-1-311***

*Thank you for your comment. Ecology accepts the recommendation and added the reference to Section H.8.*

## **CLOSURE UNIT GROUP 39, 2401-W WASTE STORAGE BUILDING**

### **Comment A-1-312**

#### 1. Addendum Section: Unit 39 2401-W Waste Storage Building Permit Conditions

Comment Text: Addenda H

Basis Text: Erroneous use of the plural form of Addendum.

Recommendation Text: Change "Addenda" to "Addendum".

### ***Response to A-1-312***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

### **Comment A-1-313**

#### 2. Addendum Section: Unit 39 2401-W Waste Storage Building Permit Conditions

Comment Text: The Permittee will notify the Department of Ecology (Ecology) within 24 hours of any deviations from the approved Addendum H, "Closure Plan."

Basis Text: This permit condition lacks regulatory basis and is contradictory to Permit Condition II.K.6 which states:

"Deviations from a TSD unit closure plan required by unforeseen circumstances encountered during closure activities, which do not impact the overall closure strategy, but provide equivalent results, shall be documented in the TSD unit-specific Operating Record and made available to Ecology upon request, or during the course of an inspection."

While field sampling plans are designed to be able to be implemented as written, field conditions arise that may require minor deviation. These circumstances are addressed in permit condition II.K.6.

Recommendation Text: Minor deviations from this closure plan must be addressed in accordance with Permit Condition II.K.6.

***Response to A-1-313***

*Thank you for your comment. Ecology disagrees Permit Condition II.K.6 lacks a regulatory basis or is contradictory to the unit-specific permit condition. Permit Condition II.K.6 requires documentation of closure plan deviations be provided to Ecology upon request. Ecology is requesting documentation of any closure plan deviations via Permit Condition V.39.B.2. Most importantly, Ecology notes the term "minor deviations" used in Permit Condition II.K.6 could be interpreted differently by the Permittees and Ecology in this context. Therefore, Ecology is requiring notification in order for Ecology and the Permittees to review the deviation to determine if it will affect the ability to meet final acceptance of closure. If Ecology determines the deviation will affect the ability to meet final acceptance of closure, Ecology will require the Permittees to submit a permit modification request to modify the closure plan in accordance with WAC 173-303-610(3)(b)(iv). Ecology also notes Permit Condition II.J.3 requires changes to the approved closure plan be submitted to Ecology as a permit modification request, which is consistent with WAC 173-303-610(3)(b)(ii).*

*In addition, even if this unit-specific permit condition were contradictory with Permit Condition II.K.6, the language of a unit-specific condition prevails when in conflict with the Hanford Facility Part I-Standard and/or Part II-General Facility Conditions. This is clearly stated in the first unit-specific permit condition for the 2401-W Waste Storage Building, Part V, Closure Unit Group 39:*

***"V.39.A COMPLIANCE WITH PERMIT CONDITIONS***

*The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act Permit (Permit) as specified in Permit Attachment 9, Permit Applicability Matrix, including all approved modifications. All addenda, subsections, figures, tables, and appendices included in the following Unit-Specific Permit Conditions are enforceable in their entirety.*

*In the event that the Part V, Unit Conditions for Closure Unit 39, 2401-W Waste Storage Building conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit conditions will prevail for Closure Unit 39, 2401-W Waste Storage Building."*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020. The bases for this closure unit group's permit conditions are summarized in the Fact Sheet, Section 4.2. As stated in the Fact Sheet:*

***"4.2 Basis for Closure Unit Group Permit Conditions***

*The following are permit conditions for Closure Unit Groups 27, 29 and 39:*

*Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, Permit Applicability Matrix, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.*

*Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.*

*Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within 24 hours of any deviations from the approved closure plan. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure."*

*Please note, permit condition numbers noted in the Fact sheet were incorrect. For Closure Unit Group 39, 2401-W Waste Storage Building, permit condition numbers are: V.39.A, V.39.B.1, and V.39.B.2.*

### **Comment A-1-314**

#### **3. Addendum Section: Unit 39 2401-W Waste Storage Building Permit Conditions**

Comment Text: The Permittees will notify Ecology in advance of conducting the visual inspection in the Addendum H, "Closure Plan," that will take place following removal of stored equipment, in order for Ecology to witness the inspection.

Basis Text: This requirement is too restrictive. The Permittees only have a limited number of days to do this inspection before it starts to impact the schedule for closure.

Recommendation Text: The Permittees will notify Ecology at least five (5) working days before the scheduled inspection.

#### ***Response to A-1-314***

*Thank you for your comment. Ecology accepts the recommendation and amended the Closure Unit Group 39 Permit Condition V.39.B.2 to read, "The Permittees will notify Ecology at least five (5) working days prior to conducting the visual inspection required by Section H.3.4 of the Addendum H, "Closure Plan," that will take place following removal of stored equipment, in order for Ecology to conduct a final inspection."*

### **Comment A-1-315**

#### **4. Addendum Section: Unit 39 2401-W Waste Storage Building Permit Conditions**

Comment Text: If the closure performance standards have been exceeded, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work and/or sampling that would need to be done to achieve clean closure.

Basis Text: Resolving Contamination Identified During Grid (Area-Wide) Soil Sampling is already addressed in Section H.4.4.3. Identify what additional information is needed for this permit modification.

Basis Text: Resolving contamination identified during focused soil sampling and grid (non-statistical) is already addressed in Section H.4.4.3. and built into the schedule.

Recommendation Text: Provide details on what additional information is required for the permit modification.

### ***Response to A-1-315***

*Thank you for your comment. Ecology agrees resolving contamination identified during sampling is already addressed in Section H.4.4.3. The permit condition was meant to address, (based on review of sampling data results), any additional sampling and remediation needed beyond what is already described in the closure plan. Ecology has amended the 2401-W Waste Storage Building Closure Plan Permit Condition, V.39.B.4.a, to specify that a permit modification request will be required for closure performance standards specified in Table H-5 of the Addendum H, Closure Plan that have not been met after remediation and confirmatory sampling data analysis. This is consistent with Sections H.3.8.2 and H.4.4.3, which describe meeting with Ecology to determine a path forward for closure if soil contamination remains after remediation.*

### **Comment A-1-316**

#### 5. Addendum Section: Unit 39 2401-W Waste Storage Building Permit Conditions

Comment Text: Within sixty days of completion of closure for the 2401-W Waste Storage Building, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 2401-W Waste Storage Building has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610 (6)].

Basis Text: The IQRPE certification is submitted after closure activities are complete but as part of the overall closure process. Suggest specifying the IQRPE certification is submitted after closure activities are complete.

Recommendation Text: Within sixty days of completion of closure activities for the 2401-W Waste Storage Building, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 2401-W Waste Storage Building has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610(6)].

### ***Response to A-1-316***

*Thank you for your comment. The 2401-W Waste Storage Building Permit Condition V.39.B.5 language is consistent with WAC 173-303-610(6), Certification of closure, and will not be changed.*

### **Comment A-1-317**

#### 6. Addendum Section: Table of Contents

Comment Text: Table of Contents

Basis Text: Page numbers are missing the H-.. Table H-5 is missing

Recommendation Text: Suggest reformatting TOC for consistency with page numbering throughout document and adding Table H-5.

### ***Response to A-1-317***

*Thank you for your comment. The page numbering aligns with permit formatting, and Table H-5, Closure Performance Standards for Soil and Analytical Performance Requirements, has been included.*

### **Comment A-1-318**

---

#### 7. Addendum Section: Terms

Comment Text: Terms

Basis Text: HWMA and RCW are not included in table. See first paragraph in Intro. BCSO is not defined in this plan.

Recommendation Text: Add HMWA, RCW to and; remove BCSO from terms table.

### ***Response to A-1-318***

*Thank you for your comment. Ecology has amended "Terms" to include HWMA - Hazardous Waste Management Act, RCW- Revised Code Washington, and to exclude BCSO - Benton County Sheriff's Office.*

### **Comment A-1-319**

---

#### 8. Addendum Section: H.1 Introduction

Comment Text: The purpose of this plan is to describe the Resource Conservation and Recovery Act (RCRA)/Hazardous Waste Management Act (HWMA), Chapter 70.105 Revised Code of Washington (RCW) closure process for the 2401-W Waste Storage Building Dangerous Waste Management Unit (DWMU), hereinafter called the 2401-W Building.

Basis Text: Should be defined as "Resource Conservation and Recovery Act of 1976."

Recommendation Text: The purpose of this plan is to describe the closure process for the 2401-W Waste Storage Building Dangerous Waste Management Unit (DWMU), hereinafter termed the "2401-W Waste Storage Building ," as required by and in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) and Washington's Hazardous Waste Management Act (HWMA)

### ***Response to A-1-319***

*Thank you for your comment. Ecology agrees that (RCRA) should be defined as "Resource Conservation and Recovery Act of 1976" and had amended the text to reflect the correct definition.*

### **Comment A-1-320**

---

#### 9. Addendum Section: H.1 Introduction

Comment Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), and WAC 173-303-630(10).

Basis Text: Should define WAC 173-303-610 and WA 173-303-630 the first time they are used. -610 is "Closure and Post-Closure;" and -630, "Use and Management of Containers."

Recommendation Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-3003-610(6), *Closure and Post-Closure*, and in WAC 173-303-630(10), *Use and Management of Containers*.

***Response to A-1-320***

*Thank you for your comment. Ecology accepts the recommendation and amended the text to read; "This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-3003-610(6), Closure and Post-Closure, and in WAC 173-303-630(10), Use and Management of Containers."*

**Comment A-1-321**

10. Addendum Section: H.1 Introduction

Comment Text: Sampling of underlying soil to ensure closure performance standards are met.

Basis Text: The Unit Description (Section H.1.1) identifies epoxy coated flooring. The coated flooring acts as an impermeable surface. The records review and visual inspection (Section H.3.2) did not identify any releases within the DWMU, which is reiterated throughout the closure plan. Section H.3.8.1 identifies the compliance point for closure as the surface of the concrete. Section H.3.8.2 specifically states, "The records review of waste stored in the 2401-W Waste Storage Building indicate no releases (Section H.3.2). Therefore, there is no known waste-related source of contaminated media." Based on the information provided throughout the closure plan, sampling of the soil under the building is inappropriate and unjustified.

Recommendation Text: Delete all references to soil sampling within the closure plan.

***Response to A-1-321***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU. The referenced text in Section H.3.8.1 is specific to the clean closure performance standards for concrete. This text identifies the point of compliance for the 2401-W Building's concrete structure as the surface of the concrete flooring, as it will be treated to a clean debris surface. This however does not address the closure performance standards or point of compliance for the soil underlying the building, which is addressed by Section H.3.8.2.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these*

*qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of*

wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."

If the 2401-W Waste Storage Building were to be removed, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.

Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:

"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."

In the Permittees' August 14, 2013 inspection documentation (Part V, Closing Unit Group 39, 2401-W Waste Storage Building Addendum H, Closure Plan, Attachment A), the Permittees reported that "no staining of any kind was identified on the storage area surface," but did not report whether potential avenues for waste to migrate to underlying soils were identified. During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.

During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.

The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21

through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-322**

#### 11. Addendum Section: H-1 Introduction

Comment Text: H.7

Basis Text: Page numbering should re-start at H.1.

Recommendation Text: Renumber pages beginning with H.1.

### ***Response to A-1-322***

*Thank you for your comment. The page numbering aligns with permit formatting.*

### **Comment A-1-323**

#### 12. Addendum Section: Figure H-1 Central Waste Complex-Waste Receiving and Processing Complex Overview, 2401-W Building Dangerous Waste Management Unit

Comment Text: Figure H-1 Central Waste Complex-Waste Receiving and Processing Complex Overview

Basis Text: There should be a date for this photo.

Recommendation Text: Provide date for Figure H-1

### ***Response to A-1-323***

*Thank you for your comment. Ecology accepts the recommendation and included the date "Month Unknown, 2017."*

### **Comment A-1-324**

#### 13. Addendum Section: Table H-1 Training Matrix for the 2401-W Building Dangerous Waste Management Unit

Comment Text: The "X" in the FS column for the Building Emergency Training Category Course Description.

Basis Text: This "X" is in error. There is no requirement for Building Emergency training for the Field Sampler.

Recommendation Text: Remove the "X" for the FS column for Building Emergency Training Category Course Description.

***Response to A-1-324***

*Thank you for your comment. Ecology agrees with the recommendation and deleted the "X" from Training Category Course Description: Building Emergency, under the Field Sampler (FS) column.*

**Comment A-1-325**

14. Addendum Section: Table H-1 Training Matrix for the 2401-W Waste Storage Building Dangerous Waste Management Unit

Comment Text: Superscript c. The Facility Health and Safety training is required only if workers are unescorted in the facility.

Basis Text: There is no c superscript in Table H-1 for the FS column.

Recommendation Text: Apply superscript c to the FS column for the Facility Health and Safety Training Category Course Description within the H-1 table.

***Response to A-1-325***

*Thank you for your comment. Ecology agrees with the recommendation and included the omitted superscript from Training Category Course Description: Facility Health and Safety, under the Field Sampler (FS) column.*

**Comment A-1-326**

15. Addendum Section: H.1.5 Facility Contact Information

Comment Text: Doug S. Shoop

Basis Text: Contact information should be in the Part A only. If the contact information changes, it will require a permit modification to the closure plan. In addition, the DOE contact is no longer Doug Shoop.

Recommendation Text: Remove facility contact information from closure plan.

***Response to A-1-326***

*Thank you for your comment. As there is no approved Part A for the closure units that are the subject of this permit modification, facility contact information needs to be included in the closure plans. Ecology obtained the most recent facility contact information from the Permittees at the drafting of this permit modification.*

*The Section H.1.5 – Facility Contact Information has been updated to include the current contact information provided by the Permittees in letter dated, January 22, 2021, "Transfer of Co-Operator Responsibilities for Hanford Facility Resource Conservations and Recovery Act Permit, WA7890008967," (21-ESQ-00305) and approved by Ecology in letter dated, March 15, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste*

*Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967," (21-NWP-033).*

*Ecology has amended Section H.1.5 – Facility Contact Information text to read:*

*Brian T. Vance, Manger  
U.S. Department of Energy, Richlands Operations Office  
P.O. Box 550  
Richland, WA 99352  
(509) 376-7395*

*Scott Sax, President and Project Manager  
Central Plateau Cleanup Company, LLC  
P.O. Box 1464  
Richland, WA 99352  
(509) 372-3845*

*Additionally, in these closure plans, references to "CH2M HILL Plateau Remediation Company (CHPRC)" as a Permittee have been changed to "Central Plateau Cleanup Company, LLC (CPCCo)." The change is reflected in the following Sections:*

*TERMS,  
H.1 Introduction,  
H.3.8.2 Closure Performance Standards for Soil,  
H.3.9 Development of Closure Performance Standards, Table H-4, and  
H.4.3.1 Project/Task Organization*

### **Comment A-1-327**

#### **16. Addendum Section: H.2 Closure Performance Standards**

Comment Text: Remove all waste and waste residues and properly dispose of them in a RCRA permitted disposal facility.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

### ***Response to A-1-327***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Remove all waste and waste residues" is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for clean closure of container storage areas.*

*The text "and properly dispose of them in a RCRA permitted disposal facility" is deleted as it is an activity required by WAC 173-303-610(3)(a)(iv) to treat (if necessary) and dispose of all dangerous wastes removed from the dangerous waste management unit during closure activities. This information is covered under Section H.3, Closure Activities.*

### **Comment A-1-328**

#### 17. Addendum Section: H.2 Closure Performance Standards

Comment Text: Decontaminate the concrete surface to meet the Alternative Treatment Standards for Hazardous Debris (i.e., removal of at least 0.6 cm of the surface layer; treatment to clean debris surface)

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities.

Recommendation Text: Delete text.

#### ***Response to A-1-328***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Decontaminate the concrete surface to meet the Alternative Treatment Standards for Hazardous Debris (i.e., removal of at least 0.6 cm of the surface layer; treatment to a clean debris surface)" is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met in order for the 2401-W Waste Storage Building to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

### **Comment A-1-329**

#### 18. Addendum Section: H.2 Closure Performance Standards

Comment Text: Perform soil sampling and analysis to ensure soils under the 2401-W Building meet standard Model Toxics Control Act (MTCA) cleanup levels, and remove any soils contaminated above these levels.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

#### ***Response to A-1-329***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Perform soil sampling and analysis to ensure soils under the 2401-W Building meet standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, and remove any soils contaminated above these levels" is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for the 2401-W Waste Storage Building to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

## **Comment A-1-330**

### 19. Addendum Section: H.2 Closure Performance Standards

Comment Text: Perform soil sampling and analysis to ensure soils under the 2401-W Building meet standard Model Toxics Control Act (MTCA) cleanup levels, and remove any soils contaminated above these levels.

Basis Text: The Unit Description (Section H.1.1) identifies epoxy coated flooring. The coated flooring acts as an impermeable surface. The records review and visual inspection (Section H.3.2) did not identify any releases within the DWMU, which is reiterated throughout the closure plan. Section H.3.8.1 identifies the compliance point for closure as the surface of the concrete. Section H.3.8.2 specifically states, "The records review of waste stored in the 2401-W Waste Storage Building indicate no releases (Section H.3.2). Therefore, there is no known waste-related source of contaminated media." Based on the information provided throughout the closure plan, sampling of the soil under the building is inappropriate and unjustified.

Recommendation Text: Delete all references to soil sampling within the closure plan.

### ***Response to A-1-330***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU. The referenced text in Section H.3.8.1 is specific to the clean closure performance standards for concrete. This text identifies the point of compliance for the 2401-W Building's concrete structure as the surface of the concrete flooring, as it will be treated to a clean debris surface. This however does not address the closure performance standards for point of compliance for the soil underlying the building, which is addressed by Section H.3.8.2.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA*

*Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 on Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*In the Permittees' August 14, 2013 inspection documentation (Part V, Closing Unit Group 39, 2401-W Waste Storage Building Addendum H, Closure Plan, Attachment A), the Permittees reported that "no staining of any kind was identified on the storage area surface," but did not report whether potential avenues for waste to migrate to underlying soils were identified. During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are*

*considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-331**

#### 20. Addendum Section: H.3 Closure Activities

Comment Text: Perform focused soil sampling below the 2401-W Building (Section H.4.4)

Basis Text: Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

### ***Response to A-1-331***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and*

*criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in*

*contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

## **Comment A-1-332**

### 21. Addendum Section: H.3 Closure Activities

Comment Text: Confirm analytical results from soil samples meet closure performance standards (Section H.3.9).

Basis Text: Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

## ***Response to A-1-332***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-333**

#### 22. Addendum Section: H.3 Closure Activities

Comment Text: Identify and manage contaminated environmental media (Section H.3.6).

Basis Text: Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

### ***Response to A-1-333***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these*

*qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of*

wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."

If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.

Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:

"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."

During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.

During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.

The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

#### **Comment A-1-334**

##### 23. Addendum Section: H.3.1 Removal of Wastes and Waste Residues

Comment Text: It is unknown if dangerous or mixed waste residues are present at this DWMU.

Basis Text: As identified in the records review, facility inspections were completed in this storage area to monitor for spills. No documentation of spills were found during the records reviewed. Provide supporting documentation indicating the potential for dangerous or mixed waste residue to be present at the DWMU.

Recommendation Text: The records review and visual inspection did not identify any releases of dangerous waste or waste related staining therefore dangerous or mixed waste residues are not anticipated at this unit.

#### ***Response to A-1-334***

*Thank you for your comment. Until confirmation sampling results are made available, the referenced text in Section H.3.1 of Addendum H, "It is unknown if dangerous waste residues are present at this DWMU," is accurate. Accordingly, this language will not be changed. The recommendation text, "...dangerous or mixed waste residues are not anticipated at this unit," would not change the fact that confirmation sampling must be performed.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media: "[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily,*

*these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," (Pub. 94-111), is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.2, Focused Sampling: "Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil."*

- *Section 7.5.1, Soil Sampling Under Structures: "After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*In the Permittees' August 14, 2013 inspection documentation (Part V, Closing Unit Group 39, 2401-W Waste Storage Building Addendum H, Closure Plan, Attachment A), the Permittees reported that "no staining of any kind was identified on the storage area surface," but did not report whether potential avenues for waste to migrate to underlying soils were identified. During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-335**

#### **24. Addendum Section: H.3.2 Operating Records Review and Visual Inspection**

Comment Text: There was no sign of dangerous or mixed waste contamination found from the records review.

Basis Text: This text supports no release pathway to soil. Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

### ***Response to A-1-335***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities" and*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste*

Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-336**

#### 25. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: The records review indicated no releases of dangerous or mixed waste in the 2401-W Building.

Basis Text: This text supports no release pathway to soil. Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

### ***Response to A-1-336***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA*

*Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities" and*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

## **Comment A-1-337**

### 26. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: No dangerous or mixed waste related staining, major cracks, crevices, pits, low areas, or joints/seams were identified during the visual inspection.

Basis Text: This text supports no release pathway to soil. Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

### ***Response to A-1-337***

*Thank you for your comment. The referenced language, "...major cracks, crevices, pits, low areas, or joints/seams," was added to the Permittees' visual inspection summary in error when Ecology was drafting the closure plan modification. Ecology reviewed the Permittees' 2018 certified closure plan submittal (18-AMRP-0150), and this language was absent. Ecology has amended the language to read "No dangerous or mixed waste related staining was identified during the visual inspection."*

*Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent*

*a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*In the Permittees' August 14, 2013 inspection documentation (Part V, Closing Unit Group 39, 2401-W Waste Storage Building Addendum H, Closure Plan, Attachment A), the Permittees reported that "no staining of any kind was identified on the storage area surface," but did not report whether potential avenues for waste to migrate to underlying soils were identified. During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-338**

#### 27. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Ecology and the Permittees performed an additional walkdown and inspection of the DWMU in November of 2018. Ecology added six focused soil samples at locations where construction joints/seams of the concrete floor intersect. Sample locations are identified in Figure H-7.

Basis Text: WAC 173-303-840(2)(e) states, "All draft permits must be accompanied by a fact sheet that is supported by administrative record and made available for public comment." The walkdown and inspection are part of the administrative record. Ecology should attach this information to the closure plan, making the information available for Permittee and public comments.

Recommendation Text: Provide all documentation from this inspection so the Permittees and the public can review and comment.

#### ***Response to A-1-338***

*Thank you for your comment. WAC 173-303-840(2)(e) requires a fact sheet to be made available for public comment, and requires the content of the fact sheet to be supported by the administrative record. Ecology does not provide the administrative record for public review unless specifically requested.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

### **Comment A-1-339**

#### 28. Addendum Section: H.3.2 Operating Records Review and Visual Inspection

Comment Text: Ecology and the Permittees performed an additional walkdown and inspection of the DWMU in November of 2018. Ecology added six focused soil samples at locations where construction joints/seams of the concrete floor intersect. Sample locations are identified in Figure H-7.

Basis Text: The mere presence of construction joints not validate the need for additional sampling. The criteria for focused samples outlined in the closure plan is any dangerous or mixed waste related staining, low points, cracks, holes, pits, or breaches significant enough to allow contamination to reach underlying soil. Despite not meeting the criteria, the State included addition samples at these locations. The State has failed to articulate specific facts that these samples are "necessary to achieve compliance with the Hazardous Waste Management Act." The State should provide documentation (descriptions, dimensions, photos, etc.) that would support the decision of additional focus samples.

Recommendation Text: Present any evidence of cracks, holes, pits or breaches that are significant enough that would allow water to penetrate beneath the pad to the soil.

***Response to A-1-339***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to*

*characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities" and*

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. In addition, the visual inspection conducted*

*by Ecology in 2018 identified occurrences where joints intersected. Ecology's walk down and inspection documentation (including photos) is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-340**

#### **29. Addendum Section: H.3.2 Operating Records Review and Visual Inspection**

Comment Text: Supporting documentation for the visual inspection is included in Attachment A, CWC 2401-W Building Visual Inspection Documentation.

Basis Text: There is no documentation in Attachment A for the 2018 inspection conducted by Ecology.

Recommendation Text: Provide documentation (notes, photos, etc.) from Ecology for this inspection.

### ***Response to A-1-340***

*Thank you for your comment. The text: "Supporting documentation for the visual inspections is included in Attachment A, CWC 2401-W Building Visual Inspection Supporting Documentation" should have been limited to reference the Permittees' visual inspection. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments. Ecology amended the text as follows, "Supporting documentation for the Permittees' visual inspection is included in Attachment A, CWC 2401-W Building Visual Inspection Supporting Documentation."*

## **Comment A-1-341**

### 30. Addendum Section: H.3.5 Decontamination

Comment Text: 2. Seal all significant cracks including expansion joints identified during the visual inspection (Section H.3.4) using an appropriate sealant material.

Basis Text: It is unclear why sealing of the cracks including expansion joints is required prior to removing the top 0.6 cm of the concrete surface. The sealant would be at a minimum significantly damaged if not removed during the decontamination process.

Recommendation Text: Provide justification for sealing cracks including expansion joints prior to removing the top 0.6 cm of the surface.

### ***Response to A-1-341***

*Thank you for your comment. If the Permittees decide to use wet-cutting equipment, then cracks and expansion joints are required to be sealed, as stated in Ecology Publication #94-111, Section 4.0:*

*"After wastes and waste residues are removed, facility owners/operators must visually inspect closing units to determine if releases at or from the closing unit may have occurred or might occur during decontamination. This must include identification of all cracks and other openings in the unit and unit containment structure through which waste, debris, or decontamination media (such as wash water) could be released to the environment. If cracks or other openings are found, facility owners/operators, generators, and transporters may be required to seal or repair the cracks or other openings to prevent releases prior to or during decontamination.*

*Facility owners/operators must maintain records of the locations and dimensions of all cracks or other openings identified during closure, because these areas are considered to have a higher potential for allowing releases of dangerous waste from the closing unit and may require more focused sampling and analysis. Records may be kept in the facility operating record or in the field notebook discussed in Section 7.10.1 of this guidance. Facility owners/operators must investigate and evaluate all cracks and other openings identified during closure to determine if releases of dangerous waste or dangerous waste constituents have occurred or may be occurring. Sampling of environmental media below these cracks or other openings may be required at Ecology's discretion.*

*When closure plans are required, the closure plan must fully describe procedures for inspecting all units prior to decontamination, identifying and recording releases and potential releases, and reporting such releases and potential releases to Ecology."*

*Ecology has amended the text to read, "If using wet-cutting equipment, seal all significant cracks including expansion joints identified during the visual inspection (Section H.3.4) using an appropriate sealant material."*

## **Comment A-1-342**

### 31. Addendum Section: H.3.5 Decontamination

Comment Text: Equipment used during decontamination and sampling will be decontaminated for re-use or disposed of and managed as newly generated waste in accordance with Section H.3.7.

Basis Text: Per WAC 173-303-610, only equipment containing or contaminated with dangerous wastes or waste residue require removal or decontamination. With the absent of contamination, decontamination of equipment is not necessary.

Recommended Text: Any equipment used to remove material contaminated with hazardous or mixed waste will be decontaminated in accordance with WAC 173-303-610. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent

### ***Response to A-1-342***

*Thank you for your comment. Ecology has amended the text to read: "Equipment that becomes contaminated during decontamination and sampling activities will be decontaminated for re-use or managed and disposed of as newly generated waste in accordance with Section H.3.7. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible. A temporary decontamination area may be established near the 2401-W Building. This area will be constructed of Visqueen™ or equivalent material, and may be used for decontamination of sampling equipment, personal protective equipment, and other miscellaneous small equipment used during decontamination and sampling activities. When decontamination of equipment is completed, the Visqueen™ or equivalent materials, rinsate, and solid waste debris generated by equipment decontamination (e.g., rags and personal protective equipment) will be removed and managed as newly generated waste in accordance with Section H.3.7"*

## **Comment A-1-343**

### 32. Addendum Section: H.3.5 Decontamination

Comment Text: A small temporary decontamination area (approximately 10 by 20 feet) may be established near the 2041-W Building.

Basis Text: Providing approximate dimensions requires Permittees to establish that size of area when a smaller area may be effective.

Recommendation Text: A small temporary decontamination area may be established near the 2401-W Building.

### ***Response to A-1-343***

*Thank you for your comment. Ecology has amended the text to read, "A temporary decontamination area may be established near the 2401-W Building."*

## **Comment A-1-344**

### 33. Addendum Section: H.3.6 Identifying and Managing Contaminated Environmental Media

Comment Text: The records review and visual inspection outlined in H.3.2 did not identify any releases of dangerous or mixed waste or the presence of staining that could be related to dangerous or mixed waste.

Basis Text: This text supports no release pathway to soil. Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

### ***Response to A-1-344***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and*

*criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in*

*contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-345**

#### **34. Addendum Section: H.3.6 Identifying and Managing Contaminated Environmental Media**

Comment Text: However, contaminated soil will be remediated at the focused sample location(s) where analytical results indicate contamination.

Basis Text: Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

## ***Response to A-1-345***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

#### **Comment A-1-346**

##### 35. Addendum Section: H.3.6 Identifying and Managing Contaminated Environmental Media

Comment Text: The contaminated soil will be containerized, labeled, and sampled for waste characterization.

Basis Text: The soil has already been sampled and analyzed through the closure plan SAP. Provide the regulatory justification for requiring sampling of the soil for purposes of characterization. The soil can be characterized using the existing data.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized.

#### ***Response to A-1-346***

*Thank you for your comment. Ecology agrees the data may be used for characterization, but only within the area of inference for that particular sample. Ecology has amended the text to read, "The contaminated soil will be containerized, labeled, and sampled as needed to designate for disposal of the entire volume of contaminated soil."*

#### **Comment A-1-347**

##### 36. Addendum Section H.3.6 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil will be placed in U. S. Department of Transportation-compliant containers and sent to a RCRA permitted disposal facility or staged at CAAs in accordance with all applicable requirements of WAC 173-303-200, Conditions for exemption for a large quantity generator that accumulate dangerous waste.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized. Contaminated soil will be placed in U.S. Department of Transportation compliant containers and sent to an approved disposal facility or staged at a central accumulation area in accordance with standards in WAC 173-303-200, "Accumulating Dangerous Waste On-site." Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268, "Land Disposal Restrictions") will be characterized, designated, stored, or treated, as applicable, prior to disposal in an approved disposal facility.

***Response to A-1-347***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil will be placed in U.S. Department of Transportation-compliant containers and sent to an appropriate land disposal unit, possibly with central accumulation as an intermediary step in accordance with all applicable requirements of WAC 173-303-200, Conditions for exemption for a large quantity generator that accumulates dangerous waste."*

**Comment A-1-348**

**37. Addendum Section: H.3.6 Identifying and Managing Contaminated Environmental Media**

Comment Text: Contaminated soil subject to the requirements of WAC 173-30-140, *Land Disposal Restrictions* (which incorporates by reference 40 Code of Federal Regulations [CFR] 268, *Land Disposal Restriction*) will be characterized, designated, and stored or treated, as applicable, prior to disposal in a RCRA permitted disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

***Response to A-1-348***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil subject to the requirements of WAC 173-303-140, Land Disposal Restrictions (which incorporates by reference 40 CFR 268 Land*

*Disposal Restrictions) will be characterized, designated, and treated, as applicable, prior to disposal in an appropriate land disposal unit."*

**Comment A-1-349**

38. Addendum Section: H.3.7 Identifying and Managing Waste Generated During Closure

Comment Text: A vacuum-equipped system will remove dust and chips during scarification, grinding, and planing to prevent release of possible contamination.

Basis Text: Misspelling of planing.

Recommendation Text: A vacuum-equipped system will remove dust and chips during scarification, grinding, and planing to prevent release of possible contamination.

***Response to A-1-349***

*Thank you for your comment. Ecology has corrected the typographical error and clarified the vacuum-equipped system will use a high efficiency particulate air filter. The subject text now reads, "A vacuum-equipped system with a high efficiency particulate air filter will remove dust and chips during scarification, grinding, and planing to prevent release of possible contamination."*

**Comment A-1-350**

39. Addendum Section: H.3.7 Identifying and Managing Waste Generated During Closure

Comment Text: Decontamination will be performed during calm, dry weather to prevent possible releases.

Basis Text: Calm weather is not defined. The decontamination activities are not weather-contingent as they take place inside a building.

Recommendation Text: Delete text

***Response to A-1-350***

*Thank you for your comment. Ecology agrees calm, dry weather is not defined, and has amended the text to read, "Decontamination will be performed with the door(s) closed and the building ventilation system(s) deactivated to prevent possible releases."*

**Comment A-1-351**

40. Addendum Section: H.3.7 Identifying and Managing Waste Generated During Closure

Comment Text: When decontamination activities are performed near the edge of the concrete, tarps or similar material will be placed adjacent to the concrete to catch any additional waste materials.

Basis Text: Decontamination activities occur inside a building, the walls and door of the building will catch additional waste materials.

Recommendation Text: Delete text.

### ***Response to A-1-351***

*Thank you for your comment. The text was deleted as decontamination activities will take place with the door(s) closed.*

### **Comment A-1-352**

#### 41. Addendum Section: H.3.7 Identifying and Managing Waste Generated During Closure

Comment Text: Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268) then ultimately disposed in a RCRA permitted waste disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

### ***Response to A-1-352***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 Land Disposal Restrictions (which incorporates by reference 40 CFR 268), then ultimately disposed in an appropriate land disposal unit."*

### **Comment A-1-353**

#### 42. Addendum Section: H.3.7 Identifying and Managing Waste Generated During Closure

Comment Text: Once waste characterization results are received, all waste will be designated and shipped to a RCRA permitted facility for treatment, storage, or disposal.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste based on characterization results, provide the regulatory driver for requiring disposal in a RCRA permitted disposal facility.

Recommendation Text: If any waste is identified as hazardous waste it must be properly disposed or decontaminated in accordance with WAC 173-303-610(5). All hazardous waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230.

