



STATE OF WASHINGTON  
**DEPARTMENT OF ECOLOGY**

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April 12, 2022

22-NWP-046

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United States Department of Energy  
PO Box 450, MSIN: H6-60  
Richland, Washington 99352

John R. Eschenberg, President  
Washington River Protection Solutions  
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Richland, Washington 99352

Re: Deferred Issuance of Notice of Violation for Failure to Submit Closure Plan for Double Shell Tank 241-AY-102

References: See page 8

Dear Brian T. Vance and John R. Eschenberg:

The Department of Ecology (Ecology) has received and considered the United States Department of Energy's (USDOE's) response to our most recent request for a copy of the closure plan for Double Shell Tank (DST) 241-AY-102, as submitted by Letter 21-TF-003249 (Reference 1). We have determined that USDOE did not submit the closure plan for DST 241-AY-102 upon request, in violation of applicable interim status standards, and that USDOE has not provided a regulatory basis that justifies this continued noncompliance.

However, Ecology is willing to defer issuance of a **Notice of Violation** to USDOE for failure to provide a closure plan for DST 241-AY-102 upon request, as required by 40 CFR § 265.112(a) (incorporated by reference in Washington Administrative Code (WAC) 173-303-400(3)(a)). This deferral is conditioned on USDOE committing to submittal of a certified final status closure plan for DST 241-AY-102 that meets the requirements set forth in this letter by November 30, 2022. This final status closure plan will be included in the Revision 9 of the Hanford Site-wide Dangerous Waste Permit (Site-wide Permit). November 30, 2022, is the final "lockdown date" USDOE and Ecology agreed to in the Rev 9 project schedule.

### **Statement of Facts and Applicable Requirements**

DST 241-AY-102 is a tank system located in the Central Plateau of the Hanford Site that has been storing "mixed" radioactive and hazardous waste since 1972. The hazardous waste portion of mixed waste is subject to regulation under Washington's Hazardous Waste Management Act (HWMA), Revised Code of Washington (RCW) Chapter 70A.300, and the Dangerous Waste regulations, WAC Chapter 173-303.

Ecology is authorized by the United States Environmental Protection Agency (EPA) to implement the HWMA and Dangerous Waste regulations in lieu of the federal Resource Conservation and Recovery Act (RCRA). *See* 51 Fed. Reg. 3782 (Jan. 30, 1986); 52 Fed. Reg. 35,556 (Sept. 22, 1987). As the owner and co-operator of the Hanford Site, USDOE is responsible for implementing all required dangerous waste management and closure activities in compliance with the HWMA and Dangerous Waste regulations.

Pursuant to Condition I.A of the Hanford Site-wide RCRA Permit (WA7890008967), Revision 8C, DST 241-AY-102 is currently subject to the interim status standards set forth in WAC 173-303-400 and will remain so until the tank system is incorporated into Revision 9 of the Site-wide Permit. WAC 173-303-400(3)(a) incorporates by reference the federal interim status standards promulgated by EPA, including those set forth in 40 C.F.R. 265 Subpart G (Closure and Post-Closure) and 40 C.F.R. 265 Subpart J (Tank Systems). WAC 173-303-400(3)(c) sets forth a number of modifications to these federal standards so incorporated, such as amending language in 40 C.F.R. § 265.112(d)(1) that applies to the submission of interim status closure plans. *See* WAC 173-303-400(3)(c)(vi)(A).

In August 2012, USDOE performed a video inspection of DST 241-AY-102 and discovered that waste was accumulating in the annulus space, which serves as the tank system's secondary containment. In October 2012, USDOE notified Ecology that DST 241-AY-102 was leaking. After more than a year of attempted negotiations on an agreed-upon leak response, USDOE remained unwilling to commit to a plan or schedule for retrieving waste from the leaking tank system as required by interim status standards. As a result, Ecology issued an enforcement order in March 2014 requiring USDOE to isolate DST 241-AY-102 from the DST System and to retrieve enough waste as necessary to perform an inspection to determine the cause of the leak.