### ***Response to A-1-353***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Once waste characterization results are received, all waste will be designated." The last sentence in the preceding paragraph, "The waste will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5)," was clarified as follows: "The waste will be managed as a newly generated waste stream and either disposed of or decontaminated in accordance with WAC 173-303-610(5)."*

### **Comment A-1-354**

#### 43. Addendum Section: H.3.8.2 Closure Performance Standards for Soil

Comment Text: The records review of waste stored in the 2401-W Waste Storage Building indicate no releases (Section H.3.2). Therefore, there is no known waste-related source of contaminated media and the inhalation exposure pathway has been excluded.

Basis Text: This text supports no release pathway to soil. Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete all references to soil sampling within the closure plan.

### ***Response to A-1-354***

*Thank you for your comment. Exclusion of the inhalation pathway does not negate the need to perform confirmation sampling of the soil to demonstrate clean closure has been achieved. As stated in Section H.3.7 of Addendum H: "Of the exposure pathways listed above, direct soil contact is always considered a complete and viable exposure pathway for all soil samples."*

*Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA*

*Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

## **Comment A-1-355**

### 44. Addendum Section: H.3.8.2 Closure Performance Standards for Soil

Comment Text: During operations, the floors (including joints/seams) were coated with an epoxy resin floor surfacing system that was compatible with the stored waste. The visual inspections (Section H.3.2) did not identify dangerous or mixed waste related staining, major cracks, crevices, pits, or low areas. With no indication of a route of exposure from water or rainwater to the underlying soil, the soil concentration protective of groundwater pathway was excluded when calculating closure performance standards.

Basis Text: If there is no pathway for rainwater based on the condition of the flooring, there is no release pathway for containerized waste.

Recommendation Text: Delete all references to focused soil sampling.

### ***Response to A-1-355***

*Thank you for your comment. Exclusion of the soil concentration protective of groundwater pathway does not negate the need to perform confirmation sampling of the soil to demonstrate clean closure has been achieved. As stated in Section H.3.7 of Addendum H: "Of the exposure pathways listed above, direct soil contact is always considered a complete and viable exposure pathway for all soil samples."*

*The referenced language, "...major cracks, crevices, pits, low areas, or joints/seams," was added to the Permittees' visual inspection summary in Section H.3.2 in error, when Ecology was drafting the closure plan modification. Ecology reviewed the Permittees' 2018 certified closure plan submittal (18-AMRP-0150), and this language was absent. Ecology has amended the language to read: "No dangerous or mixed waste related staining was identified during the visual inspection." Additionally, Ecology amended the language in Section H.3.8.2 to read: "The Permittees' visual inspection (Section H.3.2) did not identify dangerous or mixed waste related staining."*

*Ecology's 2018 walk down identified abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology also identified a potential through thickness crack on the outer edge of the 2401-W building foundation, which could not be verified from the inside of the building due to equipment blocking the inspection. With no indication of a route of exposure from water or rainwater to the underlying soil, the soil concentration protective of groundwater pathway was excluded when calculating closure performance standards. Once all of the equipment is removed and Ecology conducts the final inspection as described in Section H.3.4., if a route for water or rainwater is identified, Ecology will modify the closure performance standards to address calculating the soil concentration protective of groundwater pathway.*

*Ecology will retain all references to focused soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no*

written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.

The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:

"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:

(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."

A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:

"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)

Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will

*be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil...*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology also identified a potential through thickness crack on the outer edge of the 2401-W building foundation, which could not be verified from the inside of the building due to equipment blocking the inspection. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations and exposure pathways may be identified at that time. Permit Condition*

V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.

The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:

"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."

#### **Comment A-1-356**

##### 45. Addendum Section: H.3.10 Conditions that will be Achieved when Closure is Complete

Comment Text: Upon completion of the closure activities, the 2401-W Building will remain in an "as-is" state with the building remaining in place, and the focused soil sampling locations capped after sampling.

Basis Text: No basis for focused soil samples.

Recommendation Text: Upon completion of the closure activities, the 2401-W Building will remain in an "as-is" state with the building remaining in place.

#### **Response to A-1-356**

Thank you for your comment. The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:

"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."

*Ecology agrees sealing locations after sampling should be at the discretion of the facility pending confirmation and acceptance of clean closure, and deleted the text from Section H.3.10, Conditions that will be Achieved when Closure is Complete. This language also appeared in Section H.3.3 Unit Components, Parts, and Ancillary Equipment, and was deleted.*

### **Comment A-1-357**

#### 46. Addendum Section: H.4 Sampling and Analysis Plan

Comment Text: Sampling and analysis of the soil below the 2401-W Building will be conducted to confirm whether closure performance standards have been met.

Basis Text: The defined boundary of the DWMU is the surface of the concrete floor. Information throughout the closure supports a lack of exposure pathway to the underlying soil. Meeting the requirements in 40 CFR 268.45 Table 1 - Alternative Treatment Standards for Hazardous Debris requires a visual inspection for meeting the clean debris surface. If the concrete flooring meets clean debris surface standards, there is no justification for coring through the building to take soil samples. Further, no evidence was provided in the closure plan to support the addition of the focused and non-statistical grid samples. Soil sampling below the 2401-W Building is inappropriate and unjustified based on information provided throughout the closure plan.

Recommendation Text: Delete Section H.4 Sampling and Analysis Plan

### ***Response to A-1-357***

*Thank you for your comment. Ecology will retain Section H.4, Sampling and Analysis Plan.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors, including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities"*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soils in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 277-T Building remain intact for future uses, not associated with waste treatment or storage, of T Plant Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent*

*a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

*Regarding the boundary of the unit, the definition of a "dangerous waste management unit" is set forth in WAC 173-303-040:*

*"[A] contiguous area of land on or in which dangerous waste is placed, or the largest area in which there is a significant likelihood of mixing dangerous waste constituents in the same area. Examples of dangerous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed."*

*Section H.1.1 of Addendum H describes the size and layout of the 2401-W Building but does not identify a boundary for the DWMU. Even if it did, such an administrative boundary would not limit the applicability of clean closure requirements for the DWMU.*

### **Comment A-1-358**

#### **47. Addendum Section: H.5.1 Confirmation of Clean Closure**

Comment Text: The 2401-W Building will be clean closed through confirmation of successful decontamination of the concrete by removing at least 0.6 cm (~1/4 in.) of the surface to a clean debris surface (Section H.5.1.1); and confirmation that samples of the underlying soil meet soil closure performance standards (Table H-5).

Basis Text: No pathway to underlying soil. Delete text regarding soil closure performance standards.

Recommendation Text: The 2401-W Building will be clean closed through confirmation of successful decontamination of the concrete by removing at least 0.6 cm (~1/4 in.) of the surface to a clean debris surface (Section H.5.1.1).

### ***Response to A-1-358***

*Thank you for your comment. Ecology will retain all references to soil sampling (and associated soil closure performance standards) throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future*

uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are*

*considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-359**

#### 48. Addendum Section: H.5.1.2 Confirmation of Soil Sample Results

Comment Text: Soil sample results from the contract analytical laboratory will be reviewed to confirm that target analytes have met closure performance standards (Table H-5).

Basis Text: No pathway to underlying soil.

Recommendation Text: Delete section

### ***Response to A-1-359***

*Thank you for your comment. Ecology will retain all references to soil sampling throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and*

*criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in*

*contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-360**

#### **49. Addendum Section: H.5.2 Role of the Independent Qualified Registered Professional Engineer**

Comment Text: Verify the locations of soil samples are as specified in the SAP.

Basis Text: No pathway to underlying soil.

Recommendation Text: Delete text regarding soil samples.

## ***Response to A-1-360***

*Thank you for your comment. Ecology will retain all text regarding soil samples throughout the closure plan, as soil sampling is a necessary closure activity to demonstrate closure performance standards have been achieved for the 2401-W Waste Storage Building DWMU.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. The unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, maintenance history, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Pub. 94-111, is the primary resource for implementing these regulatory requirements for clean closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*

- *Section 7.5.1, Soil Sampling Under Structures: "Soil sampling locations at a closing unit will typically be located over structures as well as exposed soil. When sampling points (including sampling points determined by the grid system for area-wide sampling) overlay structures, Ecology may require the underlying soil to be sampled. Soil sampling under structures should generally be conducted after cleaning and decontamination of the structure, but before the structure is removed. Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete. Sampling under structures must be conducted in a manner that minimizes disturbance to the underlying soil..."*

*After any structure is removed, Ecology may inspect the underlying soil. Areas under documented spills and areas susceptible to releases will receive close scrutiny. Additional sampling and testing may be required if there are indications of discolored soil, the presence of wet areas, volatile emissions detected on field detection equipment, odor, or other signs of potential contamination."*

*If the 2401-W Waste Storage Building were to be removed as part of this closure action, Ecology would inspect the underlying soil in accordance with Section 7.5.1 of Publication #94-111. However, the Permittees requested the 2401-W Waste Storage Building remain intact for future uses, not associated with waste treatment or storage, of Central Waste Complex operations. Ecology granted the Permittees' request and will use focused soil sampling locations to assess contamination of underlying soils.*

*Focused sampling locations are not limited to areas of documented releases or areas of dangerous or mixed waste related staining, but include locations of joints/seams that represent a potential avenue for waste to migrate to underlying soils. As described in Publication 94-111, Section 7.2.2, Focused Sampling:*

*"Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve linear sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to: (1) Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil; (2) Below any sumps or valves; (3) Load or unload areas; (4) Storage units with underlying pavements or concrete that appears to be cracked or broken; and (5) Areas receiving runoff or discharge from dangerous waste management units, such as a ditch, a swale, or the discharge point down gradient from a pipe."*

*During Ecology's 2018 walk down, Ecology could not inspect the entire concrete surface due to the presence of stored equipment. Of the visible portion of the concrete surface, Ecology noted abrasions through the floor coating, floor patches and various colors of paint and caulk, cracks, crevices and seams, and that the floor was uneven. Ecology's walk down and inspection documentation is included in the Department of Ecology, Nuclear Waste Program Administrative Record for this permit modification, and is included as Attachment 2 to this Response to Comments.*

*During closure activities, once all of the equipment is removed, Ecology will conduct a final inspection as described in Section H.3.4 of the Addendum H, Closure Plan, and additional sampling locations may be identified at that time. Permit Condition V.39.B.3 requires the Permittees to notify Ecology prior to conducting the final visual inspection in order for Ecology to conduct the final inspection.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for focused sampling locations at the 2401-W Waste Storage Building are summarized in the Fact Sheet, Section 4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building as follows:*

*"Six focused soil samples. Justification – Six focused soil samples were added based on Ecology's professional judgement and Ecology's walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, "Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate." The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling."*

### **Comment A-1-361**

#### **50. Addendum Section: H.5.3 Closure Certification**

Comment Text: Within 60 days of completion of closure of the 2401-W Building DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail.

Basis Text: Suggest "closure activities". Closure is not complete until Ecology acknowledges the clean closure certification. Also, include language consistent with regulations for delivery of closure certification means.

Recommendation Text: Within 60 days of completion of closure activities of the 2401-W Building DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means).

### ***Response to A-1-361***

*Thank you for your comment. The comment text is consistent with WAC 173-303-610(6) and will not be amended beyond the inclusion of a reference to other acceptable means of submittal. Ecology amended the text to read, "Within 60 days of completion of closure of the 2401-W Building DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means)."*

### **Comment A-1-362**

#### 51. Addendum Section: Table H-8 2401-W Waste Storage Building Dangerous Waste Management Unit Closure Schedule

Basis Text: The duration for the activity "Complete Closure of the 2401-W Building DWMU" is identified as 180 days. Having an additional duration of 180 days for this activity allows 360 days for closure activities.

Recommendation Text: Delete Activity.

#### ***Response to A-1-362***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the schedule item summarizing closure activities, as this item made the duration of closure appear to take 360 days vs. the actual duration of 180 days.*

### **Comment A-1-363**

#### 52. Addendum Section: H.8 References

Comment Text: (Dangerous Waste Permit Application Part A Form, Closure Unit 19, Hexone Storage & Treatment Facility, Revision 7, October 1)

Basis Text: This appears to be an incorrect reference.

Recommendation Text: Provide appropriate reference.

#### ***Response to A-1-363***

*Thank you for your comment. Ecology agrees this is an incorrect reference, and has updated it with the following: "21-NWP-033, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967" (letter to Brian T. Vance, DOE-RL/ORP and Scott Sax, CPCCo, from Stephanie Schleif), Nuclear Waste Program, Ecology, Richland, Washington, March 15. Available at: <https://pdw.hanford.gov/document/AR-10235>*

### **Comment A-1-364**

#### 53. Addendum Section: H.8 References

Comment Text: WAC 173-340, *Model Toxics Control Act-Cleanup*, Washington Administrative Code, Olympia, Washington.

Basis Text: WAC 173-340-900 as referenced in Section H.3.7 is missing.

Recommendation Text: Add WAC 173-340-900 to Section H.8.

#### ***Response to A-1-364***

*Thank you for your comment. Ecology accepts the recommendation and added the reference to Section H.8.*

## **CLOSURE UNIT GROUP 41, 221-T RAILROAD CUT**

### **Comment A-1-365**

#### 1. Addendum Section: Unit 41 221-T Railroad Cut Permit Conditions

Comment Text: Addenda

Basis Text: Erroneous use of the plural form of Addendum.

Recommendation Text: Change "Addenda" to "Addendum".

### ***Response to A-1-365***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

### **Comment A-1-366**

#### 2. Addendum Section: Unit 41 221-T Railroad Cut Permit Conditions

Comment Text: The Permittees will notify Department of Ecology (Ecology) within 24 hours of any deviations from the approved Addendum H, "Closure Plan."

Basis Text: This permit condition lacks regulatory basis and is contradictory to Permit Condition II.K.6 which states:

"Deviations from a TSD unit closure plan required by unforeseen circumstances encountered during closure activities, which do not impact the overall closure strategy, but provide equivalent results, shall be documented in the TSD unit-specific Operating Record and made available to Ecology upon request, or during the course of an inspection."

While field sampling plans are designed to be able to be implemented as written, field conditions arise that may require minor deviation. These circumstances are addressed in permit condition II.K.6.

Recommendation Text: Minor deviations from this closure plan must be addressed in accordance with Permit Condition II.K.6.

### ***Response to A-1-366***

*Thank you for your comment. Ecology disagrees Permit Condition II.K.6 lacks a regulatory basis or is contradictory to the unit-specific permit condition. Permit Condition II.K.6 requires documentation of closure plan deviations be provided to Ecology upon request. Ecology is requesting documentation of any closure plan deviations via Permit Condition V.41.B.2. Most importantly, Ecology notes the term "minor deviations" used in Permit Condition II.K.6 could be interpreted differently by the Permittees and Ecology in this context. Therefore, Ecology is requiring notification in order for Ecology and the Permittees to review the deviation to determine if it will affect the ability to meet final acceptance of closure. If Ecology determines the deviation will affect the ability to meet final acceptance of closure, Ecology will require the Permittees to submit a permit modification request to modify the closure plan in accordance with WAC 173-303-610(3)(b)(iv). Ecology also notes Permit Condition II.J.3 requires changes to the approved closure plan be submitted to Ecology as a permit modification request, which is consistent with WAC 173-303-610(3)(b)(ii).*

*In addition, even if this unit-specific permit condition were contradictory with Permit Condition II.K.6, the language of a unit-specific condition prevails when in conflict with the Hanford Facility Part I-Standard and/or Part II-General Facility Conditions. This is clearly stated in the first unit-specific permit condition for the 221-T Railroad Cut, Part V, Closure Unit Group 41:*

*"V.37.A COMPLIANCE WITH PERMIT CONDITIONS*

*The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act Permit (Permit) as specified in Permit Attachment 9, Permit Applicability Matrix, including all approved modifications. All addenda, subsections, figures, tables, and appendices included in the following Unit-Specific Permit Conditions are enforceable in their entirety.*

*In the event that the Part V, Unit Conditions for Closure Unit 41, 221-T Railroad Cut conflict with the Part I-Standard Conditions and/or Part II-General Facility Conditions of the Permit, the unit conditions will prevail for Closure Unit 41, 221-T Railroad Cut."*

*The Fact Sheet for this permit modification was not available on Ecology's webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission by re-opening the public comment period from September 21 through November 4, 2020. The bases for this closure unit group's permit conditions are summarized in the Fact Sheet, Section 4.2. As stated in the Fact Sheet:*

*"4.2 Basis for Closure Unit Group Permit Conditions*

*The following are permit conditions for Closure Unit Groups 28, 30, 37, and 41:*

*Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, Permit Applicability Matrix, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.*

*Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.*

*Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within 24 hours of any deviations from the approved closure plan. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure."*

*Please note, permit condition numbers noted in the Fact sheet were incorrect. For Closure Unit Group 41, 221-T Railroad Cut, permit condition numbers are: V.41.A, V.41.B.1, and V.41.B.2.*

**Comment A-1-367**

**3. Addendum Section: Unit 41 221-T Railroad Cut Permit Conditions**

Comment Text: If sampling assumptions/closure performance standards were not met, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work that would need to be done to achieve clean closure.

Basis Text: Resolving Contamination Identified During Grid Soil Sampling is already addressed in Section H.4.3.3.2. Identify what additional information is needed for the permit modification.

Recommendation Text: Provide details on what additional information is required for the permit modification.

***Response to A-1-367***

*Thank you for your comment. There is no Section H.4.3.3.2. However, Ecology notes resolving contamination identified during sampling is already addressed in Section H.3.5. The permit condition was meant to address, (based on review of sampling data results), any additional sampling and remediation needed beyond what is already described in the closure plan. Ecology has amended the 221-T Railroad Cut Closure Plan Permit Condition, V.41.B.3.a, to specify that a permit modification request will be required for closure performance standards specified in Table H-5 of the Addendum H, Closure Plan that have not been met after remediation and confirmatory sampling data analysis. This is consistent with Section H.3.7 which describes meeting with Ecology to determine a path forward for closure if contamination remains after remediation.*

**Comment A-1-368**

4. Addendum Section: Unit 41 221-T Railroad Cut Permit Conditions

Comment Text: For Non-Statistical Grid Sampling and/or Focused Sampling: The Permittees will conduct a review of the non-statistical grid and/or focused sampling data for purposes of verifying the closure performance standards specified in the sampling plan in Addendum H, “Closure Plan, “ have not been exceeded.

Basis Text: The closure plan does not identify non-statistical or focused sampling.

Recommendation Text: Delete section.

***Response to A-1-368***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the entire section of text that referred to non-statistical grid sampling and/or focused sampling from Permit Condition V.41.B.3.a.*

**Comment A-1-369**

5. Addendum Section: Unit 41 221-T Railroad Cut Permit Conditions

Comment Text: Within sixty days of completion of closure for the 221-T Railroad Cut, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 221-T Railroad Cut has been closed in accordance with the specifications of the Addendum H, “Closure Plan” [WAC 173-303-610 (6)].

Basis Text: The IQRPE certification is submitted after closure activities are complete but as part of the overall closure process. Suggest specifying the IQRPE certification is submitted after closure activities are complete.

Recommendation Text: Within sixty days of completion of closure activities for the 221-T Railroad Cut, the Permittees must submit to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the 211-T Railroad Cut has been closed in accordance with the specifications of the Addendum H, "Closure Plan" [WAC 173-303-610(6)].

***Response to A-1-369***

*Thank you for your comment. The 221-T Railroad Cut Permit Condition V.41.B.4 language is consistent with WAC 173-303-610(6), Certification of closure, and will not be changed.*

**Comment A-1-370**

6. Addendum Section: Table of Contents

Comment Text: Table of Contents

Basis Text: Page numbers are missing the H-..

Recommendation Text: Suggest reformatting TOC for consistency with page numbering throughout document.

***Response to A-1-370***

*Thank you for your comment. The page numbering aligns with permit formatting.*

**Comment A-1-371**

7. Addendum Section: Terms

Comment Text: Terms

Basis Text: HWMA and RCW are not included in table. See first paragraph in Intro. BCSO and WIDS are not defined in this plan.

Recommendation Text: Add HWMA, RCW to; and remove BCSO and WIDS from terms table.

***Response to A-1-371***

*Thank you for your comment. Ecology has amended "Terms" to include HWMA - Hazardous Waste Management Act, RCW- Revised Code Washington, and to exclude BCSO - Benton County Sheriff's Office and WIDS - Waste Information Data System.*

**Comment A-1-372**

8. Addendum Section: H.1 Introduction

Comment Text: The purpose of this plan is to describe the Resource Conservation and Recovery Act (RCRA)/Hazardous Waste Management Act (HWMA), Chapter 70.105 Revised Code of Washington (RCW) closure process for the 221-T Railroad Cut Dangerous Waste Management Unit (DWMU), hereinafter called the 221-T Railroad Cut.

Basis Text: Should be defined as "Resource Conservation and Recovery Act of 1976."

Recommendation Text: The purpose of this plan is to describe the closure process for the 221-T Railroad Cut Dangerous Waste Management Unit (DWMU), hereinafter termed the "Railroad

Cut", as required by and in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) and Washington's Hazardous Waste Management Act (HWMA)

***Response to A-1-372***

*Thank you for your comment. Ecology agrees that (RCRA) should be defined as "Resource Conservation and Recovery Act of 1976" and had amended the text to reflect the correct definition.*

**Comment A-1-373**

9. Addendum Section: H.1 Introduction

Comment Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), and WAC 173-303-630(10).

Basis Text: Should define WAC 173-303-610 and WA 173-303-630 the first time they are used. - 610 is "Closure and Post-Closure;" and -630, "Use and Management of Containers."

Recommendation Text: This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), *Closure and Post-Closure*, and in WAC 173-303-630(10), *Use and Management of Containers*.

***Response to A-1-373***

*Thank you for your comment. Ecology accepts the recommendation and amended the text to read; "This closure plan complies with closure requirements in Washington Administrative Code (WAC) 173-303-610(2) through WAC 173-303-610(6), Closure and Post-Closure, and WAC 173-303-630(10), Use and Management of Containers."*

**Comment A-1-374**

10. Addendum Section: H-1 Introduction

Comment Text: H.9

Basis Text: Page numbering should re-start at H.1.

Recommendation Text: Begin page numbering at H.1.

***Response to A-1-374***

*Thank you for your comment. The page numbering aligns with permit formatting.*

**Comment A-1-375**

11. Addendum Section: Figure H-1 T Plant Complex Overview, 221-T Railroad Cut Dangerous Waste Management Unit

Comment Text: Figure H-1 T Plant Complex Overview

Basis Text: There should be a date for this photo

Recommendation Text: Add date to Figure H-1 T Plant Complex Overview.

### ***Response to A-1-375***

*Thank you for your comment. Thank you for your comment. Ecology accepts the recommendation and included the date "Month Unknown, 2017".*

### **Comment A-1-376**

#### 12. Addendum Section: Table H-1 Training Matrix for the 221-T Railroad Cut Dangerous Waste Management Units

Comment Text: c. Facility Health and Safety training is required only if workers are unescorted in the facility

Basis Text: There is no c superscript in Table H-1.

Recommendation Text: Add superscript c to columns for Non-T Plant Personnel or Visitor, SPOC, and FS for Facility Health and Safety Training Category Course Description.

### ***Response to A-1-376***

*Thank you for your comment. The superscript "c" is already present in Table H-1 for Non-T Plant Personnel or Visitor, and SPOC columns. Ecology agrees with the recommendation and included the omitted superscript from Training Category Course Description: Facility Health and Safety, under the Field Sampler (FS) column.*

### **Comment A-1-377**

#### 13. Addendum Section: Table H-1 Training Matrix for the 221-T Railroad Cut Dangerous Waste Management Units

Comment Text: The "X" in the FS column for the Building Emergency Training Category Course Description.

Basis Text: This "X" is in error. There is no requirement for Building Emergency training for the Field Sampler.

Recommendation Text: Remove the "X" for the FS column for Building Emergency Training Category Course Description.

### ***Response to A-1-377***

*Thank you for your comment. Ecology agrees with the recommendation and deleted the "X" from Training Category Course Description: Building Emergency, under the Field Sampler (FS) column.*

### **Comment A-1-378**

#### 14. Addendum Section: H.1.5 Facility Contact Information

Comment Text: Doug S. Shoop

Basis Text: Contact information should be in the Part A only. If the contact information changes, it will require a permit modification to the closure plan. In addition, the DOE contact is no longer Doug Shoop.

Recommendation Text: Remove facility contact information from closure plan.

### ***Response to A-1-378***

*Thank you for your comment. As there is no approved Part A for the closure units that are the subject of this permit modification, facility contact information needs to be included in the closure plans. Ecology obtained the most recent facility contact information from the Permittees at the drafting of this permit modification.*

*The Section H.1.5 – Facility Contact Information, and has been updated to include the current contact information provided by the Permittees in letter dated, January 22, 2021, "Transfer of Co-Operator Responsibilities for Hanford Facility Resource Conservations and Recovery Act Permit, WA7890008967," (21-ESQ-00305) and approved by Ecology in letter dated, March 15, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967," (21-NWP-033).*

*Ecology has amended Section H.1.5 – Facility Contact Information text to read:*

*Brian T. Vance, Manger  
U.S. Department of Energy, Richlands Operations Office  
P.O. Box 550  
Richland, WA 99352  
(509) 376-7395*

*Scott Sax, President and Project Manager  
Central Plateau Cleanup Company, LLC  
P.O. Box 1464  
Richland, WA 99352  
(509) 372-3845*

*Additionally, in these closure plans, references to "CH2M HILL Plateau Remediation Company (CHPRC)" as a Permittee have been changed to "Central Plateau Cleanup Company, LLC (CPCCo)." The change is reflected in the following Sections:*

*TERMS,  
H.1 Introduction,  
H.3.7 Closure Performance Standards for Soil,  
H.3.8 Development of Closure Performance Standards, Table H-4, and  
H.4.3.1 Project/Task Organization*

### **Comment A-1-379**

#### **15. Addendum Section: H.2 Closure Performance Standards**

Comment Text: Remove all waste and waste residues and properly dispose of them in a RCRA permitted disposal facility.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

***Response to A-1-379***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Remove all waste and waste residues" is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met for clean closure of container storage areas.*

*The text "and properly dispose of them in a RCRA permitted disposal facility" is deleted as it is an activity required by WAC 173-303-610(3)(a)(iv) to treat (if necessary) and dispose of all dangerous wastes removed from the dangerous waste management unit during closure activities. This information is covered under Section H.3, Closure Activities.*

**Comment A-1-380**

16. Addendum Section: H.2 Closure Performance Standards

Comment Text: Perform soil sampling and analysis to ensure soils in the 221-T Railroad Cut meet standard Model Toxics Control Act (MTCA) cleanup levels, and remove any soils contaminated above these levels.

Basis Text: This is an activity, not an objective. This action should be covered under Section H.3, Closure Activities

Recommendation Text: Delete text.

***Response to A-1-380***

*Thank you for your comment. Identification of closure performance standards in WAC 173-303-610(2)(b) and WAC 173-303-630(10) are objectives, whereas the details for meeting these closure performance standards are activities. The text "Perform soil sampling and analysis to ensure soils at the 221-T Railroad Cut meet standard Model Toxics Control Act (MTCA) Method A or B cleanup levels, and remove any soils contaminated above these levels" is retained as these are closure performance standards identified in WAC 173-303-610(2)(b) and WAC 173-303-630(10) that must be met in order for the 221-T Railroad Cut to achieve clean closure. The details for meeting these closure performance standards are appropriately located under Section H.3, Closure Activities.*

**Comment A-1-381**

17. Addendum Section: H.3.1 Removal of Wastes and Waste Residues

Comment Text: It is unknown if dangerous or mixed waste residues are present at this DWMU.

Basis Text: As identified in the records review, facility inspections were completed in this storage area to monitor for spills. No documentation of spills were found during the records reviewed. Provide supporting documentation indicating the potential for dangerous or mixed waste residue to be present at the DWMU.

Recommendation Text: The records review and visual inspection did not identify any releases of dangerous waste or waste related staining therefore dangerous or mixed waste residues are not anticipated at this unit.

***Response to A-1-381***

*Thank you for your comment. Until confirmation sampling results are made available, the referenced text in H.3.1 of Addendum H, "It is unknown if dangerous waste residues are present at this DWMU," is accurate. Accordingly, this language will not be changed. The recommendation text, "...dangerous or mixed waste residues are not anticipated at this unit," would not change the fact that confirmation sampling must be performed.*

*Confirmation sampling is necessary to determine that waste residuals are not left in place at closure. In order to achieve "clean closure," even units with a good operating history and no written record of spills or releases must certify through a minimal amount of soil sampling that contamination is not present [WAC 173-303-610(2)(b)(i), 173-303-610(3)(a)(v)]. A unit-specific sampling design is developed based on several factors including but not limited to records of spills and releases, waste management history, compliance history, regulatory status, structural design, size, physical condition, and potential paths for waste to migrate.*

*The overarching closure performance standards set forth in WAC 173-303-610(2)(a) apply broadly to all facilities, operations, and conditions. WAC 173-303-610(2)(b) augments these qualitative performance standards with more specific "clean closure" performance standards, including methods for calculating numeric cleanup levels for environmental media:*

*"[R]emoval or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:*

*(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act [MTCA] Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745."*

*A closure plan must describe how proposed closure actions will satisfy the applicable closure performance standards. In particular, WAC 173-303-610(3)(a)(v) requires a closure plan to include the following:*

*"A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." (Emphasis added.)*

*Ecology's "Guidance for Clean Closure of Dangerous Waste Units and Facilities," Publication #94-111, is the primary resource for implementing these regulatory requirements for clean*

*closure. The following are relevant excerpts from Publication #94-111 that address the need for soil sampling in order to demonstrate clean closure has been achieved:*

- *Section 7.0, Sampling and Analysis for Clean Closure: "All closures will include a sampling and analysis component. At a minimum, sampling and analysis will be necessary to characterize the areal and vertical extent of contamination at and/or released from the closing unit and to confirm the effectiveness of closure activities."*
- *Section 7.2.1, Area-Wide Sampling: "During area-wide sampling, an imaginary sampling grid, three-dimensional if necessary, is imposed over the area to be sampled. The area to be sampled must encompass the closing unit and the maximum extent of any releases from the closing unit. Each node of the grid is a sampling location with an assigned number. Area-wide sampling is appropriate when the spatial distribution of contamination at or from the closing unit is uncertain."*

*Overall, there was very little information regarding waste stored at the 221-T Railroad Cut. The certified closure plan (letter 19-AMRP-0021, Attachment 2.5) stated no dangerous waste permitted storage was identified during the records review, however weekly inspection records identified it was used as a less than 90-day storage area and as a satellite accumulation area, and possibly managed dangerous and mixed waste. The September 18, 2013 visual inspection did not identify any waste related staining, therefore only confirmation sampling and analysis will be performed to verify clean closure. Based on the 2018 walk down, Ecology has agreed with the 24 statistical grid soil sampling locations identified by the Permittees.*

*The Fact Sheet for this permit modification was not available on Ecology's public comment webpage for the June 4 through July 24, 2020 public comment period. Ecology remedied this inadvertent omission through a re-opening of the public comment period from September 21 through November 4, 2020. The bases for sampling locations at the 221-T Railroad Cut are summarized in the Fact Sheet, Section 4.1.7, Closure Actions for Closure Unit Group 41, 221-T Railroad Cut, and is included as an excerpt below:*

*"For the 221-T Railroad Cut, clean closure will be achieved through sampling of the soil. The samples will be analyzed to confirm whether closure performance standards have been achieved. Ecology and the Permittees are in agreement on sampling requirements to verify clean closure standards are met. The Permittees proposed 24 statistical grid soil samples."*

## **Comment A-1-382**

### **18. Addendum Section: H.3.4 Decontamination**

Comment Text: Equipment used during sampling will be decontaminated for re-use or disposed of and managed as newly generated waste in accordance with Section H.3.6

Basis Text: Per WAC 173-303-610, only equipment containing or contaminated with dangerous wastes or waste residue require removal or decontamination. With the absence of contamination, decontamination of equipment is not necessary.

Recommended Text: Any equipment used to remove material contaminated with hazardous or mixed waste will be decontaminated in accordance with WAC 173-303-610. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent

possible, and will be performed within the area where the closure activity has taken place. Solid waste debris generated by decontamination of equipment (e.g., rags and personal protective equipment) will be collected and disposed at an approved disposal facility. Dangerous waste generated will be managed in accordance with WAC 173-303, "Dangerous Waste Regulations." Contaminated equipment that cannot be decontaminated for re-use will be discarded and managed as dangerous waste in accordance with generator accumulation standards of WAC 173-303-170 and -200.

### ***Response to A-1-382***

*Thank you for your comment. Ecology has amended the text to read, "Equipment that becomes contaminated during sampling activities will be decontaminated for re-use or managed and disposed of as newly generated waste in accordance with Section H.3.6. Decontamination of equipment will generally be performed using dry methods (such as wiping) to the extent possible. A temporary decontamination area may be established near the 221-T Railroad Cut. This area will be constructed of Visqueen™ or equivalent material, and may be used for decontamination of sampling equipment, personal protective equipment, and other miscellaneous small equipment used during sampling activities. When decontamination of equipment is completed, the Visqueen™ or equivalent materials, rinsate, and solid waste debris generated by equipment decontamination (e.g., rags and personal protective equipment) will be removed and managed as newly generated waste in accordance with Section H.3.6"*

### **Comment A-1-383**

#### 19. Addendum Section: H.3.4 Decontamination

Comment Text: A small temporary decontamination area (approximately 10 by 20 feet) may be established near the 221-T Railroad Cut.

Basis Text: Providing approximate dimensions requires Permittees to establish that size of area when a smaller area may be effective.

Recommendation Text: A small temporary decontamination area may be established near the 221-T Railroad Cut.

### ***Response to A-1-383***

*Thank you for your comment. Ecology has amended the text to read, "A temporary decontamination area may be established near the 221-T Railroad Cut."*

### **Comment A-1-384**

#### 20. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: The contaminated soil will be containerized, labeled, and sampled for waste characterization.