USDOE appealed the enforcement order to the Pollution Control Hearings Board. In September 2014, USDOE and Ecology entered into a Settlement Agreement to resolve the appeal. Among other things, the Settlement Agreement required USDOE to isolate DST 241-AY-102 and to retrieve both supernatant and sludge wastes from the tank system pursuant to Ecology-approved work plans by March 4, 2017.

In February 2017, USDOE completed retrieval operations as required by the Settlement Agreement. USDOE then performed an inspection of the tank system to determine whether it could be repaired and returned to service. The *Leak Inspection Report for Tank 241-AY-102* (Reference 2), RPP-RPT-60320, submitted to Ecology on December 19, 2017, stated that the inspection had identified a total of seven leak points and "significant degradation" of the primary tank bottom. The report concluded:

"The inspection data collected to-date . . . have demonstrated that repairing and returning AY-102 to service would likely introduce substantial technical, logistical, and financial challenges including, for example, retrieval of remaining waste, removal of some internal components, full-tank interior detailed nondestructive testing, and repair or replacement of a large primary tank surface area. Qualification of the repairs to assure the tank is sound prior to re-entering service would likely also present a significant impediment. In addition to the widespread damage identified on the primary tank floor, there are significant uncertainties regarding the condition of the secondary containment structure refractory and air slots, as well as limitations of existing technologies to complete waste retrieval, inspection, and repairs of this magnitude. . .

Based on the inspections completed, probable failure mechanisms identified at multiple locations, and difficulties associated with potential repair USDOE has decided to close tank AY-102."

In Ecology Letter 18-NWP-007 (Reference 3), dated January 17, 2018, we agreed with USDOE's decision to proceed to closure of DST 241-AY-102 instead of attempting to repair and return it to service. In this letter, Ecology directed USDOE to submit a closure plan for DST 241-AY-102 and identified a number of applicable requirements, including the need to include both a plan for clean closing the tank system and a contingent plan for closing it as a landfill. USDOE did not respond to this letter or submit the closure plan as requested.

In Ecology Letter 18-NWP-143 (Reference 4), dated August 30, 2018, we closed out an area of non-compliance that had been identified in an inspection of the DST System. This letter directed USDOE to submit an updated closure plan for the DST System "in accordance with 40 CFR 265 Subpart G." Again, USDOE did not respond to this letter or submit the updated closure plan as requested.

In USDOE Letter 19-ECD-0052 (Reference 5), dated August 6, 2019, USDOE requested an extension of the time allowed for closure of DST 241-AY-102 on the basis that "components of the 241-AY-102 Tank System remain necessary to support continued waste management with the DST System." The letter and its attachment made no mention of the interim status closure plan for DST 241-AY-102 that Ecology had requested, except for a brief reference at the end of the attachment to an interim status closure plan for the DST System that USDOE had submitted as part of its permit application. This cited document, DOE/RL-90-39, was first submitted to Ecology in 1991; the most recent submission was in 2007—several years prior to the leak detection and response actions that ultimately resulted in USDOE's decision to proceed with closure of DST 241-AY-102.

Ecology could not approve USDOE's request for an extension of the time allowed for closure because it did not meet the applicable requirements of 40 CFR § 265.113. In Ecology Letter 21-NWP-070 (Reference 6), dated April 30, 2021, we explained in detail how the request failed to meet the applicable requirements and identified the outstanding information USDOE needed to provide in order for Ecology to reconsider the request. In addition, Ecology once again directed USDOE to submit its interim status closure plan for DST 241-AY-102.

In USDOE Letter 21-TF-003249, dated October 5, 2021, USDOE responded that it "is not obligated to provide a closure plan for 241-AY-102, independent of the DST system." However, the letter provides no legal or regulatory citations to support this assertion. The letter also points to USDOE's submission of a closure plan (Attachment 1 to letter 11-ESQ-321) for the DST System in December 2011. Notably, this citation differs from the citation to DOE/RL-90-39 in USDOE's 2019 request. Regardless, both of these versions of the closure plan for the DST System were submitted to Ecology prior to the leak detection, leak response, inspection, and unfit-for-use determination that collectively resulted in USDOE's decision to proceed with closure of DST 241-AY-102. At a bare minimum, the interim status closure plan for the DST System should have been amended in response to these unexpected events, and the updated plan should have been provided to Ecology upon request.