Basis Text: The soil has already been sampled and analyzed through the closure plan SAP. Provide the regulatory justification for requiring sampling of the soil for purposes of characterization. The soil can be characterized using the existing data.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized.

***Response to A-1-384***

*Thank you for your comment. Ecology agrees the data may be used for characterization, but only within the area of inference for that particular sample. Ecology has amended the text to read, "The contaminated soil will be containerized, labeled, and sampled as needed to designate for disposal of the entire volume of contaminated soil."*

**Comment A-1-385**

21. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil will be placed in U. S. Department of Transportation-compliant containers and sent to a RCRA permitted disposal facility or staged at CAAs in accordance with all applicable requirements of WAC 173-303-200, *Conditions for exemption for a large quantity generator that accumulate dangerous waste.*

Basis text: All waste and waste residues must properly be designated as RCRA waste before the waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste, there is no regulatory driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: The contaminated soil will be containerized, labeled, and characterized. Contaminated soil will be placed in U.S. Department of Transportation compliant containers and sent to an approved disposal facility or staged at central accumulation areas in accordance with standards in WAC 173-303-200, "Accumulating Dangerous Waste On-site." Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268, "Land Disposal Restrictions") will be characterized, designated, stored, or treated, as applicable, prior to disposal in an approved disposal facility.

***Response to A-1-385***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil will be placed in U.S. Department of Transportation-compliant containers and sent to an appropriate land disposal unit, possibly with central accumulation as an intermediary step in accordance with all applicable requirements of WAC 173-303-200, "Conditions for exemption for a large quantity generator that accumulates dangerous waste."*

**Comment A-1-386**

22. Addendum Section: H.3.5 Identifying and Managing Contaminated Environmental Media

Comment Text: Contaminated soil subject to the requirements of WAC 173-30-140, *Land Disposal Restrictions* (which incorporates by reference 40 Code of Federal Regulations [CFR] 268, *Land Disposal Restriction*) will be characterized, designated, and stored or treated, as applicable, prior to disposal in a RCRA permitted disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

***Response to A-1-386***

*Thank you for your comment. Ecology agrees it is possible for contaminated environmental media to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Contaminated soil subject to the requirements of WAC 173-303-140, Land disposal restrictions (which incorporates by reference 40 Code of Federal Regulations [CFR] 268 Land Disposal Restrictions) will be characterized, designated, and treated, as applicable, prior to disposal in an appropriate land disposal unit."*

**Comment A-1-387**

23. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Once waste characterization results are received, all waste will be designated and shipped to a RCRA permitted facility for treatment, storage, or disposal.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste based on characterization results, provide the regulatory driver for requiring disposal in a RCRA permitted disposal facility.

Recommendation Text: If any waste is identified as hazardous waste it must be properly disposed or decontaminated in accordance with WAC 173-303-610(5). All hazardous waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230.

***Response to A-1-387***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Once waste characterization results are received, all waste will be designated. The waste will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5)," was clarified as follows: "The waste will be managed as a newly generated waste stream and either disposed of or decontaminated in accordance with WAC 173-303-610(5)."*

### **Comment A-1-388**

#### 24. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268) then ultimately disposed in a RCRA permitted waste disposal facility.

Basis Text: For waste that does not designate as a dangerous waste, provide the driver for disposal in a RCRA permitted disposal facility.

Recommendation Text: Waste subject to requirements of WAC 173-303-140, "Land Disposal Restrictions" (which includes by reference 40 CFR 268) will be characterized, designated, stored, or treated, as applicable, prior to disposal in an appropriate waste disposal facility.

#### ***Response to A-1-388***

*Thank you for your comment. Ecology agrees it is possible for a solid waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste.*

*Ecology has amended the text to read, "Dangerous and mixed waste will be treated, if necessary, to meet land disposal restrictions in WAC 173-303-140 (which incorporates by reference 40 CFR 268), then ultimately disposed of in an appropriate land disposal unit."*

### **Comment A-1-389**

#### 25. Addendum Section: H.3.6 Identifying and Managing Waste Generated During Closure

Comment Text: Once waste characterization results are received, all waste will be designated and shipped to a RCRA permitted facility for treatment, storage, or disposal.

Basis Text: All waste and waste residues must properly be designated as RCRA waste before waste is required to be disposed of in a RCRA facility. If it does not designate as RCRA waste, then no disposal requirements should be enforced within this closure plan. If the waste does not designate as a dangerous waste based on characterization results, provide the regulatory driver for requiring disposal in a RCRA permitted disposal facility.

Recommendation Text: If any waste is identified as hazardous waste it must be properly disposed or decontaminated in accordance with WAC 173-303-610(5). All hazardous waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through WAC 173-303-230.

#### ***Response to A-1-389***

*Thank you for your comment. Ecology believes this is a duplicate of Comment 23. Our response to Comment 23 is:*

*"Ecology agrees it is possible for a waste to remain subject to LDR treatment standards, but no longer designate as a hazardous/dangerous waste."*

*Ecology has amended the text to read, "Once waste characterization results are received, all waste will be designated. The waste will be managed as a newly generated waste stream in accordance with WAC 173-303-610(5)," was clarified as follows: "The waste will be managed as*

*a newly generated waste stream and either disposed of or decontaminated in accordance with WAC 173-303-610(5)."*

**Comment A-1-390**

26. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: WAC 173-340-740(2), Table 740-1, *Method A Soil Cleanup Levels for Unrestricted Land Uses* (WAC 173-340-900), which includes closure performance standards for human health based on unrestricted land use.

Basis Text: Include the title of this WAC 173-340-900, *Tables*.

Recommendation Text: WAC 173-340-740(2), Table 740-1, *Method A Soil Cleanup Levels for Unrestricted Land Uses* (WAC 173-340-900, *Tables*), which includes closure performance standards for human health based on unrestricted land use.

***Response to A-1-390***

*Thank you for your comment. Ecology accepts the recommendation and amended the text.*

**Comment A-1-391**

27. Addendum Section: H.3.7 Closure Performance Standards for Soil

Comment Text: VSP Data Analysis Report is to be provided to Ecology within 30 days of receipt of the final laboratory analytical report.

Basis Text: The VSP data analysis report is to be provided to Ecology within 30 days after all data verification activities.

Recommendation Text: VSP Data Analysis Report is to be provided to Ecology within 30 days after all data verification activities are complete.

***Response to A-1-391***

*Thank you for your comment. Ecology accepts the recommendation and has amended Section H.3.7 to read, "The VSP Data Analysis Report is to be provided to Ecology within 30 days after all data verification activities are complete."*

**Comment A-1-392**

28. Addendum Section: Table H-4 Closure Performance Standards for Soil and Analytical Performance Requirements

Comment Text: Tetrahydrofuran 1.00E+1

Basis Text: For tetrahydrofuran, Permittees agree with the value of 3.00E+01 mg/kg for groundwater protection. The PQL should be 5.00E-02 mg/kg.

Recommendation Text: Update Table H-4 with PQL of 5.00E-02 mg/kg and groundwater protection with 3.00E+01 mg/kg

### ***Response to A-1-392***

*Thank you for your comment. Ecology accepts the recommendation and has amended the tetrahydrofuran PQL to read "5.00E-02" mg/kg in Table H-4 Closure Performance Standards for Soil and Analytical Performance Requirements.*

### **Comment A-1-393**

#### 29. Addendum Section: H.4.3.3 Sampling Documents and Records

Comment Text: Records may be stored in either electronic or hard copy format. Documentation and records, regardless of medium or format, are controlled in accordance with internal work requirements and processes to ensure the accuracy and retrieveability of stored records. Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Federal Facility Agreement and Consent Order) will be managed in accordance with the requirements therein.

Basis Text: This replicates language in Section H.1.4.4 Facility Recordkeeping.

Recommendation Text: Replace language with a reference to Section H.1.4.4

### ***Response to A-1-393***

*Thank you for your comment. Ecology deleted the redundant text in Section H.4.3.3 and included a reference to Section H.1.4.4. Also, in Section H.1.4.4 the sentence "Records required by the Tri-Party Agreement (Ecology et al., 1989, Hanford Facility Agreement and Consent Order) will be managed in accordance with the requirements therein." was deleted and replaced with "Records generated during closure will be maintained in the operating record in accordance with Permit Condition II.I." Records related to this closure plan must be retained in the facility operating record in accordance with Permit Condition II.I.*

### **Comment A-1-394**

#### 30. Addendum Section: H.4.6 Revisions to the Sampling and Analysis Plan and Constituents to be Analyzed

Comment Text: Changes to the SAP may be necessary due to unexpected events during closure. An unexpected event would be an event outside the scope of the SAP or a condition that inhibits implementation of the SAP as written. Revisions to the SAP will be submitted no later than 30 days after the unexpected event as a permit modification request.

Basis Text: Approval of a permit modification will likely adversely affect meeting the 180-day closure period.

Recommendation Text: Provide clarification on whether the permit modification request approval is required to continue with closure activities or if activities can continue uninterrupted after the unexpected event occurs.

### ***Response to A-1-394***

*Thank you for your comment. Ecology disagrees with the recommendation, and is retaining the existing text. Due to the nature of unexpected events, (that is, they are unexpected), Ecology cannot anticipate at this point in time whether or not closure activities may continue uninterrupted. Ecology understands that permit modifications caused by unexpected events,*

may adversely affect the Permittees' ability to complete closure within the 180-day closure period and have specifically addressed this circumstance in Section H.6, Closure Schedule and Time Frame. Specifically:

*"Should an unexpected event occur and an extension to the 180 day closure activity expiration date be deemed necessary, a permit modification request will be submitted to Ecology for approval at least 30 days prior to the expiration of the 180 days. [WAC 173 303 610(4)(c)]*

*The permit modification request will include the statement that closure activities, will of necessity, take longer than 180 days to complete, including the supporting basis for the statement. The permit modification request will also include necessary information demonstrating that all steps to prevent threats to HHE have been and will continue to be taken, including compliance with all applicable permit requirements. [WAC 173 303 610(4)(b)]"*

### **Comment A-1-395**

#### 31. Addendum Section: H.5.3 Closure Certification

Comment Text: Within 60 days of completion of closure of the 221-T Railroad Cut DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail.

Basis Text: Suggest "closure activities". Closure is not complete until Ecology acknowledges the clean closure certification. Also, include language consistent with regulations for delivery of closure certification means.

Recommendation Text: Within 60 days of completion of closure activities of the 221-T Railroad Cut DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means).

### ***Response to A-1-395***

*Thank you for your comment. The comment text is consistent with WAC 173-303-610(6) and will not be amended beyond the inclusion of a reference to other acceptable means of submittal. Ecology amended the text to read, "Within 60 days of completion of closure of the 221-T Railroad Cut DWMU, a certification that the DWMU has been closed in accordance with the specifications in this closure plan will be submitted to Ecology by registered mail or other means that establish proof of receipt (including applicable electronic means)."*

### **Comment A-1-396**

#### 32. Addendum Section: Table H-8 221-T Railroad Cut Dangerous Waste Management Unit Closure Schedule

Comment Text: 180 days

Basis Text: The duration for the activity "Complete Closure of the 221-T Railroad Cut DWMU" is identified as 180 days. Having an additional duration of 180 days for this activity allows 360 days for closure activities.

Recommendation Text: Delete Activity

### ***Response to A-1-396***

*Thank you for your comment. Ecology accepts the recommendation and has deleted the schedule item summarizing closure activities, as this item made the duration of closure appear to take 360 days vs. the actual duration of 180 days.*

### **Comment A-1-397**

#### 33. Addendum Section: H.8 References

Comment Text: (Dangerous Waste Permit Application Part A Form, Closure Unit 19, Hexone Storage & Treatment Facility, Revision 7, October 1)

Basis Text: This appears to be an incorrect reference.

Recommendation Text: Provide appropriate reference.

### ***Response to A-1-397***

*Thank you for your comment. Ecology agrees this is an incorrect reference, and has updated it with the following: "21-NWP-033, 2021, "Approval of Permit Change Notices and Part A Forms to Transfer Co-Operator Responsibilities for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit), WA7890008967" (letter to Brian T. Vance, DOE-RL/ORP and Scott Sax, CPCCo, from Stephanie Schleif), Nuclear Waste Program, Ecology, Richland, Washington, March 15. Available at: <https://pdw.hanford.gov/document/AR-10235>*

### **Comment A-1-398**

#### 34. Addendum Section: H.8 References

Comment Text: WAC 173-340, Model Toxics Control Act-Cleanup, Washington Administrative Code, Olympia, Washington.

Basis Text: WAC 173-340-900 as referenced in Section H.3.7 is missing.

Recommendation Text: Add WAC 173-340-900 to Section H.8.

### ***Response to A-1-398***

*Thank you for your comment. Ecology accepts the recommendation and added the reference to Section H.8.*

## **B-1: CH2MHILL PLATEAU REMEDIATION COMPANY**

### **Comment B-1-1**

Name: Miranda Versely

Address: 825 Jadwin Ave

City: Richland

State: WA

Postal Code: 99352

Email: miranda\_g\_versely@rl.gov

Submitted by CH2MHILL Plateau Remediation Company

### **Response to B-1-1**

*Thank you for your comments. This second set of comments ("B" comments), are from the second public comment period. They are exactly the same as the first set ("A" comments) submitted by US DOE/CCPCo.*

*Ecology did not provide responses for the second "B" set. Please see comment responses in the first "A" set of comments.*

## **O-1: HEART OF AMERICA NORTHWEST**

### **Comment O-1-1**

This is a re-opened comment period after we complained that the "fact sheet" which is legally required to accompany a permit modification of this type was not available. That is more than just a one page fact sheet but a detailed summary. Review of the 29 page RCRA Permit Fact Sheet, which details each unit subject to the permit along with estimates of wastes previously stored, revealed numerous concerns and discrepancies.

### **Response to O-1-1**

*Thank you for your comments. Ecology has no record of a complaint received from Heart of America Northwest regarding the Fact Sheet not being available for public comment. Once we discovered the Fact Sheet had been inadvertently omitted from Ecology's public comments web page during June 4 through July 24 public comment period, we remedied the issue by reopening the public comment period for an additional 45 days. The Fact Sheet was made available on Ecology's public comments web page during the re-opened comment period from September 21 through November 4, 2020.*

### **Comment O-1-2**

Overall, the closure of T-Plant and CWC units is a sordid tale of USDOE having been found by USEPA and Washington Ecology to have deliberately violating RCRA and WA State HWMA laws, being ordered to "clean close" just five of the numerous units pursuant to "closure plans" that were to be submitted within 120 days of the orders, and - six years later - USDOE is still fighting against meeting clean closure standards. Not only is clean closure of these intolerably delayed so long as to be out of sight, but Ecology has still not ordered the tremendous quantities of illegally stored wastes to be characterized, removed and treated. In 2014, we urged that all wastes stored in CWC be characterized, treated and removed within three years. RCRA and Washington State's Hazardous Waste Management Act (HWMA) bar storage of dangerous / hazardous wastes for prolonged periods beyond six months then treatment capacity is available. Commercial treatment capacity was available to treat all wastes within three years at Perma-Fix Northwest in 2014, provided that an order was issued and contracts entered into so that Perma-Fix NW could ensure dedicated permitted treatment capacity. That capacity is

available now. Therefore, Ecology should be ordering and adding all units into the permit with a three year compliance period for removal of all wastes<sup>1</sup>.

### ***Response to O-1-2***

*Thank you for your comment. Ecology agrees waste stored illegally in container storage areas should be removed as soon as practicable. With the exception of CWC Outdoor Storage Areas (OSA) A and B, all waste previously stored in unauthorized container storage areas at the Solid Waste Operations Complex facilities has been removed. In addition, in 2017 Ecology established Tri-Party Agreement Milestones for removal of remaining waste containers from CWC OSA-A and B (TPA Milestones in the M-091 series). All waste containers are scheduled to be removed from these areas by September 30, 2026.*

*To date, more than 100 waste containers have been removed from OSA-A, and less than 100 waste containers remain. Although the established schedule is longer than desired, it is based on the ability of Perma-Fix Northwest to accept mixed waste and stay within their annual radiological limits per their Department of Health license. In addition, competing priorities from waste generated from the Plutonium Finishing Plant demolition project affected the ability of Perma-Fix Northwest to accept the waste on a more expedient schedule. In regards to the quantity of wastes stored inside CWC, the approximate number of containers is 10,500. With respect to the assertion that this waste is being stored illegally, Ecology notes that it is being stored in compliance with Sitewide Permit Condition I.A under interim status technical standards (WAC 173-303-400). While much of this waste is in storage for longer than one year, TPA Milestone M-026 requires USDOE to submit an annual report identifying all waste in storage at Hanford, along with characterization information and treatment plans and schedules for waste in storage for longer than one year (Land Disposal Restrictions Report). The TPA requirements for this annual report operate in lieu of the Site Treatment Plan requirements under the Federal Facility Compliance Act of 1992. This allows LDR-restricted mixed waste to be stored at Hanford until it can be treated and disposed*

### **Comment O-1-3**

The closure of these units is long overdue, following documentation that USDOE had illegally operated them for storage of hazardous wastes without permitting:

“On June 26, 2013, USDOE and the U.S. Environmental Protection Agency signed a Consent Agreement and Final Order, Docket No. RCRA-10-2013-0113 (CAFO). The CAFO outlines steps the Permittees must take to satisfy violations that were found during inspections of the Solid Waste Operations Complex (SWOC) in 2012. One of the steps is to close parts of the SWOC that are not in use or were never authorized for use. To meet this CAFO step, USDOE submitted a Class 3 permit modification request in October 2013 to close several inactive dangerous waste management units at the SWOC”

---

<sup>1</sup> USDOE can no longer claim that it can not take the Transuranic (TRU) wastes for disposal at WIPP in New Mexico as that site has been reopened for several years. As a USDOE facility, USDOE determines schedules for which ships wastes.

Focus Sheet, June 2020

“The USEPA CAFO was based on information collected during a 2011 USEPA inspection. The violations included:

- Storage of hazardous waste without a permit.
- Failure to meet closure plan requirements.
- Failure to submit closure notice and closure plans.
- Failure to comply with land disposal restriction requirements.

Changes to the Site-wide Permit are required by the USEPA CAFO issued against USDOE. These changes are summarized as follows:

- Stop receiving waste in the dangerous waste management units listed in the CAFO.
- Submit closure plans to Ecology within 120 days of the effective date of the CAFO, for the following units: T Plant 271-T Cage; T Plant 211-T Pad; T Plant 221-T Sand Filter Pad; T Plant 221-T R5 Waste Storage Area; T Plant 277-T Outdoor Storage Area; CWC Outdoor Storage Area A; CWC Outdoor Storage Area B; and LLBG FS-1 Outdoor Container Storage Area.
- Immediately comply with all applicable final facility standards for the management of dangerous waste found in WAC 173-303-600(I) for the units listed in the CAFO.
- Submit closure plans to Ecology for the T Plant 221-T Railroad Tunnel and CWC 2401-W Building within 120 days of the effective date of the CAFO, unless prior to that date Ecology approves an extension pursuant to 40 Code of Federal Regulations (CFR) 265.112(d)(2), as incorporated and modified by reference in WAC 173-303-400.
- Immediately stop the placement of prohibited dangerous waste in LLBG Trenches 31 and 34, unless the waste meets land disposal treatment standards found in WAC 173-303-140.

The 211-T Pad, 221-T Sand Filter Pad, 271-T Cage, 277-T Outdoor Storage Area, and the 2401-W Waste Storage Building DWMUs are part of the Hanford Facility’s SWOC, and are included in the USEPA CAFO list of DWMUs that require a closure plan. USDOE has agreed with USEPA to close these DWMUs, as they were never authorized for hazardous/dangerous waste storage. The 221-T Railroad Cut and the 277-T Building DWMUs, which are not part of the CAFO (non-CAFO), will also be closed.”

Transmittal Letter for RCRA Permit Modification at 10.

The seven (7) units that are the subject of this comment period and proposed permit modification have not stored waste since November 2010 according to the fact sheet - (CAFO indicates that the unit was listed as requiring a closure plan within 120 days of the signing of the Final Order):

- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28 (CAFO)
- T Plant 271-T Cage, Closure Unit Group 29 (CAFO)
- T Plant 211-T Pad, Closure Unit Group 30 (CAFO)

- T Plant 221-T Sand Filter Pad, Closure Unit Group 37 (CAFO)
- CWC 2401-W Waste Storage Building, Closure Unit Group 39 (CAFO)

These two units are also being closed and are part of the draft permit and comment period that were not listed in the Consent Agreement and Final Order (CAFO):

- T Plant 221-T Railroad Cut, Closure Unit Group 41 ( Not CAFO)
- T-Plant 227-T Building ( Not CAFO)

### ***Response to O-1-3***

*Thank you for your comment. Ecology agrees closure of these units is long overdue. Once this permit modification becomes effective, closure activities will begin for these seven closing units.*

### **Comment O-1-4**

Eight (8) units were opened and operated illegally, without USDOE even applying for a permit: “Respondent conducted storage of RCRA regulated dangerous waste in the units listed below without a permit or interim status in violation of Section 3005 of RCRA, 42 U.S.C. §§ 6925, WAC 173-303-800, and Condition I.A. of the Hanford Facility RCRA Permit:”<sup>2</sup>

- T-Plant 271 T cage;
- T-Plant 211 T pad;
- T-Plant 221 T sand filter pad;
- T-Plant 221 T - R5 waste storage area;
- T-Plant 277T outdoor storage area;
- Central Waste Complex ("CWC") outside storage A;
- CWC outside storage area B; and h. Lower Level Burial Grounds ("LLBG"), FS 1, south of Trench 34, outdoor container storage area. (Only LLBG FS 1 has been closed<sup>3</sup>)

The agencies’ focus sheet does not even mention units (d), (f), (g) and (h) .

### ***Response to O-1-4***

*Thank you for your comment. Focus sheets are meant to communicate information for the current proposed permit modification. The Focus Sheet states: "The remaining six units awaiting closure are at the T-Plant and CWC. Ecology will hold 45-day comment periods for adding the remaining units to the Site-wide Permit over the next few years." The next permit modification currently under development will incorporate the 221-T R5 Waste Storage Area ("d"), Central Waste Complex Outdoor Storage Area A ("f"), and Central Waste Complex Outdoor Storage Area B ("g") into the Site-wide Permit. Ecology expects to issue this permit modification for public*

<sup>2</sup>Consent Agreement and Final Order (CAFO), US EPA Docket RCRA-10-2013-0113 at 3.11

<sup>3</sup>RCRA permit fact sheet at page 13: “One of the 14 identified closing DWMUs (Low-Level Burial Grounds FS-1 Outdoor Container Storage Area) has completed closure. Ecology accepted clean closure certification on October 25, 2016, and Low-Level Burial Grounds FS-1 Outdoor Container Storage Area was removed from the Hanford Site-wide Permit on December 14, 2016.”

comment in 2022. The Focus Sheet also mentions the FS-1 Outdoor Container Storage Area ("h"), and states it was closed in 2016.

#### **Comment O-1-5**

USDOE illegally built and stored waste in these buildings / units without ever having applied for permits. This was a potential criminal violation. Despite being ordered to close several units with submission of "closure plans" in 2011 and 2013, the units remain unclosed. Ecology has failed to include closure of these illegally opened and operated units in the permit; and failed to order that the illegally stored wastes be characterized, treated and removed for disposal.

#### ***Response to O-1-5***

*Thank you for your comment. As a point of clarification, none of the buildings at Hanford were built illegally. In some cases, USDOE chose to store dangerous or mixed waste in these buildings for more than 90 days without a Permit, which is illegal storage under RCRA. Ecology agrees it has taken far too long to complete the closure plans and get them incorporated into the Permit so the Permittees may begin implementing the authorized closure activities. When the Permittees submitted the closure plans in 2013 (13-ESQ-0074, October 11, 2013), Ecology declared them incomplete (15-NWP-145, July 29, 2015). As described in the Fact Sheet, it took several years to reach resolution on many of the issues, with some issues remaining unresolved. In order to move closure forward, Ecology chose to finalize these seven draft closure plans without the Permittees' agreement on the remaining unresolved issues. Regarding remaining waste stored in Outdoor Storage Areas A/B, as previously discussed, Ecology established Tri-Party Agreement Milestones for removal of remaining waste containers from CWC OSA-A and B (TPA Milestones in the M-091 series).*

#### **Comment O-1-6**

Heart of America Northwest commented in 2014 that the USDOE should be ordered to characterize, remove and treat all wastes within three years - for which commercial treatment capacity existed. RCRA and state hazardous waste law bars accumulated storage of dangerous wastes for extended periods when treatment is available. Heart of America Northwest comments that all wastes should be included in a permit condition and order to be characterized, removed and treated by 2023, which would be nine years after the issuance of the EPA findings of violation (quoted below).

#### ***Response to O-1-6***

*Thank you for your comment. As previously discussed, Ecology established Tri-Party Agreement Milestones for removal of remaining waste containers from CWC OSA-A and B (TPA Milestones in the M-091 series).*

#### **Comment O-1-7**

Closure plans should have been submitted within 120 days of the CAFO. It is inexplicable and unacceptable that six years later, closure has not occurred and permits for closure plans are only now being reviewed for adoption. The cause is inexcusable obfuscation and objection by USDOE to clean closure, which requires sampling of soils under structures, removal of contamination from concrete structures, and meeting MTCA "B" standards (including for cancer

and toxic exposure risks). Essentially, USDOE is seeking to leave wastes in place at levels that will recontaminate groundwater, spread contamination at levels dangerous to workers in reused structures or other exposure routes (e.g., soil inhalation) and for future public users of the site. Importantly, no consideration has been given to Tribal exposure scenarios and risks.

### ***Response to O-1-7***

*Thank you for your comment. Closure plans required by the CAFO were submitted within 120 days of the CAFO (13-ESQ-0074, October 11, 2013), but Ecology declared them incomplete (15-NWP-145, July 29, 2015). As described in the Fact Sheet, it took several years to reach resolution on many of the issues, with some issues remaining unresolved. In 2018, the Permittees submitted revised closure plans to Ecology without reaching resolution on some of those outstanding issues (18-AMRP-0150, August 14, 2018; 19-AMRP-0021, November 6, 2018). In order to move closure forward, Ecology chose to finalize seven of the closure plans without the Permittees' agreement on the unresolved issues.*

*Note that Ecology is requiring the Permittees to demonstrate clean closure through soil sampling (including under structures), and concrete chip sampling of structures after decontamination to ensure decontamination was successful and clean closure standards have been achieved. All remaining structures and soils must meet MTCA Method B (or Method A if appropriate) cleanup levels in order for the DWMU to be considered "clean closed."*

### **Comment O-1-8**

A comprehensive plan for removing and treating wastes with enforceable closure plans is long overdue and should be issued, rather than asking for piecemealed comment on incomplete submittals. This reopened comment period is an example of that bungled approach casting further doubt on Ecology's capacity to administer the RCRA program at Hanford, after years of inadequate oversight and administration of the program allowed USDOE to openly and illegally operate mixed waste storage at these sites without applying for permits to construct, store or close.

### ***Response to O-1-8***

*Thank you for your comment. As stated previously, the only CAFO units still storing waste are CWC OSA-A and B, and Ecology has established TPA milestones under the M-091 series for completing waste removal by 2026. In the interim, the waste containers are covered with protective covers that protect them from the elements. Covers are inspected weekly and after storms to ensure they maintain their integrity, and are repaired or replaced when damaged.*

### **Comment O-1-9**

The seven units for which Ecology proposes to add to the permit for closure have not stored waste for a decade. The priorities of the Department are clearly backward. The units with waste, or which had waste which was the subject of the Notices of Violation and Orders should be prioritized for permitting with characterization, removal, treatment and clean closure.

### ***Response to O-1-9***

*Thank you for your comment. Major disagreement on the amount and type of confirmation sampling needed for the OSA-A and B storage areas stalled progress on these closure plans.*

*Data quality objective workshops in late 2019 and early 2020 ended in failure when USDOE reverted back to insisting that twenty samples would be representative of the soil in the combined areas, and statistically valid for demonstrating clean closure. It was clear from public and EPA comments received on these closure plans in 2013 that the sampling approach was not acceptable. These areas are large, waste management and storage is varied, and require a thorough sampling approach that ensures the coverage is representative of waste management and storage practices. As stated previously, Ecology is currently drafting this permit modification, with issuance for public comment expected in 2022. USDOE is removing OSA-A and B waste per TPA milestones under the M-091 series, with complete removal scheduled for 2026. In the interim, the waste containers are covered with protective covers that protect them from the elements. Covers are inspected weekly and after storms to ensure they maintain their integrity, and are repaired or replaced when damaged.*

### **Comment O-1-10**

Failure to disclose and provide links: We have to ask why (d) 221-T R5 waste storage area is not listed as being closed as part of this proposal? Yet, the RCRA Permit WA7890008967, Part V, Closure Unit Groups 27, 28, 29, 30, 37, 39, and 41 Fact Sheet Figure 2 shows 221-T R5 as being a Dangerous Waste Management Unit (DWMU) proposed for closure.

This nondisclosure has likely led the public and other commentors to not comment on an important unit.

### ***Response to O-1-10***

*Thank you for your comment. As stated previously, the Focus Sheet indicated remaining closure plans would be issued for public comment in the next few years. Ecology expects to issue the 221-T R5 Waste Storage Area, Central Waste Complex Outdoor Storage Area A, and Central Waste Complex Outdoor Storage Area B closure plans for public comment in 2022.*

### **Comment O-1-11**

The agencies' focus sheet for the public fails to make any mention of the crucial fact that these units were opened and operated illegally. This is a major public policy issue that the agencies apparently chose not to disclose to the public for comment.

### ***Response to O-1-11***

*Thank you for your comment. The Focus Sheet discusses the CAFO, states there were violations, and that dangerous waste management units at SWOC were never authorized for use. A link is included to the CAFO for the public to review in its entirety. The Fact Sheet details the violations from the CAFO.*

### **Comment O-1-12**

One of the most important issues for comment is how units that were opened illegally to illegally store waste - placing worker safety and environment at serious risk - have been delayed from being closed for years, and would not have to be closed for another six years.

Further, the failure to disclose that there were other units that opened illegally and were part of the CAFO is inexplicable.

### ***Response to O-1-12***

*Thank you for your comment. Focus sheets are meant to communicate information for the current proposed permit modification. The Focus Sheet states: "The remaining six units awaiting closure are at the T-Plant and CWC. Ecology will hold 45-day comment periods for adding the remaining units to the Site-wide Permit over the next few years." The next permit modification currently under development will include the 221-T R5 Waste Storage Area, Central Waste Complex Outdoor Storage Area A, and Central Waste Complex Outdoor Storage Area B into the Site-wide Permit. Work on these plans was delayed due to disagreement with the Permittees on the limited number of confirmation samples proposed. Ecology expects to issue this permit modification for public comment in 2022. USDOE is removing OSA-A and B waste per TPA milestones under the M-091 series, with complete removal scheduled for 2026. In the interim, the waste containers are covered with protective covers that protect them from the elements. Covers are inspected weekly and after storms to ensure they maintain their integrity, and are repaired or replaced when damaged. The Focus Sheet also mentions the FS-1 Outdoor Container Storage Area, and states it was closed in 2016.*

### **Comment O-1-13**

We object that it took six years for issuance of the response to comments from 2014 , the original comment period on the closure plans mandated by the consent order stemming from USDOE's multiple legal violations. (Response to comments dated April 2020). It is inexcusable that the Response to Comments was not issued with commitments to meet the ordered closure due to massive violations within one year, rather than six years.

### ***Response to O-1-13***

*Thank you for your comment. The Response to Comments from the 2014 comment period was originally issued July 2015 (Publication no. 15-05-010). As stated in the Focus Sheet:*

*"Fifty-three public comments were received during USDOE's public comment period for the 2013 permit modification request. On July 30, 2015, Ecology issued a Response to Comments (Publication no. 15-05-010). This Response to Comments was issued with the draft permit modification adding Closure Unit Group 4, FS-1 Outdoor Container Storage Area, to the Site-wide Permit. The FS-1 Outdoor Container Storage Area CAFO unit was closed in 2016."*

*Ecology updated and revised the Response to Comments in June 2020 (Publication no. 20-05-012) with issuance of this draft permit modification for public comment. Ecology notes it was not clear the 2020 Response to Comments was updated and revised from the original 2015 Response to Comments, and will work to clarify this in future permit modifications.*

### **Comment O-1-14**

The Focus Sheet and linked material supporting comment should disclose and link to all applicable regulatory orders and actions. This is required.

However, the Focus Sheet and support materials fail to disclose and provide access to the Notice of Violation and Order issued by Ecology, which is different from, and has additional applicable conditions to those in the EPA Consent Agreement and Final Order of 2013 (CAFO).

USDOE has not only failed to meet timelines for required actions from that Order, but the agencies have modified the TPA to remove the relevant milestones.

The Closure Plans should have been submitted and clean closure completed by this time.

Adding insult to environmental and potential worker safety injury, Ecology now proposes to take “several years” to adopt requirements for removal and treatment of wastes followed by closure of the other units at CWC and T-Plant, saying additional comment periods will occur in a piecemeal fashion “ for adding the remaining units to the Site-wide Permit over the next few years.” Focus Sheet for Closure Plan for T-Plant and Central Waste Complex (CWC) at page 2, July 2020.

This piecemeal approach is unacceptable .

### ***Response to O-1-14***

*Thank you for your comment. The next permit modification currently under development will incorporate the 221-T R5 Waste Storage Area, Central Waste Complex Outdoor Storage Area A, and Central Waste Complex Outdoor Storage Area B into the Site-wide Permit. Work on these plans was delayed due to disagreement with the Permittees on the limited number of samples proposed. Ecology expects to issue this permit modification for public comment in 2022. USDOE is removing OSA-A and B waste per TPA milestones under the M-091 series, with complete removal scheduled for 2026. In the interim, the waste containers are covered with protective covers that protect them from the elements. Covers are inspected weekly and after storms to ensure they maintain their integrity, and are repaired or replaced when damaged.*

### **Comment O-1-15**

Clean Closure is Required:

Ecology ordered USDOE to plan to meet MTCA B (or A) standards, not industrial cleanup standard (MTCA C) in revised submission. Important action by Ecology. See Transmittal Letter 9-17-20 20-NWP-153.

“The CPS in each closure plan is now based on an evaluation of all exposure pathways, using MTCA Method B (or in some cases MTCA Method A) cleanup levels where applicable.” (CPS = Soil Closure Performance Standard).

HoANW fully supports Ecology’s determination that MTCA C industrial standard was not authorized or applicable it would likely have led to residual contamination levels up to hundreds of times higher for some contaminants than allowed under Method B.

“Since many of the SWOC DWMUs did not have complete records of what waste had been stored within them or the waste types were unknown, it was decided that all the known waste constituents at SWOC facilities would be used on the CPS list. Most of the DWMUs will be sampled and analyzed for all the SWOC dangerous waste constituents. For DWMUs with adequate records of specific waste stored there, only those waste constituents will be addressed.”

All DWMUs should be required to be sampled. None of these units have “adequate records.” Wastes stored have not been characterized -e.g., prior to leaking, USDOE misidentified almost

all of the stored wastes in CWC as solid debris. Then drums started leaking liquids with Plutonium. If the stored wastes were not characterized and are misidentified, the information on soil sites, including T-Area, is certainly not adequate.

### ***Response to O-1-15***

*Thank you for your comment. For units with documented storage records, Ecology has chosen to limit sampling to the constituents identified in their records as being stored in those areas. For units without documented storage records, Ecology is requiring all known waste constituents at SWOC facilities to be used on the Soil Closure Performance Standard list.*

### **Comment O-1-16**

It is appropriate for Ecology to require "clean closure" for units that have contaminated concrete, including 271-T Cage, the 277-T Outdoor Storage Area, the 277-T Building, and the 211-T Pad DWMUs.

Worker health plan must be developed and incorporated into the permit in a worker health and safety plan for abrasive or spray "decontamination" of cement surfaces, which involves removal of top layer of cement. These surfaces should be presumed to be beryllium surfaces unless USDOE characterization demonstrates otherwise. Thus, only beryllium workers and beryllium work protections should be permit conditions. Sampling required by Ecology does not appear to discuss meeting beryllium sampling requirements from CBDPP. High pressure steam should not be permitted if beryllium or organic chemicals or small, easily spread and inhalable particles of radioactive elements, are found to be present.

### ***Response to O-1-16***

*Thank you for your comment. Worker health and safety requirements are included in closure plan sections titled "Health and Safety Requirements." All work done at closure plan sites must follow all applicable Hazardous Waste worker requirements set forth in 29 CFR 1910.120, Hazardous waste operations and emergency response. The worker health and safety plan developed by DOE is not part of the Permit.*

*DOE has very specific procedures in place for work in areas where beryllium was used at the Hanford site. The facilities in the seven closure plans from T Plant and CWC are not identified as beryllium areas. Work in the identified closure plan facilities does not require implementation of the beryllium worker requirements.*

### **Comment O-1-17**

Set an enforceable schedule for removal of all wastes from CWC. Do not reply that this is outside scope of these comments. The draft permit should be covering all CWC units. The delays in permitting an illegally opened set of facilities is inexcusable.

### ***Response to O-1-17***

*Thank you for your comment. Ecology notes that CWC is operating in compliance with Site-wide Permit Condition I.A. The Class 3 permit modification to incorporate unit specific permit conditions and addenda for the CWC-WRAP operating unit group into the Site-wide Permit (Revision 8c or 9) is currently in development. While much of the CWC waste is in storage for longer than one year, TPA Milestone M-026 requires USDOE to submit an annual report identifying all waste in storage at Hanford, along with characterization information and*

*treatment plans and schedules for waste in storage for longer than one year (Land Disposal Restrictions Report). The TPA requirements for this annual report operate in lieu of the Site Treatment Plan requirements under the Federal Facility Compliance Act of 1992. This allows LDR-restricted mixed waste to be stored at Hanford until it can be treated and disposed. in regards to waste in storage at CWC OSA-A and B, as previously discussed, Ecology established Tri-Party Agreement Milestones for removal of remaining waste containers (TPA Milestones in the M-091 series). The remaining TRUM waste in storage at CWC is scheduled to be removed by 2040, with intermediate schedules updated annually in the M-091 Transuranic Mixed and Mixed Low-level Waste Project Management Plan, HNF-19169.*

### **Comment O-1-18**

In 2013 and 2014, HoANW and many commenters urged that Ecology should set an enforceable schedule to remove the waste within 3 years from all of CWC units that did not have a permit (interim status is not, and was never, legally applicable). Three years was a generous time period, for waste that should never have been stored for over six months. Perma-Fix NW was able to expand capacity to meet a treatment schedule if an order was issued that they could rely on for expanding capacity.

Instead of removing waste within three years, Ecology now wants to give USDOE thirteen years from when the violation order was issued, with a date of 2026 for removal of waste from outdoor storage. Ecology has failed to order illegally stored waste in indoor facilities to be removed at any time. From Response to Comments:

CWC - The Hanford hazardous waste permit for the Central Waste Complex (CWC) should require USDOE to remove and treat all illegally stored wastes within 3 years. Our state's Department of Ecology should include a schedule for removing and treating the 68,000 drums of wastes stored illegally inside CWC within 3 years, as well as a schedule to remove and treat all of the waste stored outside.

### ***Response to O-1-18***

*Thank you for your comment. Ecology agrees that the waste stored in unauthorized container storage areas should be removed as soon as practicable. With the exception of CWC Outdoor Storage Areas (OSA) A and B, all waste previously stored in unauthorized container storage areas has been removed. In addition, in 2017 Ecology established Tri-Party Agreement Milestones for removal of remaining waste containers from CWC OSA-A and B (TPA Milestones in the M-091 series). All waste containers are scheduled to be removed from these areas by September 30, 2026.*

*To date, more than 100 waste containers have been removed from OSA-A, and less than 100 waste containers remain. Although the established schedule is longer than desired, it is based on the ability of Perma-Fix Northwest to accept mixed waste and stay within their annual radiological limits per the Department of Health license. In addition, competing priorities from waste generated from the Plutonium Finishing Plant demolition project affected the ability of Perma Fix Northwest to accept the waste on a more expedient schedule.*

*In regards to the "68,000 drums of waste stored inside CWC," the approximate number of containers is 10,500. In reference to removal of all waste from CWC units, this waste is being*

*stored in compliance with Sitewide Permit Condition I.A under interim status technical standards (WAC 173-303-400).*

*While much of this waste is in storage for longer than one year, TPA Milestone M-026 requires USDOE to submit an annual report identifying all waste in storage at Hanford, along with characterization information and treatment plans and schedules for waste in storage for longer than one year (Land Disposal Restrictions Report). The TPA requirements for this annual report operate in lieu of the Site Treatment Plan requirements under the Federal Facility Compliance Act of 1992. This allows mixed waste to be stored until it can be treated and disposed.*

### **Comment O-1-19**

Ecology's response improperly asserts that "interim status" standards apply. However, interim status was never available to USDOE for the CWC and wastes stored there because CWC was built without a permit many years after RCRA's authorization for preexisting facilities to have interim status had expired.

### ***Response to O-1-19***

*Thank you for your comment. The Hanford Facility is one facility, with one EPA identification number. On May 19, 1998 while under interim status, DOE submitted a revised Part A, Form 1, seeking an expansion under interim status pursuant to 40 CFR 270.72(a)(6) and WAC 173-303-805(7)(a)(vi). The expansion under interim status included adding the Central Waste Complex as an interim status unit (Part A, Form 3, Hanford Central Waste Complex, May 19, 1988, Rev. 0). Waste management operations began at the CWC in August 1988. In the development of the CAFO and Agreed Order, Ecology and EPA determined only certain units within CWC were unauthorized. Authorized units within CWC that do not yet have unit specific permit conditions continue to operate in compliance with interim status technical standards in accordance with Permit Condition I.A.*

### **Comment O-1-20**

The annual identification report does not meet legal requirements because much of this waste has not been characterized - which was one of the EPA national inspection findings.

### ***Response to O-1-20***

*Thank you for your comment. The annual Land Disposal Restrictions Report, which is required by TPA milestone M-026, requires characterization schedules for any mixed wastes in storage at Hanford that have not yet been properly characterized.*

### **Comment O-1-21**

Further, the inspection and release of liquid wastes from drums identified as solid "debris" demonstrate that the wastes have not been properly characterized and designated. The drum whose wastes were designated at "solid debris" leaked plutonium, nitric acid, beryllium and sulfuric acid "which are extremely hazardous to workers as an inhalation hazard." Findings of Violations and Order, Exhibit C, Violations A.1. This is a serious set of legal violations that Ecology has now allowed to continue for years beyond when Ecology assured us the violations would be cured. And Ecology proposes to allow the wastes to continue to be stored for another six years.

In the never finalized draft CWC permit and Condition Fact Sheet (2016), Ecology proposed that USDOE would have fourteen days from issuance of the permit to submit plans to ensure that wastes do not contain free liquids. Nearly five years have gone by without demonstrating that no free liquids are stored.

### ***Response to O-1-21***

*Thank you for your comment. Reference to the "2016 draft" is incorrect. The commenter is referencing the 2012 Draft Revision 9 Operating Unit Group 6 (OUG 6) Fact Sheet and unit specific permit conditions, which were never issued. The Class 3 permit modification to incorporate unit specific permit conditions and addenda for the CWC-WRAP operating unit group into the Site-wide Permit (Revision 8c or 9), is currently in development. As previously discussed, until then, CWC is operating in compliance with Site-wide Permit Condition I.A.*

*The referenced violation (Exhibit C, Violation A.1) was specific to a container at the WRAP, which was found to be leaking even though it was designated as "debris." Ecology agrees characterization and designation were not properly performed, and included extensive characterization requirements for CWC, WRAP, and T Plant unit groups in Exhibit A, Sections 1.6 through 1.8 of the Agreed Order. These requirements ensure all waste coming in to, and in storage at CWC are properly characterized and designated. Uncertainty on waste characterizations and designations was specific to waste retrieved from the burial grounds, often referred to as retrievably stored waste (RSW) or retrieved waste. Exhibit A, Section 1.8.3.1 of the Agreed Order required the contents of the approximate 1000 drums of RSW in storage at SWOC to have waste contents confirmed through non-destructive evaluation (NDE) using radiography to look for non-conforming items such as free liquids. This work has been completed. Exhibit A, Section 1.8.4.1 of the Agreed Order also required each box of RSW waste to be confirmed visually or through NDE if possible (nominally a box up to 9'x5'x5' in size), and if not possible (nominally a box greater than 9'x5'x5' in size), Section 1.8.5 required the waste record to be reviewed and investigated to determine the probable contents inventory. To date, USDOE has completed NDE on approximately 534 of the 1000 RSW containers in storage, leaving 466 containers that still require NDE to be performed. Ecology is currently working with USDOE to establish new milestones to complete NDE on the remaining 466 containers.*

*Exhibit A, Section 1.8.4.1 of the Agreed Order also required each box of RSW waste to be confirmed visually or through NDE if possible (nominally a box up to 9'x5'x5' in size), and if not possible (nominally a box greater than 9'x5'x5' in size), Section 1.8.5 required the waste record to be reviewed and investigated to determine the probable contents inventory. This work has been completed. The large boxes in outdoor storage at OSA-A/B fall into the category of "greater than 9'x5'x5' in size." At this time, the SWOC does not have the capability to perform NDE or physically verify contents. As required by Section 1.8.5 of the Agreed Order, all waste records have been reviewed and investigated to determine probable contents inventory. When the waste package is being prepared for shipment off-site to Perma-Fix Northwest for processing, USDOE provides all available process knowledge to Ecology for review, then provides to the Perma-Fix Northwest prior to shipment. As discussed previously, Ecology established Tri-Party Agreement Milestones for removal of remaining waste containers from CWC OSA-A and B by September 30, 2026.*

## **Comment O-1-22**

The Draft CWC permit and condition fact sheet (never issued) from 2016 improperly described the outside waste management areas as "waste management areas." They have no containment. They do not meet standards for storage. It is not adequate to say that there is no treatment allowed. That is inane. Notice of Violation and Order for CWC documented that the outside storage areas:

The CWC outdoor expansion area has no secondary containment, roof cover, or adequate container covers.

Exhibit C.9 at page 9.

These units should not be identified as waste management areas because outside areas without impermeable surfaces and containment are not legal to use as waste management areas.

In the 2016 draft, we were assured that containment would be achieved for oversize containers within 360 days. Part III, Operating Unit Group 6-FS.10, Condition III.6.O.4.d.

### ***Response to O-1-22***

*Thank you for your comment. Reference to the "2016 draft" is incorrect. The commenter is referencing the 2012 Draft Revision 9 Operating Unit Group 6 (OUG 6) Fact Sheet and unit specific permit conditions, which were never issued. Ecology agrees the CWC outdoor expansion areas (i.e., OSA-A/B) are unauthorized storage areas, which is why USDOE is required to remove waste inventory and close these areas per the Agreed Order and TPA M-091 milestones.*

## **Comment O-1-23**

The Notice of Violation and Order required USDOE to "complete characterizations ... no later than the dates specified in milestones M-091-42 and M-091-43." Order at 1.8.5.2. However, Ecology has allowed these milestones to be deleted, essentially giving USDOE a get out of jail free card for characterization and removal of illegally stored wastes; and, now wishes to extend this noncompliance for another six years - with no interim requirements to meet vital safety standards for storage of wastes.

At this point in time, we ask if Ecology and USDOE believe that a court will not order more rapid characterization, containment, removal and treatment of wastes, if we file a legal challenge to the continued illegal storage of wastes that have not been properly characterized and are illegally stored?

### ***Response to O-1-23***

*Thank you for your comment. Please see previous response regarding characterization of waste containers at SWOC. The referenced text in this comment omits the preceding text from the Agreed Order: "For those RSW packages having insufficient knowledge,..." The requirement to "complete characterizations" only applied to the contents of containers for which DOE has "insufficient knowledge." USDOE has been able to provide documentation to Ecology of sufficient knowledge for each RSW large box stored in CWC OSA-A and OSA-B that DOE has transported to the Perma-Fix Northwest facility in Richland. The large boxes have been re-*

*packed into WIPP-compliant containers and returned to CWC for storage, awaiting shipment to WIPP.*

*For those large boxes awaiting shipment to Perma-Fix Northwest for repackaging, USDOE continues to comply with the container management and inspection requirements specified in the Agreed Order, Sections 1.9 and 1.10. Each large box is covered to prevent precipitation from coming into contact with waste containers and contents. The containers are inspected no less than weekly for container condition; evidence of leaks, spills or releases; and for cover deficiencies (e.g., tears, holes). During weekly radiological survey routines, Radiological Control Technicians observe containers and container covers for signs of deterioration. During performance of the normal (on standard operating days only) safety drive-through at the CWC, Operations management notes any abnormal conditions within the storage area (e.g., torn covers, blow-off protective covers, missing labels). On a monthly basis, the tops of the waste package covers are visually inspected to determine if there are tears or holes significant enough to allow precipitation to degrade the waste package. Finally, monthly surveillances/inspections are performed at the CWC which puts personnel out in the field who are cognizant in identifying degrading conditions associated with the waste packages. Ecology believes these measure are sufficient to ensure the large boxes in OSA-A and B can be safely stored until the boxes are either shipped to Perma-Fix Northwest for repackaging, or moved to compliant, indoor storage at the CWC, which as noted previously, is required to be completed by 2026.*

*A 2016 modification to the TPA [<https://pdw.hanford.gov/document/0078934H>] deleted some M-091 milestones, including M-091-42 and M-091-43, and replaced them with different milestones. As explained in the TPA modification:*

*"The shutdown of WIPP for an indeterminate period currently makes it difficult to forecast a reliable schedule for shipping TRUM to WIPP, and the M-091-46H milestone for completing the offsite shipment of small container CH TRUM by 2018 is severely impacted. As a result, M-091-44T has been revised to establish the submittal of a change package for the offsite shipment of both small and large container TRUM. The 09/30/2020 due date for the schedule follows the anticipated reopening and operation of WIPP, and it allows the Parties time to develop an understanding of how well WIPP is operating, the operating capacity, and the available shipping capacity."*

*Revisions to the M-091 milestone series approved October 1, 2021, established new dates for completion of certification and shipment of CH small packages of TRUM to WIPP by September 30, 2040 (M-091-61), and CH large boxes of TRUM to WIPP by September 30, 2045 (M-091-62). These milestone represent approximately 99% of the TRUM waste in above ground storage at the SWOC facilities, and in retrievable storage in the burial grounds. The new dates reflect the WIPP shutdown from 2014 to 2017, and the reduced capacity of the ventilation system which limited the performance of concurrent activities (e.g., waste emplacement, maintenance, and mining new disposal areas). Design and construction of a new ventilation system that will restore WIPP's ability to perform concurrent activities is underway, however the current estimate for completion of this project is 2025. Shipment of Hanford Site TRUM is scheduled to begin by September 30, 2028 (M-091-60).*

*USDOE has characterized each large container shipped to Perma-Fix Northwest for re-packaging by applying acceptable knowledge [WAC 173-303-070(e)(ii)], and expects to do so for the large containers remaining in storage. The rate at which USDOE can ship large containers to Perma-Fix is limited by factors such as the US Nuclear Regulatory Commission limit on the quantity (gram limit) of certain radionuclides that can be on that site. The Federal Facility Compliance Act of 1992 recognizes limitations on available treatment capacity as a reason for extended storage and treatment schedules.*

### **Comment O-1-24**

Quantities of CWC waste should be disclosed as part of a comprehensive CWC closure plan:  
Response to HAB member question regarding waste quantities at CWC 2018: There are currently slightly over 130 non-standard TRU containers stored outside at the Central Waste Complex (CWC). In addition, a number of non-standard containers are also stored inside the CWC.

Ecology comment urging correction:

From: Lowe, Steven (ECY) [mailto:slow461@ECY.WA.GOV ]

Sent: Thursday, August 9, 2018 7:26 AM

To: Lindsay Strasser <LStrasser@prosidian.com >

Cc: Whalen, Cheryl (ECY); Elsethagen, Kelly (ECY) <kels461@ECY.WA.GOV >

Subject: RE: Follow Up Questions from 8.7.18 RAP Meeting

Lindsay,

The answer to the question about how many transuranic boxes are stored at CWC is misleading at best. The last inventory I saw (attached below) is from 2014 and at that time there were over 500 TRU boxes alone. The commenter was probably interested in how many total packages of TRU waste there are in CWC, and that number is an order of magnitude greater. Since there have been no shipments to WIPP since, those packages are still on site. Further, the LDR report is a submittal under the TPA tracks only the mixed waste portion, and excludes a number of TRU waste packages that are non-mixed and come from other sources. The bottom line is all these TRU packages need to be assayed and processed (checked for prohibited items, repackaged, etc) and sent to WIPP at some point.

Steve Lowe

Ecology

### ***Response to O-1-24***

*Thank you for your comment. As previously discussed, in 2017 Ecology established Tri-Party Agreement Milestones for removal of remaining waste containers from CWC OSA-A and B (TPA Milestones in the M-091 series). All waste containers are scheduled to be removed from these areas by September 30, 2026. To date, more than 100 waste containers have been removed from OSA-A, and less than 100 waste containers remain. A future permit modification will cover the removal of waste and closure of the CWC outdoor storage areas.*

*All other mixed waste currently in storage at CWC will be addressed in the previously discussed Class 3 permit modification to incorporate unit specific permit conditions and addenda for the CWC-WRAP operating unit group into the Site-wide Permit (Revision 8c or 9). Quantities of mixed waste are disclosed in the annual M-026 LDR Report (include hotlink). Any TRU packages that do not include any hazardous or state only dangerous waste are not subject to our RCRA/dangerous waste permitting requirements.*

## **Attachment 2: Ecology's 2018 Walk down**

## ECOLOGY WALK DOWN, NOVEMBER 11, 2018

The following Closure Unit Group (CUG) checklists, photos, and sampling bases have been edited for grammar and formatted for ease of use in this the Response to Comments publication.

### CUG 30, 211-T Pad



**211-T Pad**

#### ***211-T Pad Checklist:***

**Type of structure:** Curbed uncoated concrete.

**Type of waste stored:** The 211-T Pad was generally used as secondary containment for tanker trucks that were used for non-waste chemical transfers. However, containerized dangerous or mixed waste was also stored on the 211-T Pad.

**History of releases:** The records review and visual inspection did not identify any releases of dangerous or mixed waste or the presence of dangerous or mixed waste related staining.

**Sample locations:** DOE is proposing to take one focused sample of the soil beneath the sump.

#### **Are there cracks, crevices, or seams?**

Cement cuts done as expansion joints perhaps ¼" deep, but didn't appear to be through-cuts. Seams along the berms are cold joints. Berm on one side is continuous, then there is a break, then continuous, then another break; breaks are for the building. Along asphalt edge, potential for leakage. Around yellow poles, potential for leakage.

**Are there any visible stains?**

Around sump, rust.

**Are there low points?**

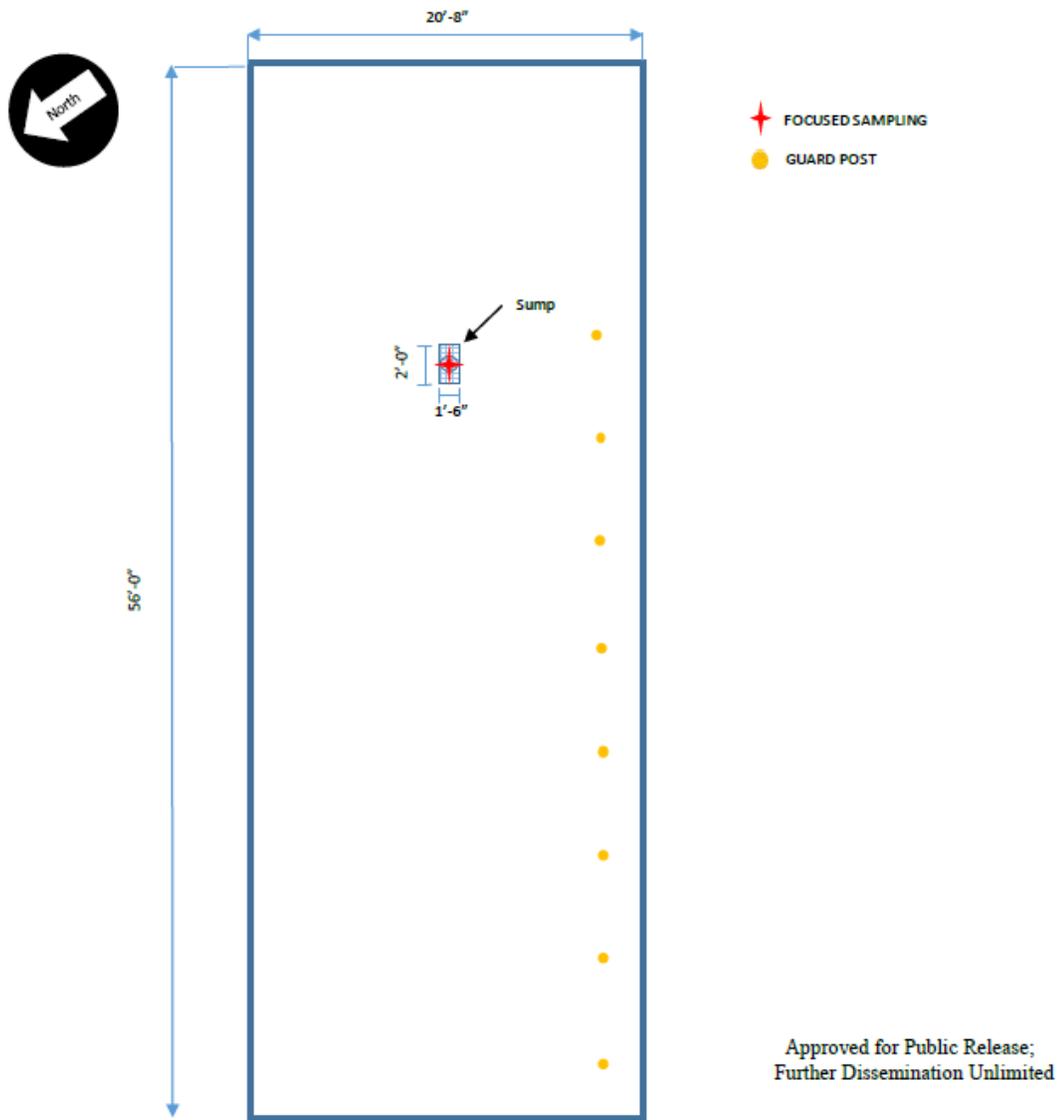
The sump.

**Are there holes, pits or other breaches?**

Spalling along berms. Various chips throughout.

**Other notes:**

Around sump, there is a metal frame to hold the grate. There is chipping along this frame. The sump was full of ice.



**Permittees' proposed 211-T Pad sample locations**

**Notes:**

**211-T Pad Photos:**



**P1070128, 211-T Pad, November 11, 2018**



**P1070129, 211-T Pad, November 11, 2018**

## CUG 29, 271-T Cage



271-T Cage

### ***271-T Cage Checklist:***

**Type of structure:** Uncoated concrete

**Type of waste stored:** The 271-T Cage may have been used to manage dangerous or mixed waste in a less-than-90 day ( $\leq 90$ -day) storage area or satellite accumulation area (SAA).

**History of releases:** The records review indicated no releases of dangerous or mixed waste in the 271-T Cage.

**Sample locations:** No sampling locations were identified for the 271-T Cage.

#### **Are there cracks, crevices, or seams?**

Seams along wall and slab. Metal pole has caulking that is degraded. The back wall has eroded to the point where you can see the aggregate and rebar. Due to rust staining on edge of pad, we think they should sample along asphalt.

#### **Are there any visible stains?**

A lot of rust throughout.

#### **Are there low points?**

It was level.

**Are there holes, pits or other breaches?**

The surface was painted with an anti-slip paint which is eroding away.

**Other notes:**

Appeared to have garnet sand, likely part of the anti-slip surface paint.

**271-T Cage Photos:**



**P1070125, 271-T Cage, November 11, 2018**



**P1070126, 271-T Cage, November 11, 2018**



**P1070127, 271-T Cage, November 11, 2018**

## CUG 27, 277-T Building



**277-T Building**

### ***277-T Building Checklist:***

**Type of structure:** Pre-engineered, steel structure constructed of I-beams covered with corrugated steel on a concrete slab-on-grade foundation

**Type of waste stored:** Waste management records indicate that the maximum inventory of dangerous or mixed waste stored in the 277-T Building over its operational period included one container of mixed waste with a total volume of 27 m<sup>3</sup> (35 yd<sup>3</sup>).

**History of releases:** The records review indicated no releases of dangerous or mixed waste in the 277-T Building.

**Sample locations:** DOE proposes to take one focused sample of the soil beneath the sump.

#### **Are there cracks, crevices, or seams?**

Seams and cracks throughout. Hard to tell if other seams or cracks due to surface covered by equipment.

#### **Are there any visible stains?**

Rust stains throughout.

#### **Are there low points?**

The sump. There was a small ledge around the sump. The floor also seems to be uneven. Potential for ponding?

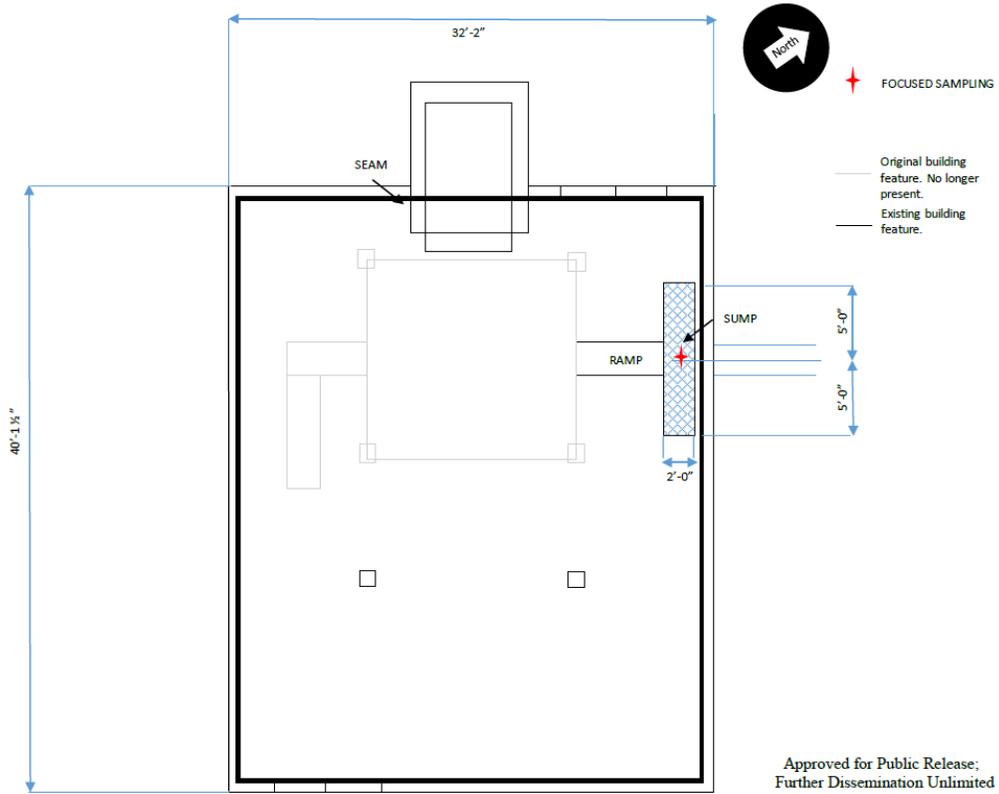
**Are there holes, pits or other breaches?**

Chips throughout.

**Other notes:**

There appears to be rebar around the sump. The drain has been blocked off.

Check into the record for the single container. If no documentation, at a minimum they need to sample for RCRA waste codes.



**Permittees' proposed 277-T Building sampling locations**

**Notes:**

**277-T Building Photos:**



**P1070140, 277-T Building, November 11, 2018**



**P1070141, 271-T Building, November 11, 2018**



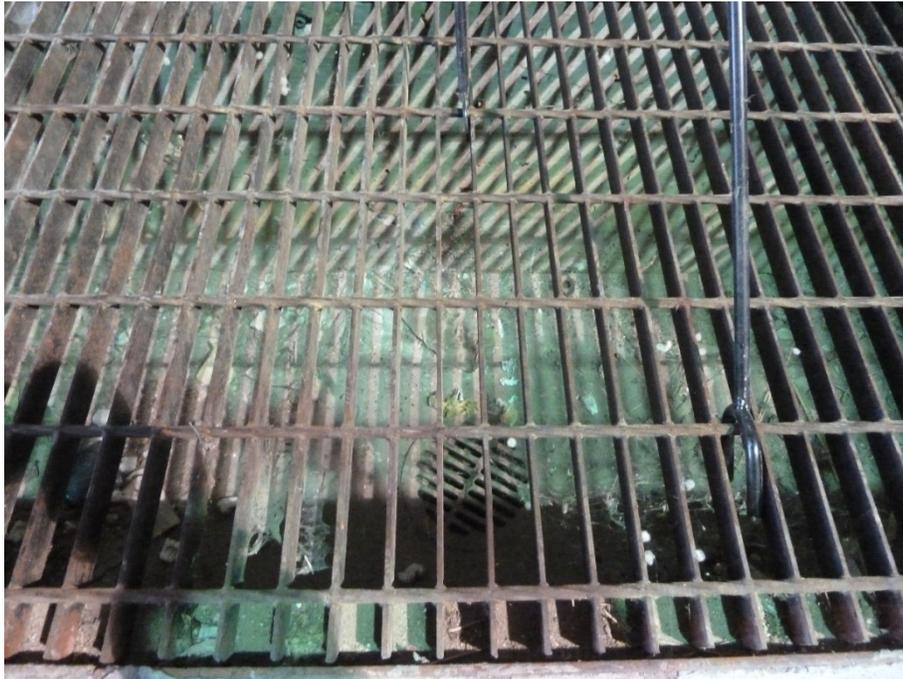
**P1070142, 277-T Building, November 11, 2018**



**P1070143, 277-T Building, November 11, 2018**



**P1070147, 277-T Building, November 11, 2018**



**P1070148, 277-T Building, November 11, 2018**

## CUG 37, 221-T Sand Filter Pad



### ***221-T Sand Filter Pad Checklist:***

**Type of structure:** uncovered gravel area (sand, gravel, and cobbles)

**Type of waste stored:** The 221-T Sand Filter Pad was used to manage dangerous and mixed waste in a 90-day or less storage area ( $\leq 90$ -day) or satellite accumulation area (SAA). The 221-T Sand Filter Pad does not currently store dangerous or mixed waste.

**History of releases:** The records review and visual inspection outlined did not identify any releases of dangerous or mixed waste or the presence of dangerous or mixed waste related staining.

**Sample locations:** DOE proposes to use area-wide grid sampling utilizing VSP. No focused samples were identified.

**Are there cracks, crevices, or seams?**

N/A

**Are there any visible stains?**

N/A

**Are there low points?**

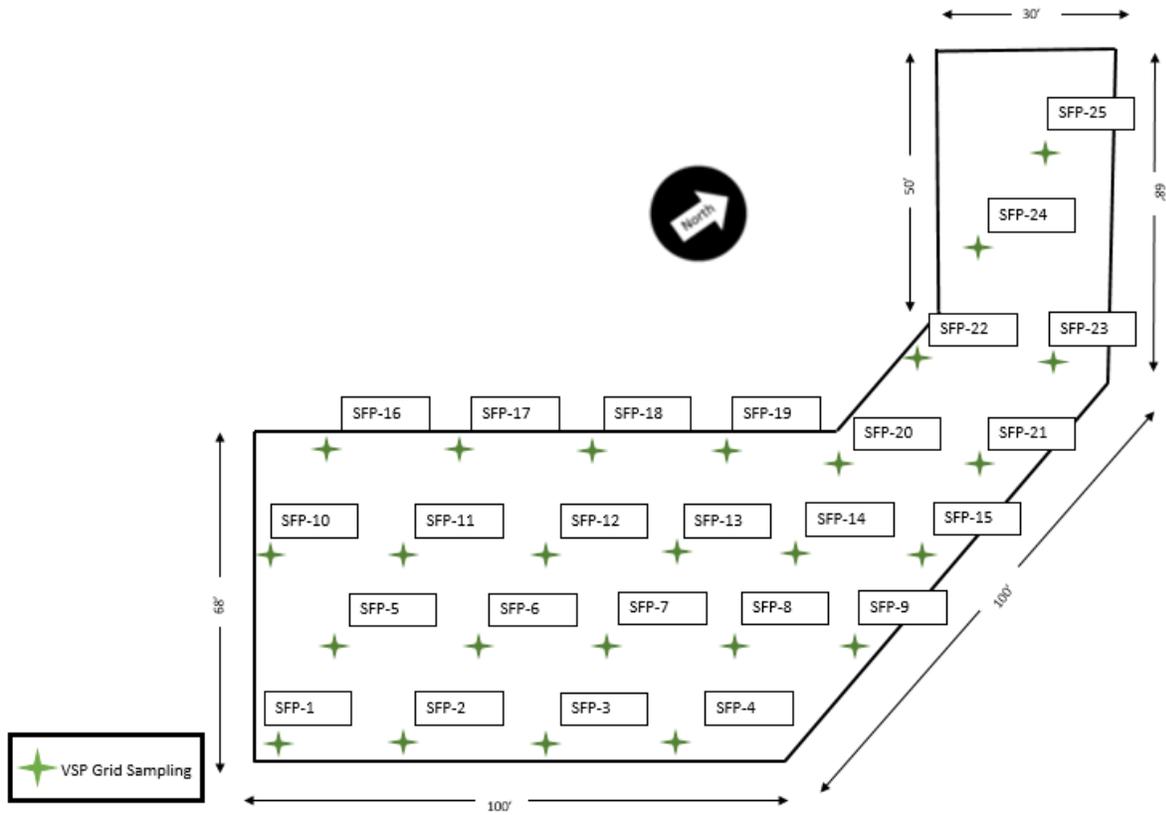
Slopes generally to the north

**Are there holes, pits or other breaches?**

N/A

**Other notes:**

Ecology to re-grid via VSP due to strange coverage (portions left with no coverage). There appeared to be a road running partially through it. Missing dimensions on two of the lines on the diagram.



**Notes:**

**221-T Sand Filter Pad Photos:**

None

## CUG 38, 221-T R5 Waste Storage Area



**221-T R5 Waste Storage Area**

**Type of structure:** asphalt paved area

**Type of waste stored:** Waste management records indicate that the maximum waste inventory of dangerous or mixed waste stored in the 221-T R5 WSA over its operational period included 609 containers with a total volume of 184 m<sup>3</sup> (6,498 ft<sup>3</sup>).

**History of releases:** The records review indicated no releases of dangerous or mixed waste in the 221-T R5 WSA.

**Sample locations:** DOE proposes to use area-wide grid sampling utilizing VSP. No focused samples were identified.

**Are there cracks, crevices, or seams?**

Asphalt degraded significantly. Lots of cracks and breaks in the asphalt. Several were through-cracks.

**Are there any visible stains?**

Hard to tell; a lot of debris and sand

**Are there low points?**

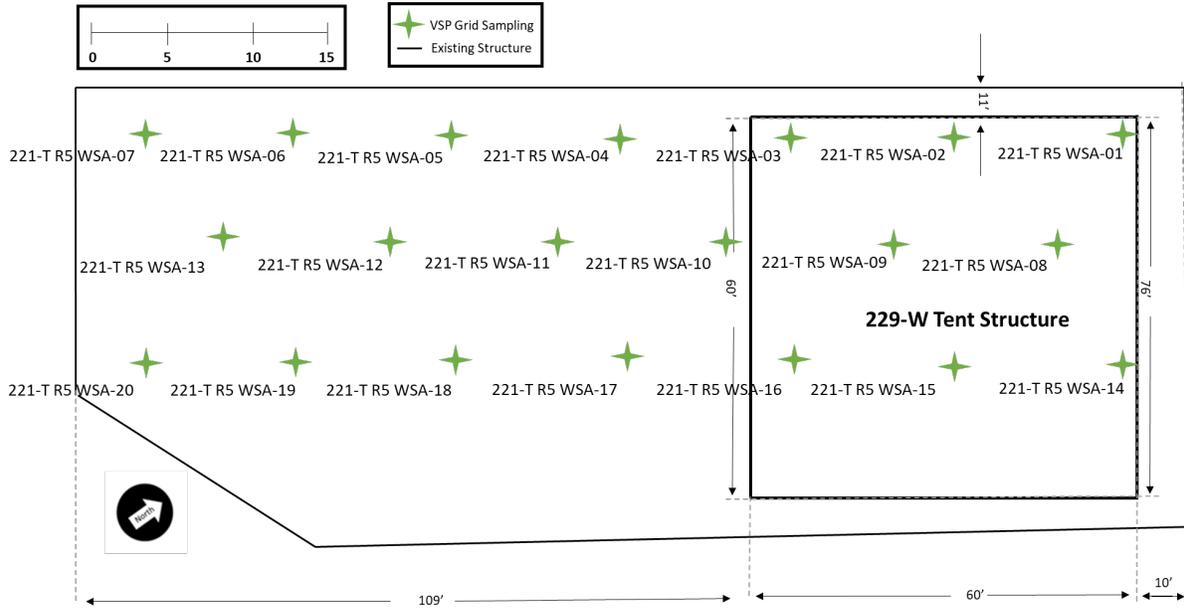
Sloping to the west-southwest. Runoff would run towards the vault. We assume that the containers were stored on the ground rather than on secondary containment.

**Are there holes, pits or other breaches?**

The area itself is a pit that slopes down.

**Other notes:**

There appears to be a large gap in the sampling grid. There is a whole row missing along the bottom. We suggest partitioning. The dimensions seem to be wrong. If the tent is square, then how can it be 76 on one side and 60 on the opposite side?



**Permittees' proposed 221-T R5 Waste Storage Area sampling locations**

**221-T R5 Waste Storage Area Photos:**



**P1070144, 221-T R5 Waste Storage Area, November 11, 2018**



**P1070145, 221-T R5 Waste Storage Area, November 11, 2018**



**P1070146, 221-T R5 Waste Storage Area, November 11, 2018**

## CUG 28, 277-T Outdoor Storage Area



277-T Outdoor Storage Area

### ***277-T Outdoor Storage Area Checklist:***

**Type of waste stored:** The 277-T Outdoor Storage Area may have been used to manage dangerous and mixed waste in a 90-day or less ( $\leq 90$ -day) storage area or satellite accumulation area (SAA).

**History of releases:** The records review indicated no releases of dangerous or mixed waste in the 277-T Outdoor Storage Area.

**Sample locations:** DOE proposes to use area-wide grid sampling utilizing VSP. Three focused sample locations were identified. Two along the concrete expansion joints and one by the blow down drain.

#### **Are there cracks, crevices, or seams?**

Northwest concrete pad has several cracks, through-cracks. Seam along concrete and building. Blowdown goes into a vitreous clay pipe which is degraded. East side manhole. No curbing between concrete slab and the building slab on the east side. Asphalt is in poor condition.

#### **Are there any visible stains?**

Rusted pipe locations. Blowdown drain is rusted. Manhole is rusted. Rust staining on the asphalt throughout. There is a foot-long rust-like stain that might be a spill?

#### **Are there low points?**

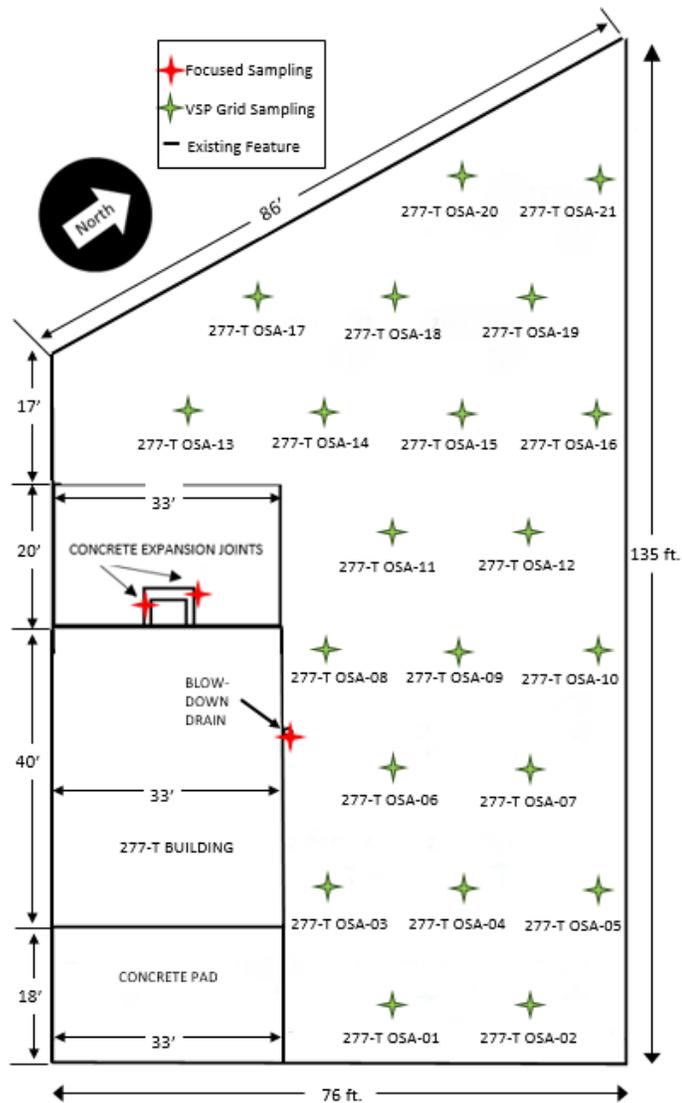
The low point appears to be the building. The manhole is actually a high point.

**Are there holes, pits or other breaches?**

Holes throughout, and at places where the metal poles used to be.

**Other notes:**

Would like to add more grid samples along the edges for better coverage. Need to remove the asphalt due to degradation.



**Permittees' proposed 277-T Outdoor Storage Area sampling locations**

**Notes:**

**277-T Outdoor Storage Area Photos:**



**P1070131, 277-T Outdoor Storage Area, November 11, 2018**





**P1070133, 277-T Outdoor Storage Area, November 11, 2018**





**P1070135, 277-T Outdoor Storage Area, November 11, 2018**





**P1070137, 277-T Outdoor Storage Area, November 11, 2018**





**P1070139, 277-T Outdoor Storage Area, November 11, 2018**

## CUG 41, 221-T Railroad Cut



**221-T Railroad Cut**

### ***221-T Railroad Cut Checklist:***

**Type of structure:** uncovered gravel area with railroad tracks

**History of releases:** Past inspection records included both the closing 221-T Railroad Cut and the loading and unloading area of the operating 221-T Railroad Tunnel as one combined area. Those records indicated that there was dangerous or mixed waste present within the combined area.

**Sample locations:** DOE proposes to use area-wide grid sampling utilizing VSP. No focused samples were identified.

**Are there cracks, crevices, or seams?**

N/A

**Are there any visible stains?**

N/A other than the rusty railroad tracks.

**Are there low points?**

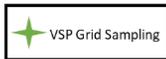
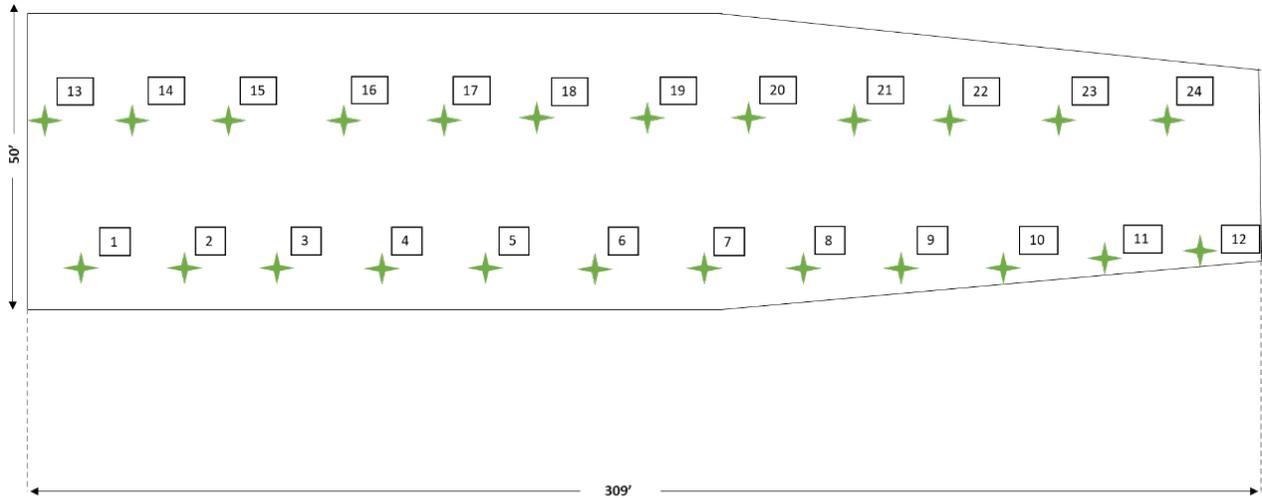
The tracks themselves. Generally sloped downward to the southwest.

**Are there holes, pits or other breaches?**

N/A

**Other notes:**

The sampling grid is insufficient. We need to see the records. There was some old equipment stored on the west end.



**Permittees' proposed 221-T Railroad Cut sampling locations**

**Notes:**

**221-T Railroad Cut Photo:**

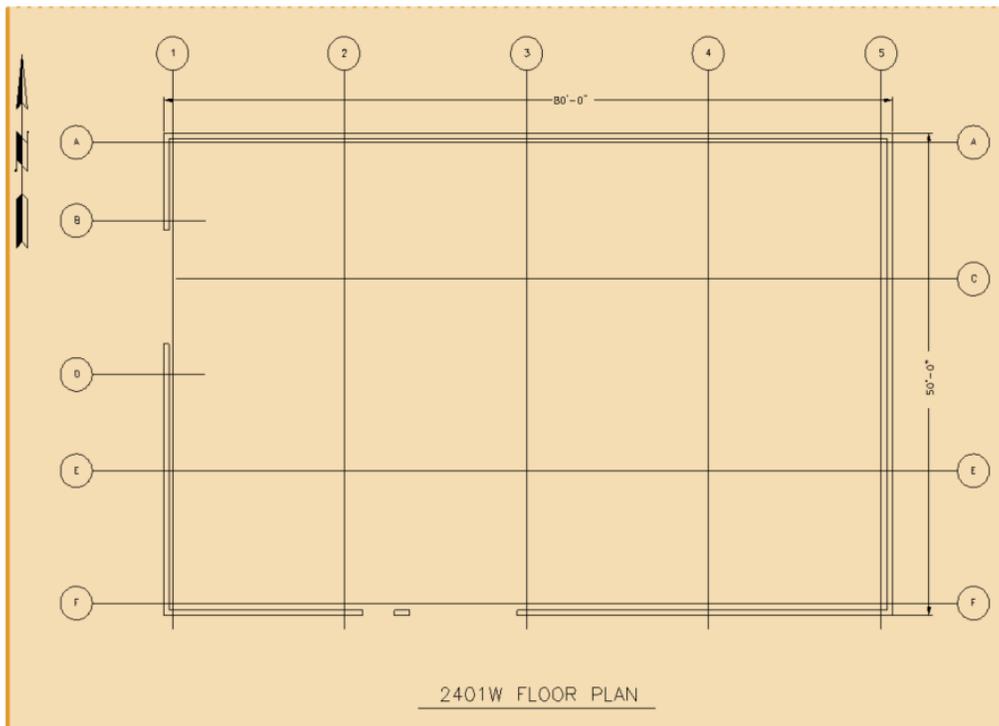


**P1070130, 221-T Railroad Cut, November 11, 2018**

# CUG 39, 2401-W Waste Storage Building



2401-W Waste Storage Building



2401-W Waste Storage Building Floor Plan

### ***2401-W Waste Storage Building Checklist:***

**Type of structure:** pre-engineered steel structure. The foundation is integrated into a perimeter concrete curb. The floors were coated with an epoxy resin floor surfacing system that was compatible with the stored waste.

**Type of waste stored:** The maximum inventory of dangerous or mixed waste stored in the 2401-W Building over its lifetime included 318 containers with a total volume of 203 m<sup>3</sup> (266 yd<sup>3</sup>). Dangerous waste was introduced into 2401-W Building in May 1989. The 2401-W Building also stored dangerous and mixed waste in less-than-90 day accumulation area ( $\leq 90$ -day).

**History of releases:** The records review indicated no releases of dangerous or mixed waste in the 2401-W Building.

**Sample locations:** No sampling locations were identified for the 2401-W Building.

#### **Are there cracks, crevices, or seams?**

Too many cracks, crevices, and seams to be still considered "sealed." There were abrasions through the coating all over the floor. There were several repair points or contamination fixing all over the floor. Through-cracks on the outer edge of the foundation. They do not maintain the floor coating.

#### **Are there any visible stains?**

Tough to tell due to various colors of paint and caulk along floor, as well as the patches.

#### **Are there low points?**

The floor is uneven throughout.

#### **Are there holes, pits or other breaches?**

N/A

#### **Other notes:**

They need to change their approach to site-specific. Clean debris surface as a performance standard is not sufficient with the level of degradation.

**2401-W Waste Storage Building Photos:**



**P1070149, 2401-W Waste Storage Area, November 11, 2018**



**P1070150, 2401-W Waste Storage Area, November 11, 2018**



**P1070151, 2401-W Waste Storage Area, November 11, 2018**



**P1070152, 2401-W Waste Storage Area, November 11, 2018**

## Annotated photo of 211-T Pad



**211-T Pad 20121116\_breaks. Annotated photo showing ponded water at cold joints, breaks, and through penetrations, (photo dated, November 16, 2012)**

## Sampling Bases

**211-T Pad**

Focused Sampling								
Required Sampling	Relevant Photos	Managed waste?	Spill/release history?	Cracks, crevices or seams?	Visible stains?	Low points?	Holes, pits or other breaches?	Other
Three (3) soil samples at the cold joints along the edge of the concrete	Closure Plan Figure H-2; P1070128; 211-T Pad Annotated photo dated Nov. 11, 2016	Generally used as secondary containment for tanker trucks that were used for non-waste chemical transfers. However dangerous or mixed waste was also stored on the 211-T Pad.	Records review and visual inspection did not identify any releases of dangerous or mixed waste or the presence of dangerous or mixed waste related staining.	Cement cuts done as expansion joints perhaps ¼" deep, but did not appear to be through cuts. Seams along the berms are cold joints. Berm on one side is continuous, then there is a break, then continuous, then another break; breaks are for the building. Along asphalt edge, potential for leakage. Around yellow poles, potential for leakage.	Rust around the sump.	The sump.	Spalling along berms. Various chips throughout.	Around the sump there is a metal frame to hold the grate. There is chipping along this frame. The sump was full of ice.
Eight (8) soil samples [one (1) sample at each guard post for a total of 8]	Closure Plan Figure H-2							
One (1) soil sample below blind sump	Closure Plan Figure H-3; P1070129							
One (1) blind sump concrete chip sample	Closure Plan Figure H-3; P1070129							

Non-Statistical Grid Sampling	
Required Sampling	Area of Pad
6 non-statistical grid samples	1,180 ft <sup>2</sup>

**Closure Plan Language:**

**Focused (Judgmental) Soil Sampling.** As identified in Ecology Publication #94-111, Section 7.2.2, *Focused Sampling*, this method is selective sampling of areas where contamination is expected or releases have been documented.

Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve liner sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to:

- Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil;
- Below any sumps or valves;
- Load or unload areas;
- Storage units with underlying pavements or concrete that appears to be cracked or broken; and
- Areas receiving runoff or discharge from DWMUs, such as a ditch, a swale, or the discharge point down gradient from a pipe.

Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred;
- Length of time the unit has been in existence;
- Entries into the unit operating record; and
- Soil gas surveys or soil borings.

Per the visual inspections (Section H.3.2) and additional professional judgment, twelve focused soil sample locations and one focused concrete chip sample location are identified. Identified are eight guard post soil samples, three cold joint soil samples, and one blind sump soil sample. One focused concrete chip sample is identified for the blind sump (Figure H-5).

The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling.

Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample and concrete chip sample are identified.

Selection of focused sampling units (i.e., the number and location of samples) is generally based on knowledge of the feature or condition under investigation and on professional judgment. Focused sampling is distinguished from probability-based sampling in that inferences are based on professional judgment, not statistical scientific theory. Therefore, conclusions about the target population are limited and depend entirely on the validity and accuracy of professional judgment.

The use of statistical evaluation for focused data is not possible. Any focused data must be reviewed directly against the closure performance standards as to whether they are above or below the standards.

**Grid (Non-Statistical) Chip Sampling.** The proposed site-specific decontamination method of high-pressure steam or water washing is chosen for decontamination of the concrete surface. As an evaluation criterion, concrete chip sampling results will be directly compared to the closure performance standards for soil (Section H.3.7).

Concrete chip samples are collected at regularly-spaced intervals over an area. An initial location or time is chosen at random, and then the remaining sampling locations are defined so the locations are at regular intervals over an area (grid). The Visual Sample Plan (VSP<sup>1</sup>) software was used to create a systematic triangular grid layout with a random starting point. Sample locations were determined using a non-statistical sampling approach with a predetermined number of samples.

Professional judgment determined that six chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5). Samples will be taken from the node locations indicated by the VSP software and will be assigned sample location identifications and sample numbers using the HEIS database.

#### **Fact Sheet Language:**

##### **4.1.1 Closure Actions for Closure Unit Group 30, 211-T Pad**

Clean closure for the 211-T Pad requires closure performance standards be met for both the concrete and soil beneath the concrete. Concrete will be decontaminated using a site-specific decontamination method. Once decontaminated, chip sampling will be conducted to verify whether

---

<sup>1</sup> Visual Sample Plan is a product of Pacific Northwest National Laboratory (PNNL), Richland, Washington.

decontamination was successful. To verify underlying soils are clean, sampling beneath the concrete pad and sump will be conducted. Results from chip and soil samples will be analyzed to ensure closure performance standards were met.

Ecology and the Permittees were unable to come to agreement on sampling requirements to verify clean closure standards are met. The Permittees originally proposed one focused soil sample below the sump. Ecology added sampling requirements for the 211-T Pad based on the following:

- Twelve focused soil samples. Justification – Twelve focused soil samples were added based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.5.1, *“Sampling of soils under structures will be done through holes bored in the overlying structure, if possible. For example, samples of soil overlain by concrete should be collected through holes bored in the concrete,”* and Section 7.2.2, *“Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.”* Focused soil samples locations were chosen based on the potential for contamination to migrate through the concrete to the soil below: three soil samples at the cold joints along the edge of the concrete, eight soil samples at each guard post, and one soil sample below the blind sump. The guard posts and cold joints are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling. Any spill on the 211-T Pad would have drained and collected in the blind sump, therefore a focused soil sample is identified.
- One focused concrete chip sample. Justification – One focused concrete chip sample as added at the sump based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018. Per Ecology Publication #94-111, Section 7.2.2, *“Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.”* Additionally, it is uncertain if dangerous or mixed waste residues are present. Ecology guidance Publication #94-111, Section 5.5 also states, *“Ecology may require sampling of material subject to decontamination to determine the nature and extent of contamination present in the material and/or to confirm the adequacy of any decontamination method. For example, chip sampling of concrete containment systems or rinsate sampling for tank decontamination may be required.”* The sump is the lowest point of the 211-T Pad and is considered to have the highest potential for contamination to migrate. The sump chip sample result will confirm whether decontamination was successful for the concrete within the sump.
- Six non-statistical grid concrete chip samples. Justification – Six non-statistical grid concrete chip samples were added based on Ecology’s professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, *“If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels.”* The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pad being uncoated and the lack of information on whether dangerous or mixed waste residues are present at this unit. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 1,180 square feet, a maximum waste storage volume of 83.9 m<sup>3</sup>, waste in storage from October 1985 through April 2006, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations.

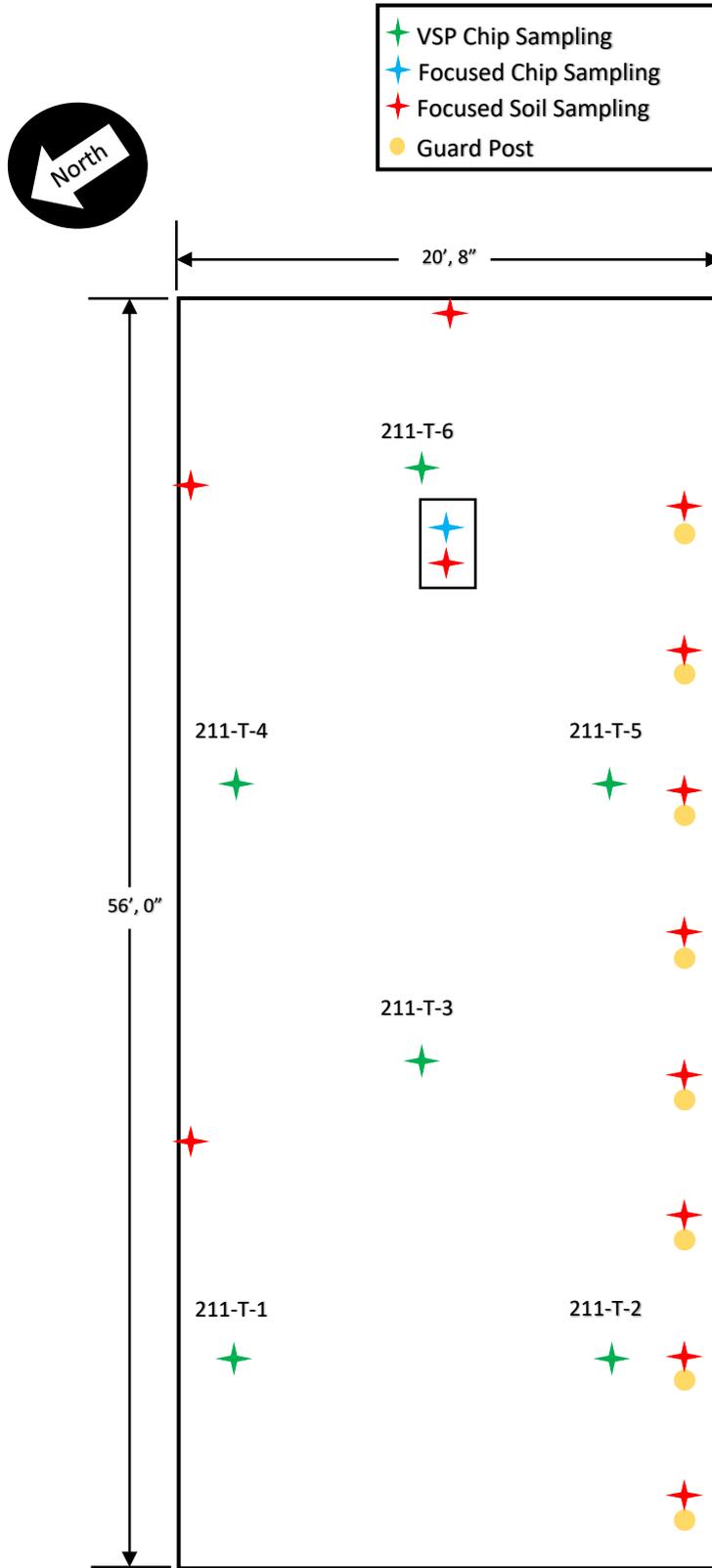
**Meeting Notes:**

**Focused Sampling:** Decided against including samples along asphalt/concrete interface because the pad is sloped, and asphalt/concrete interface is at the top of the slope so was unlikely to see contamination. Yellow posts are through the concrete to the soil below, and present a potential contamination pathway to the soil. Ecology did not observe any sealing around the posts on the walk down, and there is rusting all along the posts. The pad accumulates water, and causes the staining observed around the sump and rusting around the posts. The cold joint runs down the side of pad (the opposite the side with the posts), and along the pad end, and are considered areas where contamination could migrate to the underlying soil.

**Non-Statistical Grid Concrete Samples:** Concrete chip sampling and focused sampling are independent of each other. The number of concrete chip samples were chosen based on items listed in fact sheet. All sample results will be directly compared to identified cleanup levels. The reduced number of concrete chip samples (from the Permittees draft 2015 closure plan's proposed twenty statistical grid concrete chip samples) was deemed acceptable based on information described in the closure plans and fact sheet, and no record of spills/releases.

**Important Note:** All of this should be under the umbrella idea that they have a court order to do this (EPA CAFO) and AO issued by Ecology.

211-T Pad Sampling Locations



**2401-W Waste Storage Building**

Focused Sampling								
Required Sampling	Relevant Photos	Managed waste?	Spill/release history?	Cracks, crevices or seams?	Visible stains?	Low points?	Holes, pits or other breaches?	Other
Six (6) soil samples	Closure Plan Figure H-4; P1070149; P1070150; P1070151; P1070152	Maximum inventory of dangerous or mixed waste included 318 containers with a total volume of 203 m <sup>3</sup> (266 yd <sup>3</sup> ).	Records review indicated no releases of dangerous or mixed waste.	Too many cracks, crevices, and seams to still be considered "sealed." There were abrasions through the coating all over the floor. There were several repair points or contamination fixing all over the floor. Through-cracks on the outer edge of the foundation. They do not maintain the floor coating.	Could not tell due to various colors of paint and caulk along floor, as well as the patches.	The floor is uneven throughout.	N/A	They need to change their approach to site-specific. Clean debris surface is not sufficient with the level of degradation.  -----  Post-walk down note: Final decision was to remove 0.6 cm of the surface using an alternative treatment standard for hazardous debris (physical extraction method) to a clean debris surface.

**Closure Plan Language:**

**Focused (Judgmental) Soil Sampling.** As identified in Ecology Publication #94-111, Section 7.2.2, *Focused Sampling*, this method is selective sampling of areas where contamination is expected or releases have been documented.

Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve liner sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to:

- Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil;
- Below any sumps or valves;
- Load or unload areas;
- Storage units with underlying pavements or concrete that appears to be cracked or broken; and
- Areas receiving runoff or discharge from DWMUs, such as a ditch, a swale, or the discharge point down gradient from a pipe.

Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred;
- Length of time the unit has been in existence;
- Entries into the unit operating record; and
- Soil gas surveys or soil borings.

Per Ecology's visual inspection (Section H.3.2) and additional professional judgment, six focused sample locations are identified for the soil beneath the 2401-W Building (Figure H-7).

The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling.

Selection of focused sampling units (i.e., the number and location of samples) is generally based on knowledge of the feature or condition under investigation and on professional judgment. Focused sampling is distinguished from probability-based sampling in that inferences are based on professional judgment, not statistical scientific theory. Therefore, conclusions about the target population are limited and depend entirely on the validity and accuracy of professional judgment.

The use of statistical evaluation for focused data is not possible. Any focused data must be reviewed directly against the closure performance standards as to whether they are above or below the standards.

**40 CFR 268.45 Alternative Treatment Standard for Hazardous debris.** Decontamination of the concrete surface in the 2401 W Building DWMU will be performed by physically extracting at least 0.6 cm (~1/4 in.) of the concrete surface layer, to a clean debris surface. A series of cutter blades, impact hammers, rotating grinding wheels, or similar equipment will be used to break up the concrete surface layer. Physical extraction techniques

will be performed in accordance with 40 Code of Federal Regulations (CFR) 268.45, Table 1, Alternative Treatment Standards for Hazardous Debris, and will include one or more of the following:

- Abrasive blasting.
- Scarification, grinding, and planing.
- Spalling.

No sampling is required when meeting one of the alternative treatment standards for hazardous debris.

#### **Fact Sheet Language:**

##### **4.1.6 Closure Actions for Closure Unit Group 39, 2401-W Waste Storage Building**

For the 2401-W Waste Storage Building, clean closure will be achieved through treatment of the concrete surface using the physical extraction method of Scarification, Grinding, and Planing as described in 40 CFR 268.45, Table 1, to remove at least 0.6 cm of the concrete surface to a “clean debris surface.” *“Clean debris surface” means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area* (footnote at end of Table 1). Sampling of the soil beneath the concrete will also be conducted to ensure closure performance standards were achieved for the soil.

Ecology and the Permittees were unable to come to agreement on sampling requirements to verify clean closure standards are met for the soil. The Permittees originally proposed no sampling. Ecology added sampling requirements for the 2401-W Waste Storage Building based on the following:

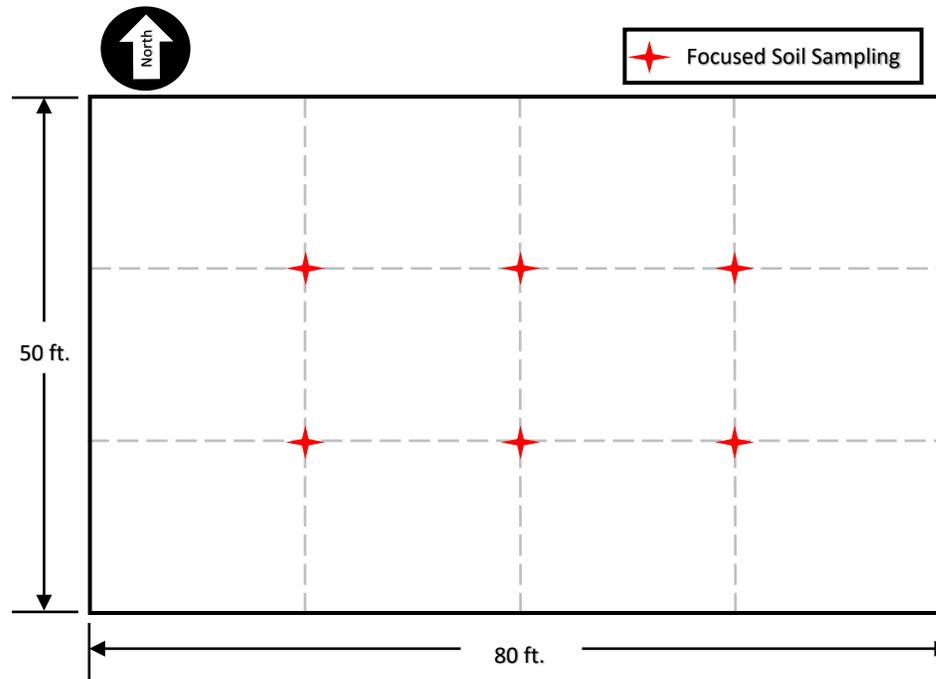
- Six focused soil samples. Justification – Six focused soil samples were added based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018. The sampling locations were chosen where intersections of at least two expansion joints occurred. Per Ecology Publication #94-111, Section 7.2.2, *“Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.”* The intersections where two construction joints/seams meet are considered possible avenues for waste to migrate to the soil below the concrete; therefore, these locations were identified for focused soil sampling.

**Meeting Notes:** A large amount of equipment was being stored in the building, preventing inspection of those areas. Once equipment is removed, a second inspection required by Permit Condition V.39.B.3 may add new sampling locations based on through thickness cracks etc. When walking around outside the building, there appeared to be several through-thickness cracks through the foundation. We were unable to determine if the cracks extended to the interior of the building due to stored equipment being in the way. Ecology and the Permittees will be looking at these areas when we inspect the building after removal of the stored equipment, and may add sampling locations if determined necessary.

**Focused Sampling:**

**40 CFR 268.45 Alternative Treatment Standard for Hazardous Debris:** Ecology and Permittees are in agreement on this treatment method.

**Important Note:** All of this should be under the umbrella idea that they have a court order to do this (EPA CAFO) and AO issued by Ecology.



**2401-W Waste Storage Area Sampling Locations**

**271-T Cage**

Focused Sampling								
Required Sampling	Relevant Photos	Managed waste?	Spill/release history?	Cracks, crevices or seams?	Visible stains?	Low points?	Holes, pits or other breaches?	Other
Three (3) soil samples along asphalt edge in front of cage	Closure Plan Figure H-2; Closure Plan Figure H-3; Photo P1070127 shows staining along front edge.	Unknown if used for waste storage. CAA/SAA records indicate waste accumulation.	No documented spills/releases.	Seams along wall and slab. Metal pole has caulking that is degraded. Back wall eroded w/aggregate & rebar visible. Staining along edge of pad.	A lot of rust throughout.	No, it was level.	Surface was painted with an anti-slip paint which is eroding away.	Appeared to have garnet sand, likely for the non-skid surface paint.
3 near middle of cage								
Non-Statistical Grid Sampling								
Required Sampling	Area of pad							
5 grid samples	200 ft <sup>2</sup>							

**Closure Plan Language:**

**Focused (Judgmental) Soil Sampling.** As identified in Ecology Publication #94-111, Section 7.2.2, *Focused Sampling*, this method is selective sampling of areas where contamination is expected or releases have been documented.

Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve liner sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to:

- Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil;

- Below any sumps or valves;
- Load or unload areas;
- Storage units with underlying pavements or concrete that appears to be cracked or broken; and
- Areas receiving runoff or discharge from DWMUs, such as a ditch, a swale, or the discharge point down gradient from a pipe.

Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred;
- Length of time the unit has been in existence;
- Entries into the unit operating record; and
- Soil gas surveys or soil borings.

Per Ecology's visual inspection (Section H.3.2) and additional professional judgment, focused sample locations are identified for the soil beneath the 271-T Cage platform. Six soil sample locations beneath the cage have been selected to demonstrate clean closure of the soil. Three sample locations are directly below the front edge of the 271-T Cage and an additional three are located near the middle of the 271-T 12 Cage (Figure H-5).

The 271-T Cage DWMU lacks a berm to prevent waste releases from the unit to the soil, therefore the six soil samples (three located near the front edge, and three located near the middle of the unit) are identified based on professional judgement.

Selection of focused sampling units (i.e., the number and location of samples) is generally based on knowledge of the feature or condition under investigation and on professional judgment. Focused sampling is distinguished from probability-based sampling in that inferences are based on professional judgment, not statistical scientific theory. Therefore, conclusions about the target population are limited and depend entirely on the validity and accuracy of professional judgment.

The use of statistical evaluation for focused data is not possible. Any focused data must be reviewed directly against the closure performance standards as to whether they are above or below the standards.

**Grid (Non-Statistical) Chip Sampling.** The proposed site-specific decontamination method of high-pressure steam or water washing is chosen for the concrete surface. As an evaluation criterion, concrete chip sampling results will be directly compared to the closure performance standards for soil (Section H.3.9).

Chip samples are collected at regularly-spaced intervals over an area. An initial location or time is chosen at random, and then the remaining sampling locations are defined so the locations are at regular intervals over an area (grid). The Visual Sample Plan (VSP1) software was used to create a systematic triangular grid layout with a random starting point. Sample locations were determined using a non-statistical sampling approach with a predetermined number of samples.

Professional judgment determined that five chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5). Samples will be taken from the node locations indicated by the VSP software and will be assigned sample location identifications and sample numbers using the HEIS database.

#### **Fact Sheet Language:**

##### **4.1.2 Closure Actions for Closure Unit Group 29, 271-T Cage**

Clean closure for the 271-T Cage requires closure performance standards be met for both the concrete and soil. For concrete, a site-specific decontamination method will be used and chip sampling will be conducted to verify whether decontamination was successful. For soils, sampling of the soil beneath the raised loading dock will be conducted. Results from chip and soil samples will be analyzed to ensure closure performance standards were met.

Ecology and the Permittees were unable to come to agreement on sampling requirements to verify clean closure standards are met. The Permittees originally proposed no sampling. Ecology added sampling requirements for the 271-T Cage based on the following:

- Six focused soil samples. Justification – Six focused soil samples were added based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018. Three sample locations are directly below the front edge of the 271-T Cage, and three soil samples are located near the middle of the 271-T Cage. The 271-T Cage DWMU lacks a berm to prevent waste releases from the DWMU to the soil. Water and rust stains are evident on the front of the concrete cage pad, which is an open and direct avenue to the soil below the front of the 271-T Cage. Since the 271-T Cage is an uncoated elevated pad, any runoff from the pad could potentially reach the soil below the center of the pad. Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste, and it is uncertain if dangerous or mixed waste residues are present.
- Five non-statistical grid concrete chip samples. Justification – Five non-statistical grid concrete chip samples were added based on Ecology’s professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, *“If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels.”* The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 271-T Cage was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of the pad, the pad size of approximately 200 square feet, and for achieving equal representation of the entire pad. A random start was chosen to eliminate bias associated with selecting sampling locations.

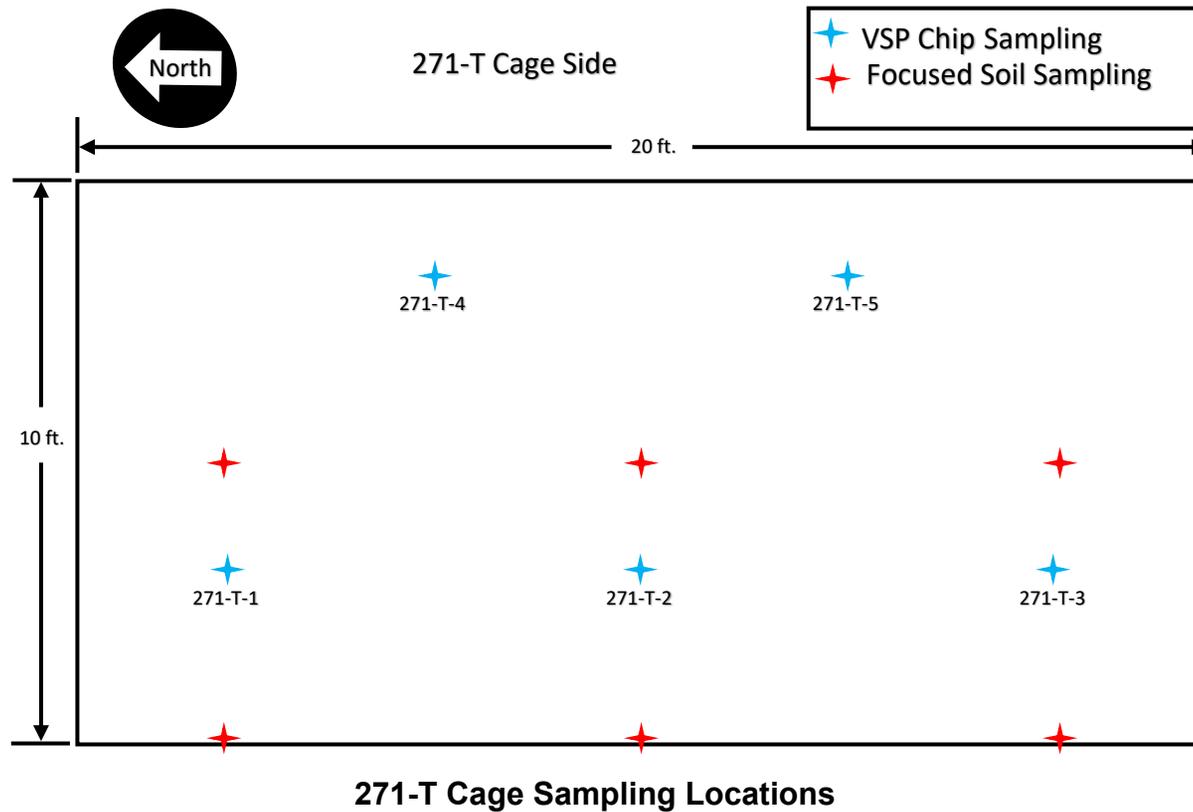
#### **Meeting Notes:**

**Focused Sampling:** Still have to prove soil below the cage is clean – Ecology’s 94-111 Clean Closure Guidance requires sampling below concrete structures, and the three samples in the middle of the cage are below the structure. Team discussed how likely contamination would be back against the wall below the pad and didn’t think it was likely. Did not appear to be an avenue between back of 271-T Cage and 271-T building (looked flush, constructed at the same time), but difficult to tell due to equipment in the way, and dirt. The 271-T Cage also has a cover that would

protect from water. We will be looking at the 271-T Cage again before decontamination (Permit Condition V.29.B.3). There's a higher likelihood that contamination will be found near the center first than the wall. Sampling is 6 inches below surface. If contamination is found, then go for nature and extent of contamination. Also it's posted for rad, so there's likely issues below the cage.

**Non-Statistical Grid Concrete Samples:** Have good basis for five chip samples in the fact sheet.

**Important Note:** All of this should be under the umbrella idea that they have a court order to do this (EPA CAFO) and AO issued by Ecology.



**277-T Building**

Focused Sampling								
Required Sampling	Relevant Photos	Managed waste?	Spill/release history?	Cracks, crevices or seams?	Visible stains?	Low points?	Holes, pits or other breaches?	Other
Three (3) low point soil samples	Closure Plan Figure H-3; P1070143 shows unevenness of floor	One container of mixed waste, with a total volume of 27 m <sup>3</sup>	No documented spills/releases.	Seams and cracks throughout. Hard to tell if other seams or cracks due to surface covered by equipment.	Rust stains throughout .	The sump. There was a small ledge around the sump. The floor also seems to be uneven.	Chips throughout.	There appears to be rebar around the sump. The drain has been blocked off.
Two (2) construction joint/seam soil samples	Closure Plan Figure H-3; P1070147 (ramp pictured – seam sample is at top of ramp away from sump)							
One (1) sump soil sample	P1070140; P1070141; P107142; P107147; P107148							

Focused Sampling								
One (1) sump chip sample	P1070140; P1070141; P107142; P107147; P107148							
Non-Statistical Grid Sampling								
Required Sampling	Area of building							
6 non-statistical grid samples	~1,287 ft <sup>2</sup>							

**Closure Plan Language:**

**Focused (Judgmental) Soil Sampling.** As identified in Ecology Publication #94-111, Section 7.2.2, Focused Sampling, this method is selective sampling of areas where contamination is expected or releases have been documented.

Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve liner sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to:

- Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil;
- Below any sumps or valves;
- Load or unload areas;
- Storage units with underlying pavements or concrete that appears to be cracked or broken; and
- Areas receiving runoff or discharge from DWMUs, such as a ditch, a swale, or the discharge point down gradient from a pipe.

Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;

- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred;
- Length of time the unit has been in existence;
- Entries into the unit operating record; and
- Soil gas surveys or soil borings.

Per the visual inspections (Section H.3.2) and additional professional judgment, six focused soil sample locations and one focused concrete chip sample location are identified. Identified are three low point soil samples, two construction joint/seam soil samples, and one sump soil sample. One focused concrete chip sample is identified for the sump (Figure H-5).

The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Therefore, these locations are identified for focused soil sampling.

Any spill within the 277-T Building would likely drain and collect in the sump, therefore a focused concrete chip sample is identified.

Selection of focused sampling units (i.e., the number and location of samples) is generally based on knowledge of the feature or condition under investigation and on professional judgment. Focused sampling is distinguished from probability based sampling in that inferences are based on professional judgment, not statistical scientific theory. Therefore, conclusions about the target population are limited and depend entirely on the validity and accuracy of professional judgment.

The use of statistical evaluation for focused data is not possible. Any focused data must be reviewed directly against the closure performance standards as to whether they are above or below the standards.

**Grid (Non-Statistical) Chip Sampling.** The proposed site-specific decontamination method of high-pressure steam or water washing is chosen for decontamination of the concrete surfaces. As an evaluation criterion, concrete chip sampling results will be directly compared to the closure performance standards for soil (Section H.3.9).

Concrete chip samples are collected at regularly spaced intervals over an area. An initial location or time is chosen at random, and then the remaining sampling locations are defined so the locations are at regular intervals over an area (grid). The Visual Sample Plan (VSP) software was used to create a systematic triangular grid layout with a random starting point. Sample locations were determined using a non-statistical sampling approach with a predetermined number of samples.

Professional judgment determined that six chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-5). Samples will be taken from the node locations indicated by the VSP software and will be assigned sample location identifications and sample numbers using the HEIS database.

## Fact Sheet Language:

### 4.1.3 Closure Actions for Closure Unit Group 29, 277-T Building

Clean closure for the 277-T Building requires closure performance standards be met for both the concrete floor and sump, and soil beneath the concrete. The concrete surfaces will be decontaminated using the site-specific decontamination method of high pressure steam or water sprays. Once decontamination is complete, chip sampling of the concrete surfaces will be conducted to verify whether decontamination was successful. To verify underlying soils are clean, sampling beneath the concrete pad and sump will be conducted. Results from chip and soil samples will be analyzed to ensure closure performance standards are met.

Ecology and the Permittees were unable to come to agreement on the number and location of samples needed to verify clean closure standards have been met for the concrete surfaces and underlying soil. The Permittees proposed one soil sample beneath the sump, and visual verification of “clean debris surface” for the concrete surfaces. For the reasons described above, Ecology determined this proposal was not adequate to achieve clean closure standards. Accordingly, Ecology added additional sampling requirements to the closure plan for the 277-T Building based on the following:

- Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology’s professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, *“Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.”* CHPRC performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, Closure Plan). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018 to verify these additional sample locations, and is in agreement with the Permittees’ 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building.
- Six non-statistical grid concrete chip samples, and one focused concrete chip sample. Justification – The decision to use “non-statistical grid concrete chip sampling” was to validate successful decontamination of the concrete surface; therefore, a non-biased approach was incorporated (hence the random start Visual Sample Plan<sup>2</sup> derived grid) and the results directly compared to the closure performance standards (hence the non-statistical evaluation [direct comparison]). Six non-statistical grid concrete chip samples were added based on Ecology’s professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method. Per Ecology Publication #94-111, Section 5.6.1, *“If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels.”* The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance

---

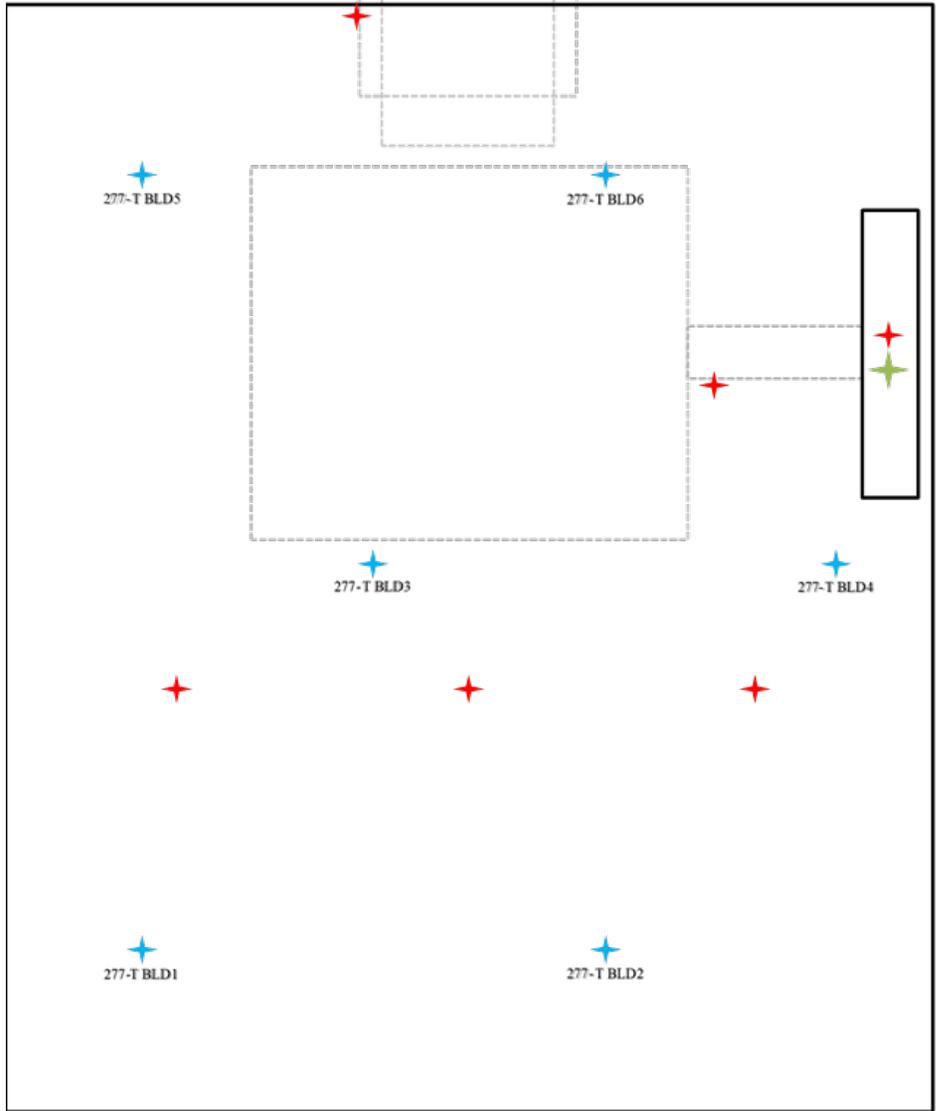
<sup>2</sup> **Visual Sample Plan.** The Visual Sample Plan (<https://vsp.pnnl.gov/>) is a tool used throughout Washington State and nationally, that was developed by the Pacific Northwest National Laboratory. It is an aid to help design defensible and statistically valid sampling programs for a variety of applications.

standards were achieved. The number of samples chosen was based on the building floor slab being uncoated, and the uncertainty of whether mixed waste residues are present. The number of samples was also based on the current physical condition of the building, building size of approximately 1,287 square feet, maximum waste storage volume of 27 m<sup>3</sup>, waste in storage less than one year, and for achieving equal representation of the entire building. A random start was chosen to eliminate bias associated with selecting sampling locations. One focused concrete chip sample was added at the sump based on Ecology's professional judgement. The sump is the lowest point of the 277-T Building and is considered to have the highest potential for contamination to migrate.



★ VSP Chip Sampling

★ Focused Soil Sampling



277-T Building Sampling Locations

## Meeting Notes:

**Focused Sampling:** Sump pictures look like there's dirt/debris so can't see whole sump bottom and whether there's through thickness cracks. The 277-T Building is also filled with equipment that will require removal. Ecology will inspect the sump and remaining floor area during the final inspection to determine if any additional sampling is required (see Permit Condition V.27.B.3). **ACTION:** Upload original 2013 closure plans to the AR [Action complete]. Draft closure plan transmitted by email (Sarah Horn to John Temple and Stuart Luttrell on 7/9/2015) shows focused sampling locations in Figure H-B-4. *Sample Locations for 277-T Building*, which are identical to those chosen by Ecology. Also included as an appendix to the draft closure plan is the Permittee inspection report from June 15, 2015 which includes a figure identifying the six (6) focused sampling locations (see Appendix H-B.a, *T Plant 277-T Building RCRA Records Review and Facility Visual Inspection Supporting Documentation*). **ACTION:** Upload 2015 email transmitting Permittee draft closure plan to the AR [Action complete].

**Non-Statistical Grid Concrete Samples:** Concrete chip sampling and focused sampling are independent of each other. The number of concrete chip samples were chosen based on items listed in fact sheet. All sample results will be directly compared to identified cleanup levels. The reduced number of concrete chip samples (from the Permittees draft 2015 closure plan's proposed 20 statistical grid concrete chip samples) was deemed acceptable based on the minimal amount of waste stored (one 27 m<sup>3</sup> container of physically solid waste), and no record of spills/releases.

**277-T Outdoor Storage Area**

Focused Sampling								
Required Sampling	Relevant Photos	Managed waste?	Spill/release history?	Cracks, crevices or seams?	Visible stains?	Low points?	Holes, pits or other breaches?	Other
Front Concrete Pad, six (6) soil samples	277-T OSA Closure Plan Figure H-4; 277-T Building Closure Plan Figure H-3; P1070131; P1070132; P1070133	May have been used to manage dangerous and mixed waste in a CAA or SAA.	No documented spills/releases.	Front concrete pad has several cracks, through-cracks. Seam along concrete and building.	Rusted pipe locations.		Holes throughout, and at places where the metal poles used to be.	Specific to Asphalt: Would like to add more grid samples along the edges for better coverage. Discussed possibly needing to remove the asphalt due to degradation but decided in end due to degradation it could remain. Decided on 21 grid samples.
Back Concrete Pad, three (3) soil samples	277-T OSA Closure Plan Figure H-3; P1070137			East side manhole. No curbing between concrete slab and the building slab on the east side.	Manhole is rusted.	The low point appears to be the building. The manhole is actually a high point.	Holes/pitting throughout.	
Blowdown drain, one (1) soil sample	277-T OSA Closure Plan Figure H-5; P1070134; P1071035			Blowdown goes into a vitreous clay pipe which is degraded.	Blowdown drain is rusted.			

Non-Statistical Grid Sampling of Concrete Surfaces	
Required Sampling	Area
Front Concrete Pad, five (5) samples	~660 ft <sup>2</sup> , Closure Plan Figure H-4, P1070131, P1070132, P1070133
Back Concrete Pad, four (4) samples	~594 ft <sup>2</sup> , Closure Plan Figure H-3, photograph P1070137
Statistical Grid Sampling	
Asphalt Area, twenty-one (21) samples	~6176 ft <sup>2</sup> , note: Asphalt is in poor condition. Rust staining on the asphalt throughout. There is a foot-long rust-like stain that might be a spill? See photographs P1070136, P1070138, and P1070139.

**Closure Plan Language:**

**Grid (Area Wide) Soil Sampling.** Ecology Publication #94-111, Section 7.2.1, Area Wide Sampling, identifies that grid sampling is appropriate when the spatial distribution of contamination at or from the closure unit is uncertain. Ecology Publication #94-111, Section 7.3, Sampling to Determine or Confirm Clean Closure, identifies the grid sampling approach as generally appropriate for sampling to determine or confirm whether closure performance standards are achieved.

In grid sampling, grab samples are collected at regularly spaced intervals over an area (called sample node locations). An initial location or time is chosen at random, and then the remaining sample node locations are defined so the locations are at regular intervals over an area (grid). Grid sampling is used to search for hot spots and to infer means, percentiles, or other parameters, and is useful for estimating spatial patterns or trends over time. This design provides a practical method for designating grab sample node locations and ensures uniform coverage of a site, unit, or process.

The quantity and location of sample nodes for the soil underlying the asphalt areas within the 277-T Outdoor Storage Area were determined using the VSP software. VSP is a tool used throughout Washington State and nationally that statistically determines the quantity of samples required to accept or reject the null hypothesis based on input parameters specific to the unit or area. A null hypothesis is generally assumed true until

evidence indicates otherwise. The null hypothesis, as defined in WAC 173-340-200, Definitions, for the 277-T Outdoor Storage Area is that soil under the asphalt is assumed to be above closure performance standards as defined in Section H.3.10. Therefore, the soil is presumed to be contaminated. Rejection of the null hypothesis means results of field sampling and laboratory analysis indicated that soil meets closure performance standards.

Should sampling and analysis provide a basis that the null hypothesis can be accepted, such an event will be considered an unexpected event during closure, and the soil would then be identified as contaminated environmental media and managed in accordance with Section H.3.5.

For grid sampling determination in VSP, both parametric and nonparametric equations rely on assumptions about the data population. Typically, however, nonparametric equations require fewer assumptions and allow for more uncertainty about the distribution of data. Alternatively, if parametric assumptions are valid, the required number of samples is usually less than if a nonparametric equation was used.

For the 277-T Outdoor Storage Area, data assumptions were based on a DQO process performed in accordance with EPA/240/R 02/005. VSP parameter inputs, which are based on the DQO process, are detailed in Table H-5.

The decision rule for demonstrating compliance with the MTCA (WAC 173-340) Method B closure requirements includes a three-part test that compares sample results to the closure performance standards:

- The 95% upper confidence limit on the true data mean must be less than the MTCA Method B closure performance standard.
- No sample concentration can be more than twice the closure performance standards.
- Less than 10% of the samples can exceed the closure performance standards.

Using a nonparametric test and the input parameters identified in Table H-5, VSP calculated that 21 samples would adequately describe the population. With this level of confidence in the population description, the null hypotheses could be rejected with 95% confidence and ensure that a site would not be mistakenly released as clean (uncontaminated). The VSP software compares the site mean to a fixed threshold in order to accept or reject the null hypothesis. Data will be evaluated to ensure that less than 10% of the individual values exceed MTCA (WAC 173-340) Method B closure performance standards and that no values are more than twice the closure performance standard.

Grid sample node locations were determined using the grid with a random start sampling method run in the VSP software. Statistical analysis of systematically collected data is valid if a random start to the grid is used. The dimensions of the 277-T Outdoor Storage Area were entered into VSP to determine the locations of the sample nodes. The triangular grid sampling layout was determined to have an even distribution over the asphalt areas within the 277-T Outdoor Storage Area; thus, providing the most representative data set including coverage of the middle portion of the sampling area. The 21 samples will be taken from the node locations indicated by the VSP software (shown in Figure H-7) and will be assigned sample location identifications and sample numbers using the HEIS database.

The first node location is chosen at random by the VSP software, and the subsequent twenty sample locations are assigned by the VSP software using a triangular grid sampling method to achieve an even distribution.

Supporting documentation for the VSP software sampling designations is provided in Attachment B, T Plant 277-T Outdoor Storage Area Visual Sample Plan Supporting Documentation.

**Table H-5 Visual Sample Plan Parameter Inputs for Grid (Area-Wide) Soil Sampling**

<b>Parameter</b>	<b>Value</b>	<b>Basis</b>
Primary Objective of the Sampling Design	Null hypothesis	Compare a site mean or median to a fixed threshold. The basis is that the null hypothesis is true (site is contaminated). Clean closure requires rejection of the null hypothesis.
Type of Sampling Design	Nonparametric	Data are not assumed to be normally distributed.
Working Null Hypothesis	The mean value exceeds the threshold	The null hypothesis assumes that the site is dirty, requiring the sampling and analysis to demonstrate through statistical analysis that the site is clean (MTCA [WAC 173-340] Method B closure performance standards).
Grid Sampling Pattern	Triangular	A triangular pattern provided an even distribution of sample locations over asphalt areas within the 277-T Outdoor Storage Area.
Standard Deviation (S)	45%	This is the assumed standard deviation value relative to a unit action level for the sampling area. The value of 45% is conservative, based on consideration of past verification sampling. (Number of samples calculated increases with higher standard deviation values relative to a unit action level.)
Delta ( $\Delta$ )	40%	This is the width of the grey region. It is a user-defined value relative to a unit action level. The value of 40% balances unnecessary remediation cost with sampling cost. A Type II error with the grey region would result in cleanup of a site that is already clean.
Alpha ( $\alpha$ )	5%	This is the acceptable error of deciding a dirty site is clean when the true mean is equal to the action level. It is a maximum error rate since dirty sites with a true mean above the action level will be easier to detect. A value of 5% was chosen as a practical balance between health risks and sampling cost.
Beta ( $\beta$ )	20%	This is the acceptable error of deciding a clean site is dirty when the true mean is at the lower bound of the grey region. A value of 20% was chosen during the DQO process as a practical balance between unnecessary remediation cost and sampling cost.
MARSSIM sampling coverage	20%	MARSSIM suggests that the number of samples should be increased by at least 20% to account for missing or unusable data and uncertainty in the calculated value of $n$ .

Reference: EPA 402-R-97-016, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*.

WAC 173-340, *Model Toxics Control Act—Cleanup*.

DQO = data quality objective

MTCA = *Model Toxics Control Act—Cleanup*

**Focused (Judgmental) Sampling.** As identified in Ecology Publication #94-111, Section 7.2.2, Focused Sampling, this method is selective sampling of areas where contamination is expected or releases have been documented.

Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate. Focused sampling could involve liner sampling along a drainage-way, boundary, or other linear dimension. Likely areas for focused sampling include, but are not limited to:

- Containers, tanks, waste piles, or any other units (such as ancillary pipes) in contact with soil;
- Below any sumps or valves;
- Load or unload areas;
- Storage units with underlying pavements or concrete that appears to be cracked or broken; and
- Areas receiving runoff or discharge from DWMUs, such as a ditch, a swale, or the discharge point down gradient from a pipe.

Evidence for additional areas of focused sampling could include:

- Visual or olfactory evidence of contamination including evidence based on direct reading field instrumentation or field test kits;
- Knowledge, such as reports by employees, inspectors, or others that releases have or may have occurred;
- Length of time the unit has been in existence;
- Entries into the unit operating record; and
- Soil gas surveys or soil borings.

Per the visual inspections (Section H.3.2) and additional professional judgment, nine focused soil sample locations are identified for both concrete pads (six for the concrete pad located at the front of the 277-T Building, and three for the concrete pad located at the back of the 277-T Building). One focused soil sample is located at the blow-down line drain (Figure H-7).

For the front concrete pad, the concrete seams and the remaining metal posts in the concrete are considered possible avenues for waste to migrate to the soil.

For the blow-down line drain, any waste from the 277-T Building DWMU (Closing Unit Group 28) sump would have drained through this line, which is in direct contact with the soil. Therefore, these locations were identified for focused soil sampling.

Selection of focused sampling units (i.e., the number and location of samples) is generally based on knowledge of the feature or condition under investigation and on professional judgment. Focused sampling is distinguished from probability based sampling in that inferences are based on professional judgment, not statistical scientific theory. Therefore, conclusions about the target population are limited and depend entirely on the validity and accuracy of professional judgment.

The use of statistical evaluation for focused data is not possible. Any focused data must be reviewed directly against the closure performance standards as to whether they are above or below the standards.

**Grid (Non-Statistical) Chip Sampling.** The proposed site-specific decontamination method of high-pressure steam or water washing is chosen for decontamination of the concrete surfaces. As an evaluation criterion, concrete chip sampling results will be directly compared to the closure performance standards for soil (Section H.3.7).

Concrete chip samples are collected at regularly spaced intervals over an area. An initial location or time is chosen at random, and then the remaining sampling locations are defined so the locations are at regular intervals over an area (grid). The VSP software was used to create a systematic triangular grid layout with a random starting point. Sample locations were determined using a non-statistical sampling approach with a predetermined number of samples.

Professional judgment determined that nine chip samples would provide sufficient coverage to demonstrate successful decontamination (Figure H-7). Five grid node locations are identified for the concrete pad in front of the 277-T Building, and four are identified for the concrete pad at the back of the 277-T Building. Samples will be taken from the node locations indicated by the VSP software and will be assigned sample location identifications and sample numbers using the HEIS database.

#### **Fact Sheet Language:**

##### **4.1.4 Closure Actions for Closure Unit Group 28, 277-T OSA**

Clean closure for the 277-T OSA requires closure performance standards be met for the concrete, underlying soil, and asphalt. For concrete, a site-specific decontamination method will be used and chip sampling will be conducted to verify whether decontamination was successful. For soils, sampling of the soil beneath the concrete pads and asphalt will be conducted. Results from chip and soil samples will be analyzed to ensure closure performance standards are met.

For asphalt, if analytical results from soil sampling below the asphalt meet closure performance standards, it will be assumed the asphalt meets closure performance standards as well. The assumption that the asphalt meets closure performance standards if the underlying soil meets closure performance standards is based on Ecology's professional judgement, and Ecology's walk down on November 11, 2018. Asphalt is porous by nature, but when new or resealed, has the ability to repel water. The condition of the 277-T OSA asphalt is:

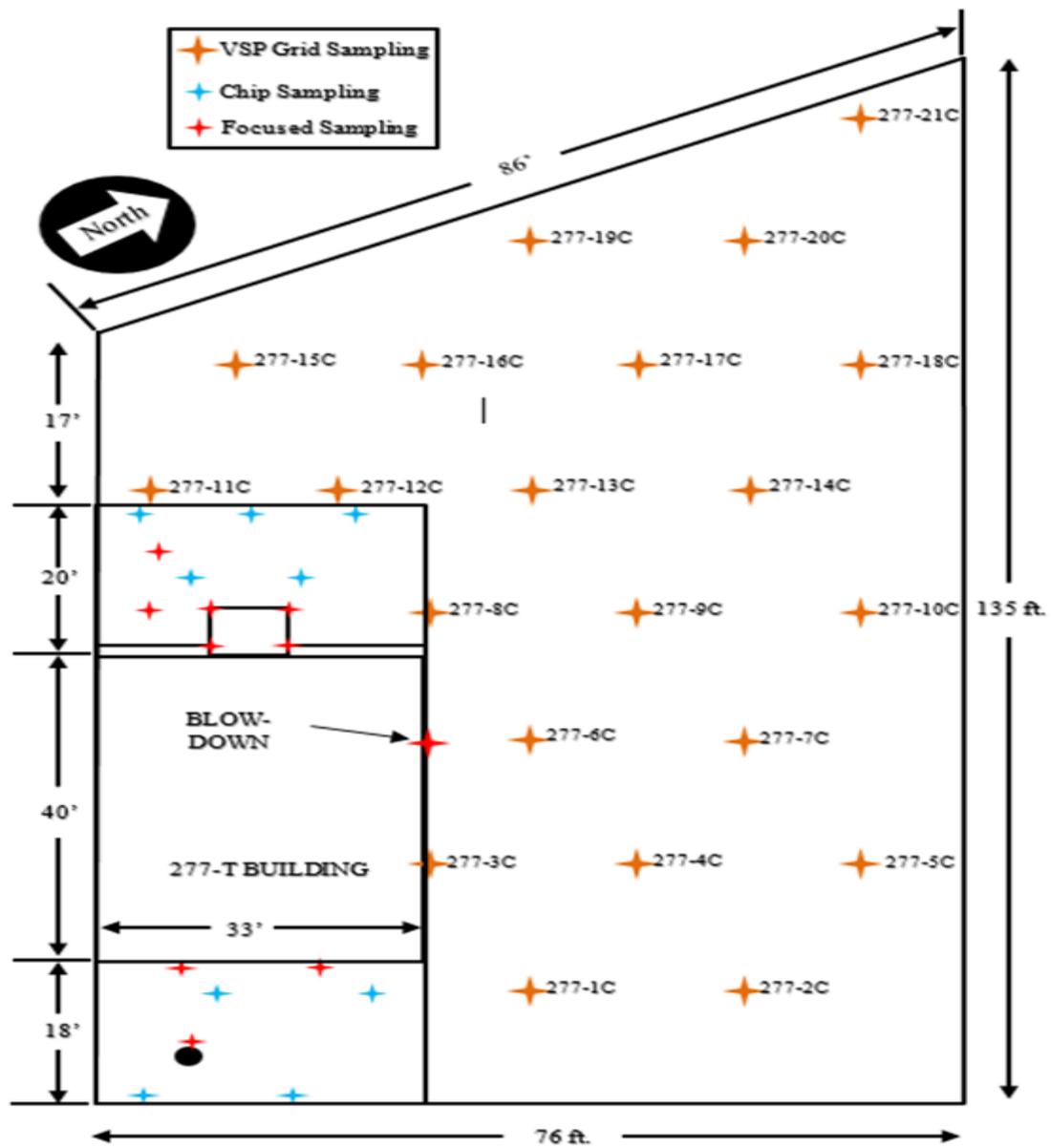
- Weathered and faded with little visible tar-like binding material;
- Does not visibly repel water (i.e., most of the surface absorbs water and remains wet for some time after rain events); and
- The surface is visibly broken and rough (i.e., looks more like gravel than asphalt).

This is an indication of high porosity and loss of the organic material that binds asphalt and aggregate together. For these reasons, it can be inferred that any contamination on the asphalt surface would have migrated to the underlying soil. If the underlying soil meets closure performance standards, Ecology will consider the asphalt to have met closure performance standards as well.

Ecology and the Permittees are in agreement on the twenty-one statistical grid soil samples. However, Ecology and the Permittees were unable to come to agreement on the number and location of samples to verify clean closure standards are met for the concrete pads and soil underlying the

concrete pads. The Permittees originally proposed two soil samples at concrete pad expansion joints, and one soil sample at the steam condensate blowdown drain. Ecology added sampling requirements for the 277-T OSA based on the following:

- Six focused soil samples for the NE (front) concrete pad. Justification – Four focused soil samples were added to the Permittees proposed two samples, (for a total of six), based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018. Ecology chose two sampling locations where at least two expansion joints intersected, and two areas where piping penetrated the surface of the concrete pad to the soil below. These areas are considered to have the highest potential for contamination to migrate to the soil beneath the concrete pad. Per Ecology Publication #94-111, Section 7.2.2, *“Focused sampling should be conducted in addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.”* Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.
- Three focused soil samples for the SW (back) concrete pad. Justification – Three focused soil samples were added based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete pad where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.
- Steam condensate blowdown drain line: The Permittees originally proposed a focused soil sample at the steam condensate drain line. Based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018, Ecology agrees with this sampling location. Any waste from the 277-T Building sump would have drained through this line, which is in direct contact with the soil.
- Five non-statistical grid concrete chip samples for the NE pad and four non-statistical grid concrete chip samples for the SW pad. Justification – A total of nine non-statistical grid concrete chip samples were added based on Ecology’s professional judgement, as an evaluation criterion for determining effectiveness of the proposed site-specific decontamination method per Ecology Publication #94-111, Section 5.6.1, *“If high-pressure steam or water washing is used, the site-specific decontamination performance standard might involve comparing concrete chip samples with MTCA unrestricted site use cleanup levels.”* The use of non-statistical grid sampling was determined to be the least biased method for determining if the closure performance standards were achieved. The number of samples was based on the pads being uncoated and the uncertainty of whether the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present. The number of samples was also based on the current physical condition of each pad, the size of each pad [the NE (front) pad is approximately 660 square feet, and the SW (back) pad is approximately 594 square feet], and for achieving equal representation of the entire area of each pad. A random start was chosen to eliminate bias associated with selecting sampling locations.



**277-T Outdoor Storage Area Sampling Locations**

## Meeting Notes:

**Focused Sampling:** Front concrete pad: Four samples at corners of square seam/joint in pad considered (points of entry for contamination). One sample closer to the 277-T Building (see photograph P1070132) where rusted pipe penetrated concrete (point of entry). One sample further away from 277-T Building where piping penetrated concrete (point of entry) (see photograph P1070131). Back concrete pad: One sample at manhole (point of entry) (see photograph P1070137); two samples at edge of concrete and 277-T building interface are low point samples as the pad slopes toward the building. Blowdown drain: One sample at where the drain line enters the vitreous clay pipe (see photographs P1070134, P1070135). Any contamination from the 277-T Building would have drained from the 277-T Building sump through the blowdown drain line and into the vitreous clay pipe.

**Non-Statistical Grid Concrete Samples:** Concrete chip sampling and focused sampling are independent of each other. The number of concrete chip samples were chosen based on items listed in fact sheet. All sample results will be directly compared to identified cleanup levels.

**Statistical Grid Asphalt Soil Samples:** Ecology agrees with Permittees proposed statistical sampling of soil below the asphalt area, and agrees on twenty-one samples. Asphalt is considered degraded (as described in the fact sheet), and comparable to gravel. If sampling results are at or below closure performance standards, the asphalt area will be considered clean. This determination is site specific to the 277-T OSA asphalt area, and is based on Ecology's professional judgement on the condition of the asphalt.

**Important Note:** All of this should be under the umbrella idea that they have a court order to do this (EPA CAFO) and AO issued by Ecology.

## Appendix A: Copies of All Public Notices

Public notices for this comment period:

- Focus sheet
- Classified notice in the Tri-City Herald
- Notices sent to the Hanford-Info email list
- Notices posted on Washington Department of Ecology – Hanford’s Facebook and Twitter pages

# Closure Units at T-Plant & Central Waste Complex



## Public comment period

**June 8, 2020 to July 24, 2020**

Please submit comments

Electronically (preferred) via:

<http://wt.ecology.commentinpu.com/?id=Pus9r>

By U.S. Mail or hand-delivery:

Daina McFadden  
3100 Port of Benton Blvd  
Richland WA 99354

Public hearing

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden  
509-372-7950

[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

Special accommodations

To request an ADA accommodation, contact Ecology by phone at 509-372-7950 or email at

[Daina.McFadden@ecy.wa.gov](mailto:Daina.McFadden@ecy.wa.gov),

or visit

[ecology.wa.gov/accessibility](http://ecology.wa.gov/accessibility).

For Relay Service or TTY call 711 or 877-833-6341.

## Public comment invited

The Washington State Department of Ecology (Ecology) is proposing a modification to the *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (Site-wide Permit). This modification affects units at the T Plant and the Central Waste Complex (CWC).

T Plant and CWC are owned and operated by the U.S. Department of Energy (USDOE) and co-operated by CH2M HILL Plateau Remediation Company (Permittees).

The proposed modification is to close the seven container storage areas listed below. The units are going into the Site-wide Permit Part V, as Closure Unit Groups. More detailed descriptions of these areas (units) are provided on page 3.

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

## Consent Agreement and Final Order for Closure of Solid Waste Operations Complex Units

On June 26, 2013, USDOE and the U.S. Environmental Protection Agency signed a [Consent Agreement and Final Order](#), Docket No. RCRA-10-2013-0113 (CAFO). The CAFO outlines steps the Permittees must take to satisfy violations that were found during inspections of the Solid Waste Operations Complex (SWOC) in 2012.

One of the steps is to close parts of the SWOC that are not in use or were never authorized for use. To meet this CAFO step, USDOE submitted a Class 3 permit modification request in October 2013 to close several inactive dangerous waste management units at the SWOC.

The 2013 permit modification request included the nine units identified in the CAFO and five units not in the CAFO. The nine CAFO units are located at T Plant, CWC, and the Low-Level Burial Grounds (LLBG) Trenches 31 and 34. The five non-CAFO units are located at T Plant.

Fifty-three public comments were received during USDOE’s public comment period for the 2013 permit modification request. On July 30, 2015, Ecology issued a Response to Comments (Publication no. 15-05-010). This Response to Comments was issued with the draft permit modification adding Closure Unit Group 4, FS-1 Outdoor Container Storage Area, to the Site-wide Permit. The FS-1 Outdoor Container Storage Area CAFO unit was closed in 2016.

The seven units in this current proposed permit modification have not stored waste since November 2010. The Permittees plan to clean close these units. They have already removed all waste, reviewed records, and visually inspected the units. Ecology has also completed a visual inspection of the units. Future storage of dangerous or mixed waste is not authorized.

The remaining six units awaiting closure are at the T-Plant and CWC. Ecology will hold 45-day comment periods for adding the remaining units to the Site-wide Permit over the next few years.

**Why cleanup matters**

Ecology works to make sure Hanford’s cleanup follows our state’s regulations to protect the air, land, water, and citizens. It is important that only areas authorized by the Hanford Site-wide Permit are allowed to store waste. Areas that have been used without authorization need to be closed. This permit modification would add seven units to the permit in preparation for closure.

**Reviewing the proposed modifications**

Ecology invites the public to review and comment on the proposed permit modification. See page 1 for comment period dates and information on how to submit comments.

Copies of the proposed closure plans and supporting documentation will be available during the public comment period online at Ecology’s website at <https://www.ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods>. The documents will also be available at the Hanford Public Information Repositories listed on page 4.

**T-Plant and CWC**



*Hanford area map*

## Description of T-Plant & CWC units to be closed



### Closure Unit Group 27, 277-T Building (non-CAFO)

The 277-T Building is a pre-engineered, steel structure on an uncoated concrete slab on grade foundation. It is approximately 33 feet wide by 39 feet long by 23 feet high. It serves as equipment and material storage to support T-Plant operations. The 277-T Building stored one container of mixed waste with a total volume of 35 cubic yards.



### Closure Unit Group 28, 277-T Outdoor Storage Area (CAFO)

The 277-T Outdoor Storage Area consists of two uncoated concrete pads and an asphalt area surrounding the 277-T Building. It is 95 feet on the south side by 86 feet on the west side by 135 feet on the north side by 76 feet on the east side. The area was previously used for storing containers of various sizes and volumes, and a variety of waste streams, to ensure adequate capacity and operational flexibility to support T Plant activities. The 277-T Outdoor Storage Area may have been used to manage dangerous and mixed waste in a central accumulation area or satellite accumulation area.



### Closure Unit Group 29, 271-T Cage (CAFO)

The 271-T Cage is an uncoated concrete slab approximately 20 feet long by 10 feet wide. It is defined on the south side by the 271-T Building and the remaining three sides by metal chain-link fencing covered with a corrugated metal roof. The 271-T Cage may have been used to manage dangerous and mixed waste in a central accumulation area or satellite accumulation area.



### Closure Unit Group 30, 211-T Pad (CAFO)

The 211-T Pad is a curbed, uncoated concrete pad approximately 59 feet long by 20 feet wide. It was primarily used as secondary containment for tanker trucks performing non-waste chemical transfers. Containerized dangerous and mixed waste was also stored on the 211-T Pad.



### Closure Unit Group 37, 221-T Sand Filter Pad (CAFO)

The 221-T Sand Filter Pad is an uncovered gravel area approximately 180 feet long by 60 feet wide. It was previously used for storing containers of various sizes and volumes, and a variety of waste streams, to ensure adequate capacity and operational flexibility to support T Plant activities. It was used to manage dangerous and mixed waste in a central accumulation area or satellite accumulation area.



### Closure Unit Group 39, 2401-W Waste Storage Building (CAFO)

The 2401-W Waste Storage Building is a pre-engineered steel structure approximately 50 feet wide by 80 feet long by 20 feet high. It is located on the south end of the CWC. The foundation is integrated into a perimeter concrete curb and the floors are coated with an epoxy resin. The 2401-W Waste Storage Building stored 318 containers of dangerous and mixed waste with a total volume of 266 cubic yards.



### Closure Unit Group 41, 221-T Railroad Cut (non-CAFO)

The 221-T Railroad Cut is an uncovered gravel area with railroad tracks. It is approximately 309 feet long by 50 feet wide at the fence and 33 feet wide at the 221-T Railroad Tunnel end. It was used to store mixed waste in a central accumulation area or satellite accumulation area while awaiting transfer into or out of the 221-T Railroad Tunnel.



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

Nuclear Waste Program  
3100 Port of Benton Blvd  
Richland, WA 99354

### **Hanford's Information Repositories and Document Review Locations**

Ecology Nuclear Waste Program  
Resource Center  
3100 Port of Benton Blvd.  
Richland, WA 99354  
509-372-7950

U.S. Department of Energy  
Administrative Record  
2440 Stevens Drive, Room 1101  
Richland, WA 99354  
509-376-2530

Washington State University Tri-Cities  
Department of Energy Reading Room  
2770 Crimson Way, Room 101L  
Richland, WA 99354  
509-375-7443

University of Washington  
Suzzallo Library  
P.O. Box 352900  
Seattle, WA 98195  
206-543-5597

Gonzaga University  
Foley Center  
502 E Boone Avenue  
Spokane, WA 99258  
509-313-6110

Portland State University  
Millar Library  
1875 SW Park Avenue  
Portland, OR 97207  
503-725-4542

classifieds

585-SELL tricityherald.com

JUST IN!

Find a sampling of today's new ads and bargains galore in the Classified section. Have your ad appear in just 101 by calling 585-SELL!

WINDOW WASHING Call for free estimate. Columbia Basin Cleaning 509-851-0235

Have your ad appear in Just In! by calling 585-SELL!

Real Estate

Homes for Rent Richland Beautiful South Richland Home in the Orchards For rent. 4 bed, 2 1/2 bath, great shape, large bonus room, fenced yard, pets okay. \$2,100.00 509-460-2079 d2b@charter.net

Apartments/Condos for Rent

Kennewick Spacious 1 and 2 bedroom apartment homes. GREAT LEASE SPECIALS Call us or stop by for a tour of our community!!! 100 N. Irving Place, Kenn or 509-783-0800

Comm. Real Estate for Rent

Richland office spaces for lease. 200 400 sq. ft. Convenient Geo Wa Way location. Walking distance to restaurants banks post office river. Utilities pd. Ample parking. 509-851-4451 cdfrenzel509@gmail.com

Employment

General Business



Security Police Officer Mission Support Alliance, the prime contractor to the Department of Energy (DOE) at the Hanford Nuclear Site, is accepting applications for Hanford Patrol's Security Police Officers (SPO's). This posting will establish a candidate list for future positions with the department. SPO's are uniformed and federally commissioned officers whose mission is to protect special nuclear material facilities, government property, and personnel employed by or contracted to the DOE. Interested applicants are encouraged to visit: https://bms.hanford.gov/HRIS/JOB/JobOpp.aspx?BU=MSC job # 33317 to obtain requirements and submit applications. The deadline to apply is Thursday, June 18, 2020. EEOE/Females/Minorities/Veterans/Disabled. VEVRAA Federal Contractor

Transportation

1 Position open for truck drivers class A for local area, (Tri-Cities). Only serious inquires please Call 492-1021

Merchandise

Building Materials

Contractors scaffolding, six sec tions, used only once \$1000 /offer. 509.956.8570

Bargains under \$200

die cast 71 plymonth hemi cuda 1/24 new \$20.00 509-392-1761,

die cast 71 dodge challenger hemi r/t 1/24 \$20.00 509-392-1761,

die cast 71 plymonth cuda 383 1/24 \$20.00 509-392-1761,

die cast 32 ford roadstr street rod 1/18 new 509-392-1761,

RHS hand-made wooden plaque from old Girls Gym floor \$125 5094300185

JUMBLE

Answer: IMPAIR AWHILE FIDDLE THROAT SPORTY ORNERY The poker player had never gone "all in" before but was now ready to - TRY HIS HAND AT IT

See Jumble in back of classifieds

Funeral Services

Cemetery Lots

Cemetery Lots, Sunset Memorial Gardens, 509-222-9225

PUBLISHERS NOTICE:

All real estate advertising in this newspaper is subject to the Fair Housing Act which makes it illegal to advertise "any preference, limitation or discrimination based on race, color, religion, sex, handicap, familial status or national origin, or an intention, to make any such preference, limitation or discrimination." Familial status includes children under the age of 18 living with parents or legal custodians, pregnant women and people securing custody of children under 18.

This newspaper will not knowingly accept any advertising for real estate which is in violation of the law. Our readers are hereby informed that all dwellings advertised in this newspaper are available on an equal opportunity basis. To complain of discrimination, call HUD toll-free at 1-800-669-9777. The toll-free number for the hearing impaired is 1-800-927-9275.



AutoZone DISTRIBUTION CENTER IN PASCO, WASHINGTON Do you have warehouse experience and currently looking for work? AutoZone Distribution Center is now conducting virtual interviews! To apply for this position and to view the complete job posting, please visit our website at http://www.autozone.com/careers. Part time and Full Time Options available. Equal Employment Opportunity Employer

CLASSIFIED LEGALS

Legals

Legals & Public Notices

City of Benton City Notice of Application Optional DNS Process

NOTICE IS HEREBY GIVEN that there has been proposed to the City of Benton City, an application received on May 22, 2020 for fueling station by Just A Minute Mart, located at 712 9th Street, Benton City, WA.

NOTICE IS FURTHER GIVEN that the City will review said application and a public hearing is scheduled for Wednesday, June 24th, 2020 at 6:00pm with the Planning Commission. Due to the Governor's "Stay Home Order" and Proclamation 20-28 and extensions thereof regarding Open Public Meetings, the Public Hearing will be held via video conferencing. Please go to City of Benton City's website to obtain information on how to participate in the Public Hearing (www.ci.benton-city.wa.us). If you need further help, please contact City Hall at (509)588-3322.

NOTICE IS GIVEN that said proposal will be reviewed under the requirements of the State Environmental Policy Act. The City of Benton City expects to issue a Determination of Non-Significance (DNS). A copy of the subsequent threshold determination for this proposal may be obtained from the City of Benton City.

NOTICE IS GIVEN that all concerned persons will have fourteen (14) days from the date of publication of this notice to comment in writing on this action. This comment period may be the only opportunity to comment on the environmental impacts of this proposal. Comments should be submitted to the City of Benton City, P.O. Box 70, Benton City, WA 99320. Any information submitted to Benton City is subject to the public records disclosure law for the State of Washington (RCW Chapter 42.17) and all other applicable law that may require the release of the documents to the public.

More information concerning this action can be obtained by contacting the City of Benton City, P.O. Box 70, Benton City, WA, or by calling (509) 588-3322.

Dated at Benton City, Washington on this 4th day of June, 2020. Tiffany Coffland, City Clerk/Treasurer PUBLISH ON: June 7, 2020

City of Benton City Notice of Application Optional DNS Process

NOTICE IS HEREBY GIVEN that there has been proposed to the City of Benton City, an application received on May 22, 2020 for fueling station by Just A Minute Mart, located at 712 9th Street, Benton City, WA.

NOTICE IS FURTHER GIVEN that the City will review said application and a public hearing is scheduled for Wednesday, June 24th, 2020 at 6:00pm with the Planning Commission. Due to the Governor's "Stay Home Order" and Proclamation 20-28 and extensions thereof regarding Open Public Meetings, the Public Hearing will be held via video conferencing. Please go to City of Benton City's website to obtain information on how to participate in the Public Hearing (www.ci.benton-city.wa.us). If you need further help, please contact City Hall at (509)588-3322.

NOTICE IS GIVEN that said proposal will be reviewed under the requirements of the State Environmental Policy Act. The City of Benton City expects to issue a Mitigated Determination of Non-Significance (DNS). A copy of the subsequent threshold determination for this proposal may be obtained from the City of Benton City.

NOTICE IS GIVEN that all concerned persons will have fourteen (14) days from the date of publication of this notice to comment in writing on this action. This comment period may be the only opportunity to comment on the environmental impacts of this proposal. Comments should be submitted to the City of Benton City, P.O. Box 70, Benton City, WA 99320. Any information submitted to Benton City is subject to the public records disclosure law for the State of Washington (RCW Chapter 42.17) and all other applicable law that may require the release of the documents to the public.

More information concerning this action can be obtained by contacting the City of Benton City, P.O. Box 70, Benton City, WA, or by calling (509) 588-3322. Dated at Benton City, Washington on this 4th day of June, 2020. Tiffany L. Coffland, City Clerk/Treasurer PUBLISH ON: June 7, 2020

Legals & Public Notices

CITY OF PASCO NOTICE OF PUBLIC HEARING

PLEASE TAKE NOTICE that the City Council of the City of Pasco will hold a Public Hearing on June 15, 2020 at 7:00 p.m., during the remote Council Meeting via GoToWebinar, to amend the Six Year Transportation Improvement Plan. To speak during this public hearing, go to www.pasco-wa.gov/public comment. Please sign up on or before 4:00 PM on June 15, 2020. Debby Barham City Clerk

CITY OF RICHLAND CALL FOR BIDS

Bid No. ITB 20-0021 - Power Transformer (New) BIDS DUE: July 13, 2020, 11:00 a.m., EXACTLY, Pacific Local Time

Public notice is hereby given that the City of Richland, Washington has issued the above-mentioned invitation for bids for the purchase a new, one (1), three phase, three winding, outdoor, station type, oil-immersed, load-tap-changer power transformer. Complete bid documents and specifications are available at www.publicpurchase.com on the City of Richland's designated webpage. Contact Public Purchase directly if unable to access documents online at support@publicpurchase.com. Online Chat is available from 7:00 a.m. to 4:00 p.m. MT at www.publicpurchase.com top left corner. If unable to reach Public Purchase, contact the City Purchasing Division at 509-942-7710. The City of Richland in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d and Title 49, Code of Federal Regulations, Department of Transportation, subtitle A, Office of the Secretary, Part 21, nondiscrimination in federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR Part 26 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

Bidders who are Minority-owned and Women-owned Business Enterprises or Section 3 Business Enterprises are encouraged to submit bids. Published: Sunday, June 7, 2020 Tri-City Herald Cathleen Koch Administrative Services Department

CITY OF RICHLAND NOTICE OF PUBLIC HEARING

The Richland City Council will conduct a virtual public hearing on Tuesday, June 16, 2020 at or after 6:00 p.m. to receive comments on proposed vacations of portions of Brantingham Road. Comments may be mailed to the City of Richland c/o Sabrina Melendrez, 625 Swift Blvd., MS-26, Richland, WA 99352, or emailed to smelendrez@ci.richland.wa.us. All comments must be received by 4:00 p.m. on the meeting date identified above. For additional information, please contact Sabrina Melendrez at smelendrez@ci.richland.wa.us or 509-942-7500. Published: Sunday, June 7, 2020

CITY OF RICHLAND NOTICE OF PUBLIC HEARING

The Richland City Council will conduct a virtual public hearing on Tuesday, June 16, 2020 at or after 6:00 p.m. to receive comments on Proposed Resolution 85-20, adopting the 2021-2026 Transportation Improvement Program. Comments may be mailed to the City of Richland c/o Sabrina Melendrez, 625 Swift Blvd., MS-26, Richland, WA 99352, or emailed to smelendrez@ci.richland.wa.us. All comments must be received by 4:00 p.m. on the meeting date identified above. For additional information, please contact Sabrina Melendrez at smelendrez@ci.richland.wa.us or 509-942-7500. Published: Sunday, June 7, 2020

CITY OF RICHLAND, WASHINGTON CALL FOR BIDS

CONTRACT: 20-0056 2020 RFB-CDBG PROJECT BIDS DUE: MONDAY JUNE 22, 2020, 2:00 PM, EXACTLY, PACIFIC LOCAL TIME

Public notice is hereby given that sealed bids will be received for the City of Richland's 2020 Rectangular Rapid Flash Beacons (RRFB) - CDBG Project by the City of Richland Purchasing Division at Richland's City Hall, 625 Swift Boulevard, until the date and time specified above, at which time bids will be opened and read publicly. This project includes the construction of two pedestrian activated rectangular rapid flash beacon crossings, concrete sidewalk, ADA ramps, site restoration, and other incidental work.

Full notice and complete details of the solicitation are available from www.PublicPurchase.com. There is no charge to register, receive notifications or view and download the documents. Visit the City of Richland website at www.ci.richland.wa.us under Departments/Administrative Services/Purchasing/PublicPurchase for information on how to register.

The City of Richland in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d and Title 49, Code of Federal Regulations, Department of Transportation, subtitle A, Office of the Secretary, Part 21, nondiscrimination in federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR Part 26 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

CITY OF WEST RICHLAND BOMBING RANGE RD / KEENE RD INTERSECTION MODIFICATIONS STPLU-9903(021) REQUEST FOR QUALIFICATIONS

The City of West Richland is soliciting a Letter of Interest and Statement of Qualification from consulting engineering firms interested in providing professional municipal engineering services for the following project: Bombing Range Rd / Keene Rd Intersection Modification Project. The following expertise and experience will be required: Conducting intersection analysis; preparing

Do-it-yourself classified ads

Save time and money. Go to www.tricityherald.com, click on Classifieds and follow the user-friendly steps to place your ad.



VOICE OF THE MID-COLUMBIA

Legals & Public Notices

nd.org or by calling (509)967-5434. Title VI Statement

The City of West Richland in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, subtitle A, Office of the Secretary, Part 21, nondiscrimination in federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR Part 26 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin or sex in consideration for an award. The City of West Richland is an equal opportunity employer. Qualified disadvantaged, minority, and women-owned consultants are encouraged to respond. Dates of Publication: June 7, 2020 and June 14, 2020.

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON IN AND FOR THE COUNTY OF BENTON

In the Matter of the Estate of: LEANNE KAY DICKINSON, Deceased. NO. 19-4-00367-03 NOTICE OF HEARING ON PETITION FOR ORDER DETERMINING UNASCERTAINABLE CREDITORS AND TERMINATING RIGHTS

RCW 11.40.96A.110 NOTICE IS HEREBY GIVEN THAT MICHELLE COLLEY, as personal representative of the above-named Estate, has filed in the office of the clerk of the above court the Petition for Order Determining Unascertainable Creditors and Terminating Rights (the "Petition").

The Petition will be heard on WEDNESDAY, JULY 01, 2020, at 1:30pm, in the courtroom of the Probate Department of the above court, at which time and place any person interested in the estate may appear and file objections to and contest the Petition. Date of Second Publication: 06/05/2020 /s/ Michelle Colley, Personal Representative Address for Mailing and Service: 537 Lakeroser Loop Richland, WA 99352 Attorney for Personal Representative: ALBERT COKE ROTH, III, ESQ. LAW OFFICE OF COKE ROTH Address for Mailing and Service: 8836 GAGE BLVD ~ SUITE 204A KENNEWICK, WA 99336 Benton County Superior Court Cause No: 19-4-00367-03

PLANNING COMMISSION MEETING NOTICE

NOTICE IS HEREBY GIVEN THAT THE BENTON CITY PLANNING COMMISSION OF THE CITY OF BENTON CITY, WASHINGTON HAS SCHEDULED A MEETING FOR WEDNESDAY, June 24th, 2020 AT 6:00 PM. DUE TO THE GOVERNOR'S "STAY HOME ORDER" AND PROCLAMATION 20-28 AND EXTENSIONS THEREOF REGARDING OPEN PUBLIC MEETINGS, THE PUBLIC HEARING WILL BE HELD VIA VIDEO CONFERRING. PLEASE GO TO CITY OF BENTON CITY'S WEBSITE TO OBTAIN INFORMATION ON HOW TO PARTICIPATE IN THE PUBLIC HEARING (WWW.CI.BENTON-CITY.WA.US). IF YOU NEED FURTHER HELP, PLEASE CONTACT THE CITY HALL CLERK AT (509)588-3322.

THE FIRST PURPOSE OF THE MEETING IS TO REVIEW A PRELIMINARY PLAT APPLICATION AND OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) FOR MOUNTAIN VIEW MEADOWS PHASE 2, LOCATED NORTH OF KENDAL ROAD AND WEST OF 13TH STREET, BENTON CITY, WASHINGTON THE SECOND PURPOSE OF THE MEETING IS TO REVIEW CONDITIONAL USE PERMIT APPLICATION FOR ADDITION OF ONE 20,000 GALLON TANK AND 2 PUMP STATIONS TO EXISTING GAS STATION. THE TANK WILL SERVICE NEW PUMPS WITH ON-ROAD DIESEL, OFF-ROAD DIESEL, AND NON-ETHANOL GASOLINE AND A MITIGATED DETERMINATION OF NON-SIGNIFICANCE (DNS) FOR JUST A MINUTE MART LOCATED AT 712 9TH ST, BENTON CITY, WASHINGTON FOR MORE INFORMATION ON THIS MEETING, PLEASE CONTACT CITY HALL, 509-588-3322, OR VISIT THE CITY'S WEBSITE WWW.CI.BENTON-CITY.WA.US /s/ Tiffany L. Coffland City Clerk-Treasurer

Please be advised the Educational Service District has completed the budget of the Operating Fund for Fiscal Year 2020-2021, and placed the same on file in the administration office and that a copy thereof will be furnished to any person who might call upon the district for it and that the ESD Board will meet for the purpose of fixing and

Legals & Public Notices

adopting the budget on June 25, 2020 at 3:30 pm at the Educational Service District 123, 3924 W. Court St, Pasco, Washington. Any person may attend and be heard for or against any part of such budget.

PORT OF BENTON NOTICE OF COMMISSION MEETING

PUBLIC NOTICE IS HEREBY GIVEN that the regularly scheduled Commission Meeting of the Port of Benton for the month of June will be held June 10, 2020 at 8:30 a.m. The Commission Meeting will be live broadcast using Zoom and will also be made available using a telephone conference call-in line. The link to access this broadcast via Zoom, as well as the call-in number to participate via telephone, will be made available on the morning of the meeting on the Port of Benton's website at the link below, along with the meeting agenda, and minutes from the past meetings: Live broadcast information: http://www.PortofBenton.com Pursuant to Governor Inslee's Proclamation 20-28.4, a Proclamation By The Governor Amending And Extending Proclamations 20-05, 20-28, 20-28.1, 20-28.2, and 20-28.3 as they relate to the Open Public Meetings Act and Public Records Act, members of the public will not be able to attend the regularly scheduled Commission Meeting of the Port of Benton in person. Dated at Richland, Washington, this 4th day of June 2020. /s/ Roy D. Keck Commission Secretary

Public comment period for the Closure Units at T Plant Complex & Central Waste Complex

The Washington State Department of Ecology (Ecology) is proposing a modification to the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Site-wide Permit). This modification affects units at the T Plant Complex and the Central Waste Complex (CWC). T Plant Complex and CWC are owned and operated by the U.S. Department of Energy (USDOE) and co-operated by CH2M HILL Plateau Remediation Company (Permittees).

The proposed modification is to close seven container storage areas. The units are going into the Site-wide Permit Part V, as Closure Unit Groups. Consent Agreement and Final Order for Closure of Solid Waste Operations Complex Units On June 26, 2013, USDOE and the U.S. Environmental Protection Agency signed a Consent Agreement and Final Order, Docket No. RCRA-10-2013-0113 (CAFO). The CAFO outlines steps the Permittees must take to satisfy violations that were found during inspections of the Solid Waste Operations Complex (SWOC) in 2012. One of the steps is to close parts of the SWOC that are not in use or never authorized for use. To meet this CAFO requirement, USDOE submitted a Class 3 permit modification request in October 2013 to close several inactive dangerous waste management units at the SWOC.

The 2013 permit modification request included the nine units identified in the CAFO and five units not in the CAFO (Non-CAFO). The nine CAFO units are located at the T Plant Complex, CWC, and the Low-Level Burial Grounds (LLBG) Trenches 31 and 34. The five Non-CAFO units are located at the T Plant Complex. Fifty-three public comments were received during USDOE's public comment period for the 2013 permit modification request. On July 30, 2015, Ecology issued a Response to Comments (Publication no. 15-05-010). This Response to Comments was issued with the draft permit modification adding Closure Unit Group 4, FS-1 Outdoor Container Storage Area, to the Site-wide Permit. The FS-1 Outdoor Container Storage Area CAFO unit was certified clean closed and removed from the Site-wide Permit in 2016.

The seven units in this current proposed permit modification have not stored waste since November 2010. The Permittees plan to clean close these units. They have already removed all waste, reviewed records, and visually inspected the units. Ecology has also completed a visual inspection of the units. Future storage of dangerous or mixed waste is not authorized. The remaining six CAFO and Non-CAFO units awaiting closure are at the T-Plant Complex and CWC. Ecology will hold 45-day comment periods for adding the remaining units to the Site-wide Permit over the next few years. Reviewing the proposed modifications Ecology invites the public to review and comment on the proposed permit modification. See below for comment period dates and information on how to submit comments. Copies of the proposed closure plans and supporting documentation will be

Legals & Public Notices

available during the public comment period online at Ecology's website at https://www.ecology.wa.gov/Waste-Toxic s/Nuclear-waste/Public-comment-period

Public comment period - June 8, 2020 to July 24, 2020 Please submit comments electronically (preferred) via: http://wt.ecology.com/entinput.com/?id=Pub9r By U.S. Mail or hand-delivery to Daina McFadden, 3100 Port of Benton Blvd, Richland WA 99354

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact: Daina McFadden at 509-372-7950 or Hanford@ecy.wa.gov To request an ADA accommodation, contact Ecology by phone at 509-372-7950 or email at Daina.McFadden@ecy.wa.gov, or visit ecology.wa.gov/accessibility. For Relay Service or TTY call 711 or 877-833-6341.

PUBLIC HEARING

This notice is hereby given that the City of Benton City has scheduled a Public Hearing on Tuesday, June 16 at 7:00 P.M., or soon thereafter as the matter may be heard. Due to the Governor's "Stay Home Order" and Proclamation 20-28 and extensions thereof regarding Open Public Meetings, the Public Hearing will be held via video conferencing. Please go to City of Benton City's website to obtain information on how to participate in the Public Hearing (www.ci.benton-city.wa.us). If you need further help, please contact City Hall at (509)588-3322.

The purpose of this Public Hearing is to hear public comment on the request to vacate utility easements within Tract 1 and Tract 2 of Einding, Site Plan AF#2011-030005 which will be considered by City Council. All interested parties shall have an opportunity to be heard at such time and place. /s/ Tiffany L. Coffland City Clerk-Treasurer

Notice 2 Creditors

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON IN AND FOR THE COUNTY OF BENTON

IN THE MATTER OF THE ESTATE OF BETTY JEAN ESVELT, Deceased. NO. 20-4-00252-03 (filed June 3, 2020) NONPROBATE NOTICE TO CREDITORS

RCW 11.42.030 The notice agents named below have elected to give notice to creditors of the above-named decedent. As of the date of the filing of a copy of this Notice with the Court, the notice agents have no knowledge of any other person acting as notice agent or of the appointment of a personal representative of the decedent's estate in the State of Washington. According to the records of the Court, as are available on the date of the filing of this Notice with the Court, a cause number regarding the decedent has not been issued to any other notice agent and a personal representative of the decedent's estate has not been appointed.

Any person having a claim against the decedent must, before the time the claim would be barred by any otherwise applicable statute of limitations, present the claim in the manner as provided in RCW 11.42.070 by serving on or mailing to the notice agents or the notice agents' attorney at the address stated below a copy of the claim and filing the original of the claim with the Court. The claim must be presented within the later of: (1) Thirty (30) days after the notice agent served or mailed the notice to the creditors as provided under RCW 11.42.020(2)(c); or (2) four months after the date of first publication of the notice. If the claim is not presented within this time frame, the claim is forever barred, except as otherwise provided in RCW 11.42.050 and 11.42.060. This bar is effective as to claims against both the decedent's probate and nonprobate assets. Date of first publication: June 7, 2020.

The notice agents declare under penalty of perjury under the laws of the State of Washington on May 29, 2020, at Kennewick, WA, that the foregoing is true and correct. Original signed on hard copy by Chad A. Esvelt CHAD ALLEN ESVELT Original signed on hard copy by Wade M. Esvelt WADE MARTIN ESVELT Original signed on hard copy by Craig B. Esvelt CRAIG BENSON ESVELT c/o LARRY W. FAGERNESS Attorney for Notice Agents P. O. Box 88 3508 Galvin Road Centralia, WA 98531 360-736-7400

**From:** [McFadden, Daina \(ECY\)](mailto:McFadden.Daina@ECY)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** 30-day advance notice of upcoming comment period  
**Date:** Friday, November 15, 2019 9:51:45 AM

---

## 30-Day Advance Notice of a public comment period adding Closure Units at T-Plant & Central Waste Complex to the Site-wide Permit

The Washington State Department of Ecology is providing notification of a 45-day public comment period starting mid to late December. This comment period will address changes to the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (Site-wide Permit), for the T-Plant Complex and the Central Waste Complex (CWC). The Permittees are the U.S. Department of Energy and CH2M HILL Plateau Remediation Company. The T-Plant Complex and CWC are located on the Hanford Site in southeastern Washington.

### What Changes are Being Proposed?

The proposed modification adds the seven closure unit groups listed below to Part V of the Site-wide Permit. The units are container storage areas undergoing closure.

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### Public Hearing

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden

[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

509-372-7950

---

Ecology logo



Visit us on the [web](#) and follow our [news and social media](#).

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** 30-day notice of upcoming comment period  
**Date:** Friday, March 13, 2020 11:46:55 AM

---

## 30-Day Advance Notice of a public comment period adding Closure Units at T-Plant & Central Waste Complex to the Site-wide Permit

The Washington State Department of Ecology is providing notification of a 45-day public comment period starting mid to late April. This comment period will address changes to the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (Site-wide Permit), for the T-Plant Complex and the Central Waste Complex (CWC). The Permittees are the U.S. Department of Energy and CH2M HILL Plateau Remediation Company. The

T-Plant Complex and CWC are located on the Hanford Site in southeastern Washington.

### What Changes are Being Proposed?

The proposed modification adds the seven closure unit groups listed below to Part V of the Site-wide Permit. The units are container storage areas undergoing closure.

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### Public Hearing

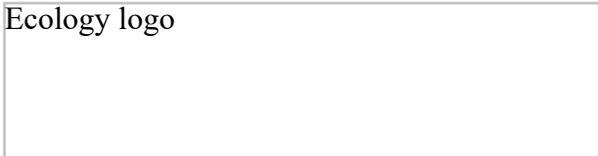
A public hearing is not scheduled, but if there is enough interest, we will consider holding one.

To request a hearing or for more information, contact:

Daina McFadden  
[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)  
509-372-7950

---

Ecology logo

A rectangular box with a thin black border, containing the text "Ecology logo" at the top left. The rest of the box is empty.

Visit us on the [web](#) and follow our [news and social media](#).

[Subscribe](#) or [Unsubscribe](#)

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [hanford-info@listserv.ecology.wa.gov](mailto:hanford-info@listserv.ecology.wa.gov)  
**Subject:** Comment period delayed  
**Date:** Thursday, December 5, 2019 8:22:24 AM

---

## Notice of delay of the public comment period for adding closure units at T-Plant and Central Waste Complex to the Site-wide Permit

The 45-day public comment period that was scheduled to begin in mid to late December is delayed until the **end of February**.

This comment period will address changes to the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (Site-wide Permit), for the T-Plant Complex and the Central Waste Complex (CWC). The Permittees are the U.S. Department of Energy and CH2M HILL Plateau Remediation Company. The T-Plant Complex and CWC are located on the Hanford Site in southeastern Washington.

### What Changes are Being Proposed?

The proposed modification adds the seven closure unit groups listed below to Part V of the Site-wide Permit. The units are container storage areas undergoing closure.

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### Public Hearing

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden  
[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)  
509-372-7950

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** Comment period delayed  
**Date:** Wednesday, March 25, 2020 12:54:24 PM

---

## 30-Day Advance Notice of a public comment period adding Closure Units at T-Plant & Central Waste Complex to the Site-wide Permit - Delayed

Due to the closure of State offices under Governor Inslee's [emergency proclamation](#), the comment period has been delayed. It will now be held mid to late May.

Washington State Department of Ecology is providing notification of a 45-day public comment period. This comment period will address changes to the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (Site-wide Permit), for the T-Plant Complex and the Central Waste Complex (CWC). The Permittees are the U.S. Department of Energy and CH2M HILL Plateau Remediation Company. The T-Plant Complex and CWC are located on the Hanford Site in southeastern Washington.

### What Changes are Being Proposed?

The proposed modification adds the seven closure unit groups listed below to Part V of the Site-wide Permit. The units are container storage areas undergoing closure.

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### Public Hearing

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden  
[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)  
509-372-7950

---

Ecology logo

A rectangular box with a thin black border, intended for an ecology logo. The text "Ecology logo" is positioned at the top left corner of the box.

Visit us on the [web](#) and follow our [news and social media](#).

[Subscribe](#) or [Unsubscribe](#)

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** Public comment period start today for T Plant and CWC closure plans  
**Date:** Monday, June 8, 2020 9:13:32 AM

---

## Closure Units at T Plant and Central Waste Complex Public Comment Period Notification

The Washington State Department of Ecology is providing notification of a 45-day public comment period starting June 8 through July 24, 2020. This comment period will address proposed modifications to the *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*. The Permittees are U.S. Department of Energy (USDOE) and co-operated by CH2M Hill Plateau Remediation Company. The T Plant Complex and Central Waste Complex (CWC) are located on the Hanford Site in southeastern Washington.

### What Changes are Being Proposed?

The proposed modification is to close the seven container storage areas (units) listed below. The units are going into the Site-wide Permit Part V, as Closure Unit Groups. More information on these units is provided on our [public comment period page](#).

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### How to Comment

Ecology invites you to review and comment on this proposed Permit Modification for Closure Units at T Plant Complex and CWC. Copies of the proposed modification are located in the [Administrative Record](#) and [Information Repositories](#). In addition, the proposed modification is online at the Nuclear Waste Program's [public comment page](#). Please submit comments by **July 24, 2020**.

### [Electronic submission](#) (preferred)

Mail, must be postmarked no later than July 24, 2020, or hand-deliver to:

Daina McFadden  
3100 Port of Benton Blvd  
Richland WA 99354

Fax 509-372-7971

### Public Hearing

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden

[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

509-372-7950

---

Ecology logo



Visit us on the [web](#) and follow our [news and social media](#).

[Subscribe](#) or [Unsubscribe](#)

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** T-Plant comment period reopening  
**Date:** Friday, August 21, 2020 9:19:09 AM

---

## 30-Day Advance Notice of a public comment period reopening that adds Closure Units at T-Plant & Central Waste Complex to the Site-wide Permit

Washington State Department of Ecology is reopening the public comment period for an additional 45-days starting in mid to late-September. Ecology decided to reopen this public comment period because we discovered that one of the permit documents was unavailable to the public on our website.

This comment period will address changes to the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (Site-wide Permit), for the T-Plant Complex and the Central Waste Complex (CWC). The Permittees are the U.S. Department of Energy and CH2M HILL Plateau Remediation Company. The T-Plant Complex and CWC are located on the Hanford Site in southeastern Washington.

### What Changes are Being Proposed?

The proposed modification adds the seven closure unit groups listed below to Part V of the Site-wide Permit. The units are container storage areas undergoing closure.

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### Public Hearing

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden  
[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)  
509-372-7950

---

Ecology logo



Visit us on the [web](#) and follow our [news and social media](#).

[Subscribe](#) or [Unsubscribe](#)

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** T-Plant closure plans comment period reopens today!  
**Date:** Monday, September 21, 2020 10:46:35 AM

---

## Public comment period reopening for the Closure Units at T Plant and Central Waste Complex

The Washington State Department of Ecology is reopening the 45-day public comment period starting September 21 through November 4, 2020. Ecology decided to reopen this public comment period because we discovered that one of the permit documents was unavailable to the public on our website.

This comment period will address proposed modifications to the *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*. The Permittees are U.S. Department of Energy (USDOE) and co-operator CH2M Hill Plateau Remediation Company. The T Plant Complex and Central Waste Complex (CWC) are located on the Hanford Site in southeastern Washington.

### What Changes are being proposed?

The proposed modification is to close the seven container storage areas (units) listed below. The units are going into the Site-wide Permit Part V, as Closure Unit Groups. More information on these units is provided on our [public comment period page](#).

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### How to Comment

Ecology invites you to review and comment on this proposed permit modification for Closure Units at T Plant Complex and CWC. The proposed modification is located on our [public comment period page](#). In addition, copies are also available on the [Administrative Record](#) or at the [Information Repositories](#).

Please submit comments by **November 4, 2020**.

[Electronic submission](#) (preferred)

Mail, must be postmarked no later than November 4,2020, or hand-delivered to:  
Daina McFadden  
3100 Port of Benton Blvd  
Richland WA 99354  
Fax 509-372-7971

---

Ecology logo



Visit us on the [web](#) and follow our [news and social media](#).

[Subscribe](#) or [Unsubscribe](#)

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** T-Plant closure plans comment period reopens today!  
**Date:** Monday, September 21, 2020 10:46:35 AM

---

## Public comment period reopening for the Closure Units at T Plant and Central Waste Complex

The Washington State Department of Ecology is reopening the 45-day public comment period starting September 21 through November 4, 2020. Ecology decided to reopen this public comment period because we discovered that one of the permit documents was unavailable to the public on our website.

This comment period will address proposed modifications to the *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*. The Permittees are U.S. Department of Energy (USDOE) and co-operator CH2M Hill Plateau Remediation Company. The T Plant Complex and Central Waste Complex (CWC) are located on the Hanford Site in southeastern Washington.

### What Changes are being proposed?

The proposed modification is to close the seven container storage areas (units) listed below. The units are going into the Site-wide Permit Part V, as Closure Unit Groups. More information on these units is provided on our [public comment period page](#).

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### How to Comment

Ecology invites you to review and comment on this proposed permit modification for Closure Units at T Plant Complex and CWC. The proposed modification is located on our [public comment period page](#). In addition, copies are also available on the [Administrative Record](#) or at the [Information Repositories](#).

Please submit comments by **November 4, 2020**.

[Electronic submission](#) (preferred)

Mail, must be postmarked no later than November 4,2020, or hand-delivered to:  
Daina McFadden  
3100 Port of Benton Blvd  
Richland WA 99354  
Fax 509-372-7971

---

Ecology logo



Visit us on the [web](#) and follow our [news and social media](#).

[Subscribe](#) or [Unsubscribe](#)

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** Public hearing added!  
**Date:** Tuesday, September 29, 2020 4:51:40 PM

---

## Public Hearing date for the Closure Units at T Plant and Central Waste Complex

The Washington state Department of Ecology will hold a virtual public hearing on **Thursday, October 29, 2020** to accept comments on the T Plant and Central Waste Complex (CWC) proposed permit modification.

Ecology has reopened the 45-day public comment period starting September 21 through November 4, 2020. Ecology decided to reopen this public comment period because we discovered that one of the permit documents was unavailable to the public on our website.

This comment period addressed a proposed modification to the *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*. The Permittees are U.S. Department of Energy (USDOE) and co-operator CH2M Hill Plateau Remediation Company. The T Plant Complex and CWC are located on the Hanford Site in southeastern Washington.

### What Changes are being proposed?

The proposed modification is to close the seven container storage areas (units) listed below. The units are going into the Site-wide Permit Part V, as Closure Unit Groups. More information on these units is provided on our [public comment period page](#).

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### Public Hearing

A virtual public hearing is scheduled on **Thursday, October 29, 2020 at 5:30 p.m.**

1. To join the WebEx meeting online ([this link will only be active on the day of the hearing](#)):
2. Go to [T Plant and CWC Closure Plans public hearing](#)
3. Click "Join Now"

*IMPORTANT NOTICE: This WebEx service includes a feature that allows audio and any documents and other materials exchanged or viewed during the session to be recorded. By joining this session, you automatically consent to such recordings. If you do not consent to the recording, discuss your concerns with the meeting host prior to the start of the recording or do not join the session. Please note that any such recordings may be subject to discovery in the event of litigation.*

Join by audio:

1-415-655-0001 or toll free 1-855-929-3239

Access code: 133 279 6726

For more information, contact:

Daina McFadden

[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

509-372-7950

## How to Comment

Ecology invites you to review and comment on this proposed permit modification for Closure Units at T Plant Complex and CWC. The proposed modification is located on our [public comment period page](#). In addition, copies are also available on the [Administrative Record](#) or at the [Information Repositories](#).

Please submit comments by **November 4, 2020**.

[Electronic submission](#) (preferred)

Mail, must be postmarked no later than November 4, 2020, or hand-delivered to:

Daina McFadden

3100 Port of Benton Blvd

Richland WA 99354

Fax 509-372-7971

---

Ecology logo



Visit us on the [web](#) and follow our [news and social media](#).

[Subscribe](#) or [Unsubscribe](#)

**From:** [McFadden, Daina \(ECY\)](#)  
**To:** [HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV](mailto:HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV)  
**Subject:** Public hearing tonight!  
**Date:** Thursday, October 29, 2020 8:14:00 AM

---

## Public Hearing tonight for the Closure Units at T Plant and Central Waste Complex

The Washington state Department of Ecology is holding a virtual public hearing tonight, **Thursday, October 29, 2020 at 5:30 p.m.** to accept comments on the T Plant and Central Waste Complex (CWC) proposed permit modification.

Ecology reopened the 45-day public comment period starting September 21 through November 4, 2020. Ecology reopened this public comment period because we discovered that one of the permit documents was unavailable to the public on our website.

This comment period addresses a proposed modification to the *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*. The Permittees are U.S. Department of Energy (USDOE) and co-operator CH2M Hill Plateau Remediation Company. T Plant and CWC are located on the Hanford Site in southeastern Washington.

### What Changes are being proposed?

The proposed modification is to close the seven container storage areas (units) listed below. The units are going into the Site-wide Permit Part V, as Closure Unit Groups. More information on these units is provided on our [public comment period page](#).

- T Plant 277-T Building, Closure Unit Group 27
- T Plant 277-T Outdoor Storage Area, Closure Unit Group 28
- T Plant 271-T Cage, Closure Unit Group 29
- T Plant 211-T Pad, Closure Unit Group 30
- T Plant 221-T Sand Filter Pad, Closure Unit Group 37
- CWC 2401-W Waste Storage Building, Closure Unit Group 39
- T Plant 221-T Railroad Cut, Closure Unit Group 41

### Public Hearing

A virtual public hearing is scheduled tonight, **Thursday, October 29, 2020 at 5:30 p.m.**

To join the WebEx meeting online:

1. Go to [T Plant and CWC Closure Plans public hearing](#)

2. Click "Join Now"

To join by audio:

3. 1-415-655-0001 or toll free 1-855-929-3239
4. Access code: 133 279 6726

*IMPORTANT NOTICE: This WebEx service includes a feature that allows audio and any documents and other materials exchanged or viewed during the session to be recorded. By joining this session, you automatically consent to such recordings. If you do not consent to the recording, discuss your concerns with the meeting host prior to the start of the recording or do not join the session. Please note that any such recordings may be subject to discovery in the event of litigation.*

For more information, contact:

Daina McFadden

[Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)

509-372-7950

## How to Comment

Ecology invites you to review and comment on this proposed permit modification for Closure Units at T Plant Complex and CWC. The proposed modification is located on our [public comment period page](#). In addition, copies are also available on the [Administrative Record](#) or at the [Information Repositories](#).

Please submit comments by **November 4, 2020**.

[Electronic submission](#) (preferred)

Mail, must be postmarked no later than November 4, 2020, or hand-delivered to:

Daina McFadden

3100 Port of Benton Blvd

Richland WA 99354

Fax 509-372-7971

---

Ecology logo



Visit us on the [web](#) and follow our [news and social media](#).

[Subscribe](#) or [Unsubscribe](#)



### Washington Department of Ecology - Hanford

Published by Ryan Ecology Miller [?] · June 8 at 11:59 AM · 🌐

We're holding a public comment period, starting today, on closure units at T Plant and Central Waste Complex. The comment period runs until July 24. Check out the details, documents, and comment at: <https://ecology.wa.gov/.../Nuclear-was.../Public-comment-periods>.



120

People Reached

5

Engagements

Boost Post



3

1 Share



Like



Comment



Share



Comment as Washington Department of Ecology ...



### Ecology - Hanford @ecyHanford · Jun 8

We're holding a public comment period, starting today, on closure units at T Plant and Central Waste Complex at #Hanford. The comment period runs until July 24. Check out the details, documents, & comment at: [ecology.wa.gov/Waste-Toxics/N...](https://ecology.wa.gov/Waste-Toxics/N...)



@EcologyWA and 5 others



3

5





Washington Department of Ecology - Hanford

1m · 🌐



Calling for all comments! Beginning today, we've reopened a public comment period involving Closure Unit Groups at T Plant and Central Waste Complex at Hanford. You have until Nov. 4 to provide your feedback to us.

Check out the details and get your comments in here: <https://ecology.wa.gov/.../Nuclear.../Public-comment-periods>

# Let's Hear It

Public comment period open now



### Reach More People With This Video



You could reach up to 548 people daily by boosting your video for \$10.

0 People Reached

0 Engagements

Boost Post



Like



Comment

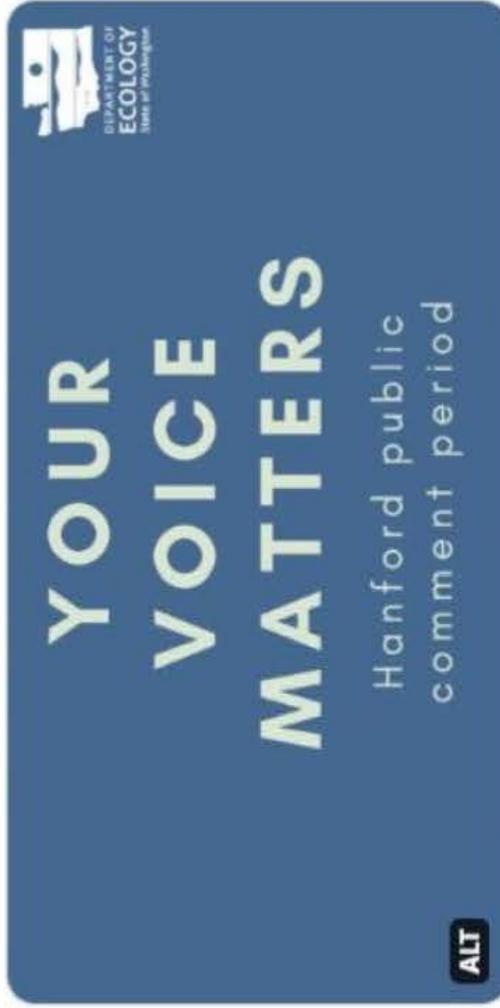


Share



**Ecology - Hanford** @ecyHanford · 2m

We've reopened a public comment period, running today through Nov. 4, involving T Plant at #Hanford. Check out the details and give us your feedback here: [ecology.wa.gov/Waste-Toxics/N...](https://ecology.wa.gov/Waste-Toxics/N...)



ALT

WA Department of Ecology 🌐 and 5 others



## **Appendix B. Transcripts from Public Hearings**

## TRANSCRIPT - PUBLIC HEARING TESTIMONY

Presented and recorded via WebEx at Department of Ecology on Oct. 29, 2020. The informal portion started at 5:30 p.m., followed by the formal hearing procedures starting at 6:13 p.m. to 6:32 p.m. WebEx recording time stamp: 39:33 – 59:07.

**Anne Knapp – Hearing Officer.** “OK. This is Anne again so, we are going to move into the formal hearing section of the meeting. Which, again, we record this section for the public record. And I need to read some information that is required for the record.

I’m Anne Knapp, the hearings officer for this hearing. This evening we are here to conduct a hearing on the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage and Disposal of Dangerous Waste (Site-wide Permit). This modification affects units at the T Plant and Central Waste Complex.

Let the record show its October 29, 2020 at 6:13 PM and this hearing is being held online as a WebEx meeting.

Notices of the hearing were mailed to about 1,152 interested people on the Hanford Interest mailing list and email notices were sent to 1,338 interested people on the Hanford Info Listserv.

For testimony, I will be calling on people to provide their testimony based on the order your name appears in the WebEx Q and A box. Please add your full name and address for the record. We need your contact information so that we can let you know about next steps and when the response to comments is available. If you would like to submit your comments anonymously, you can do so using our online comment form at <http://wt.ecology.commentinput.com/?id=Pus9r>, by mail, or hand delivery. And, this information should rotate through on our hearing slide.

We will periodically unmute the phone line and ask if anyone has any testimony to present.

So, can you tell, Daina, how many Q and As we have waiting?”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “At this point we don’t have any.”

**Anne Knapp – Hearing Officer.** “OK. Um, (unintelligible).”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “Wait, hold on I’ve got one here. Oh, I believe, um, I do have one. I think this was supposed to be for the Question and Answer. He was having some technical difficulties. Duane Carter’s asking, ‘I want Ecology to speak to their professional judgement on closure plans. Who at Ecology has actually closed a site?’”

**Anne Knapp – Hearing Officer.** OK. We have begun the hearing portion so I think the gentleman can ask his question during the hearing and staff cannot respond during the hearing. Um, the answers would be provided, um, in the, um, response to comments. So, as that, does that, will that be all right with you Duane?”

**Duane Carter.** “Am I allowed to talk?”

**Anne Knapp – Hearing Officer.** “We’ll get you to speak during the public testimony, the hearing’s already begun, so, um, you can state your question for the record. Were you unable to ask a question during the Q and A right after Kelly spoke to you?”

**Duane Carter.** “That is correct, I was not.”

**Anne Knapp – Hearing Officer.** “OK. Um, well since we’ve begun the hearing I want to have you put your testimony into the record if you want to do that. And then I would suggest, once we close the hearing, if you have questions for staff, you can contact Kelly with further questions.”

**Duane Carter.** “OK.”

**Anne Knapp – Hearing Officer.** “At the time of hearing, staff can’t respond.”

**Duane Carter.** “I just want it on the record.”

**Anne Knapp – Hearing Officer.** “OK. That’s fine. That’s part of what we’re doing in the hearing is getting questions on the record. So, um, it doesn’t look like we have a huge crowd that wants to testify, so you can either type your testimony into the Q and A box and Daina will read it, again include your full name and address, or indicate in the Q and A box that you want to speak yourself and then Daina will unmute you and allow you so you can submit your testimony personally. And again, once you’re unmuted, state your name and address for the record.

Daina will go through testimonies in the order received, we want to get a good recording, so speak clearly and we will, um, begin taking our testimony. So, Daina?

So, I’m going to ask Daina to recognize anybody in the Q and A chat first who wants to testify and then she will get to folks on the phone. And it takes us a little bit of time to go into the Q and A and then to unmute the phones, so I know she’s doing that right now.”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “Duane? Do you want to formally address your question or do you want me to just read what you’ve typed in? Mr. Carter?”

**Duane Carter.** “Yes, sir – yes, ma’am.” (laughter).

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “I can be either.”

**Duane Carter.** “No, no, no.”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “Did you want um. Did you want to formally ask your question or do you want me to just read your question as you’ve typed it in the Q and A?”

*Time stamp: 47:01 – 48:10*

“Well, it’s a little bit of both. Cause we went through with Ecology and we worked collaboratively to fix and make sure these closure plans were good and this started in 2013 long before I came to DOE. That I’d just like to put on the record that Ecology has not been negotiating in good faith on these and now they want to go and change our closure plans. So, that’s all just put it on the record right there.”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “ok, well thank you very much.”

**Anne Knapp – Hearing Officer.** “And, um, Duane are you comfortable stating your full name and address on the record for us as well please?”

**Duane Carter.** Duane Carter, 302 NE Christy Drive, Hermiston, OR 97838

**Anne Knapp – Hearing Officer.** “Thank you very much. And Daina, do we have anyone else who would like to testify?”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “Um, nope doesn’t look like it there. Let me do the whole phone thing here. Bear with me. We have quite a few callers now, nice.”

**Anne Knapp – Hearing Officer.** “And while Daina is checking, um, the slide again shows you how you can provide comments to us. Through our SmartComments, the public comment page and then by mail. Again we want mail to be postmarked by November 4<sup>th</sup> and online submissions received by November 4<sup>th</sup>.”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “If you’re on the phone I’ve unmuted you. Does anybody on the phone have statements they’d like to make? I had unmuted you. [unintelligible] Not sure what that was. Let’s try that again.”

**Anne Knapp – Hearing Officer.** “And we’re just trying to be patient with folks who might be trying to get to the Q&A or the phone. Because this is a webinar, it takes a little time to figure out technology, so um.”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “So user [unclear], you’re here. Would you like to make a formal statement?”

**Ms. Kroening.** “Yes”

*Time stamp: 50:05 – 52:37*

**Anne Knapp – Hearing Officer.** “And please begin by stating your name and address for the record and we are happy to take your testimony.”

**Ms. Kroening.** “ok, Nancy Kroening, 123 E Calavar Road, Phoenix, AZ 85022

And we are hoping [unintelligible word] that all of these areas and buildings have been thoroughly cleaned up before closing. And I would like to hear either a ‘yes’ or a ‘no.’

**Anne Knapp – Hearing Officer:** “This Anne and I’m your Hearing Officer today. And during the formal portion of the hearing, which is where we are right now, we cannot respond to questions. We’re taking testimony and then answers will be prepared during our response to comments. And that’s one reason we ask for your name and address so that after we’re done with the hearing and after we’ve prepared the responses to comments we can provide that to you. So we’re happy to take testimony – happy to take questions or comments but staff cannot respond during the formal part of the hearing.”

**Ms. Kroening.** “OK. I never seem to get any answers; how do we get the answers?”

**Anne Knapp – Hearing Officer.** “Um, I think you will get answers by virtue of providing some testimony and that’s why we needed your name and address, if you want to be sure we’ve got your accurate name and address I would email Daina, as you can see ‘Questions? Contact Daina McFadden at [Hanford@ecy.wa.gov](mailto:Hanford@ecy.wa.gov)’ and that make sure we have an email address for you so we can send you the response to comments. And that’s how we are going to provide answers for tonight’s hearing. Earlier in the evening we had, um, a presentation by staff, by Kelly, and then we did have some time for Q & A but that was for the informal staff presentation so now, um, we’re just taking comments. Does that help?”

**Ms. Kroening.** OK. I never seem to get answers when I testify, so I’m hoping that this time I will.”

**Anne Knapp – Hearing Officer.** “I hope so too and I think you will.”

**Ms. Kroening.** “Thank you.”

**Anne Knapp – Hearing Officer.** “Thank you. So let’s do another call for comments. Daina do you want to check the chat box and then the phones?”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “Uh, I don’t have anything else in the chat box is anybody on the phones have a statement? I’m not hearing anything.”

**Anne Knapp – Hearing Officer.** “Ok, then I will just remind people we have how to comment, a slide, up on our webinex, and I will also read out how you send the written comments. Again they’re do November 4<sup>th</sup>, 2020, you can submit them electronically which is our preference using our online comment form. If you prefer mail, Department of Ecology, Attention Daina McFadden, 3100 Port of Benton Blvd., Richland, Washington 99354. And I am going to read the online comment form. Again these are long. <http://wt.ecology.commentinput.com/?id=Pus9r> So in closing, all testimony received at this hearing along with all written comments, postmarked no later than November 4<sup>th</sup>, 2020.”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “Anne.”

**Anne Knapp – Hearing Officer.** “Yes”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “I may have one more comment coming in.”

**Anne Knapp – Hearing Officer.** “Great, we will pause for that.”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “I am, I am waiting for a response. I’m still waiting for a response. Let me see if I can unmute her. Laurene can you hear me?”

**Laurene Contrares.** “Yes, can you hear me?”

**Daina McFadden – WebEx Host, Public Involvement Coordinator.** “Yes. Did you want to ask that formally or do you want me to just read what you’ve typed in?”

**Laurene Contrares.** “No, I can ask, I was just trying to unmute it. And it wouldn’t, that’s why I typed the question.”

*Time stamp: 56:06 – 56:25*

**Laurene Contrares.** Good evening my name is Laurene Contrares, my address is 850 Rocky Ford Road, Toppenish, Washington 98948. My, uh comment, or I guess question is: Have the T-Plant areas identified for closure met Section 110 and 106 requirements?"

**Anne Knapp – Hearing Officer.** "And we will again be able to respond to that in our Response to Comments, uh, which people will prepare."

**Anne Knapp – Hearing Officer.** "I'm just going to go over the closing. All testimony received at this hearing, along with all written comments post marked no later than November 4, 2020, and all electronic comments received by November 4, 2020, will be part of our official hearing record for this proposal.

Ecology will prepare a Response to Comments which will, among other things, contain the agency's response to questions and issues of concern that were submitted during the public comment period.

Ecology will send notice about the Response to Comments publication to:

- Everyone that provided written comments or testimony via the public hearing on this permit modification and submitted contact information. So, the contact information is very important if you have questions about contact information you can contact Daina,
- Notice will go to other interested parties on the permit distribution list for this proposal, and
- If you would like to receive a copy but did not give us your contact information, please contact Daina McFadden at the contact information provided for submitting comments.

And, our next steps will be to review the comments and make a final permit decision whether to issue, deny, or modify the permit modification. Ecology will consider the public comments in making the final permit decision.

Ecology will notify the Permittees of the final permit decision and the final permit decision will become effective 30 days after the service of notice of the decision.

If we can be of further help to you, please don't hesitate to ask or please contact Daina McFadden if you have any other questions.

On behalf of the Department of Ecology, thank you very much for coming. And, I do appreciate your cooperation and your courtesy.

Let the record show that this hearing is adjourned at 6:32 PM and we will stop recording now."

*Time stamp: 59:07.*