As reported in *Waste Tank Summary Report for Month Ending June 30, 2021*, HNF-EP-0182-042, there is currently 8,000 gallons of sludge and 2,000 gallons of supernatant in AY-102. As of December 14, 2021, there is 6.9” of waste in the annulus. The last reported reading of waste level in the tank was 5.0” in July 2020 when the instrumentation was turned off.

### **Interim Status Standards and Violations**

In Letter 19-ECD-0052, requesting an extension of the time allowed for closure, USDOE confirmed that it had determined DST 241-AY-102 “...does not have the integrity to receive additional dangerous and/or mixed waste...” Accordingly, DST 241-AY-102 is an “unfit for use” tank system as defined in WAC 173-303-040:

“Unfit-for-use tank system” means a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating dangerous waste without posing a threat of release of dangerous waste to the environment.”

Like an active tank leak, an unfit-for-use determination triggers a number of obligations under applicable interim status standards, including the following:

1. Remove the tank from service “immediately,”
2. Remove all materials released to the secondary containment system “in as timely a manner as is possible,” and
3. Proceed to closure “in accordance with § 265.197.” *See* 40 CFR §§ 265.191(d), 265.196(b)(2), and 265.196(e)(1). In turn, 40 CFR § 265.197(a) requires the owner/operator of a closing tank system to have a closure plan that complies with “all of the requirements specified in subparts G and H of this part.”

40 CFR Subpart G requires interim status units to have a written closure plan. *See* 40 CFR § 265.112(a). Until final closure is completed and certified, the owner/operator must furnish a copy of “the most current” closure plan to Ecology “upon request.” *Id.* For units with interim status closure plans that have not been approved by Ecology, such as DST 241-AY-102, the closure plan must also be provided to Ecology during site inspections. *Id.* If an unexpected event occurs that requires modification of the interim status closure plan—such as the detection of an active tank leak, or the determination that a tank system is unfit for use—the owner/operator must amend the plan within 60 days after the unexpected event, pursuant to 40 CFR § 265.112(c)(2).

In addition to the obligation to submit its interim status closure plan to Ecology upon request, the owner/operator must submit this plan for Ecology’s approval “at least 45 days prior to the date on which they expect to begin closure of a tank.” *See* WAC 173-303-400(3)(c)(vi)(A) (modifying the incorporation-by-reference of 40 CFR § 265.112(d)(1)). The date when the owner/operator “expects to begin closure” of a unit that cannot receive additional dangerous waste, such as DST 241-AY-102, can be no later than 30 days after the date on which that unit received its known final volume of waste. *See* 40 CFR § 265.112(d)(2)(i). DST 241-AY-102 received its known final volume of waste in February 2017, when supernatant from DST 241-AP-102 was used for sluicing operations during the emergency leak response.

In review of the above Statement of Facts and Applicable Requirements, Ecology has determined the following violations of interim status standards have occurred and are continuing:

- USDOE has repeatedly failed to provide a copy of the most current interim status closure plan for DST 241-AY-102 to Ecology upon request, in violation of 40 CFR § 265.112(a).
- USDOE failed to amend its interim status closure plan for the DST System within 60 days of any of the unexpected events associated with the leak in DST 241-AY-102, in violation of 40 CFR § 265.112(c)(2).
- USDOE failed to submit the closure plan for DST 241-AY-102 for Ecology's approval at least 45 days prior to the date on which USDOE was required to "expect to begin closure" of DST 241-AY-102, in violation of 40 CFR § 265.112(d) as modified by WAC 173-303-400(3)(c)(vi)(A).

However, Ecology is willing to defer issuance of a formal Notice of Violation for the interim status violations identified above, provided that USDOE agrees to the conditions set forth below.

#### **Conditions for Deferred Issuance of Notice of Violation**

No later than November 30, 2022, USDOE must submit to Ecology a complete final status closure plan for DST 241-AY-102 for incorporation into Revision 9 of the Site-wide Permit. This closure plan must meet the requirements of WAC 173-303-610 (Closure and Post-Closure) and WAC 173-303-640 (Tank Systems), including but not limited to the following specific requirements.

- Although DST 241-AY-102 is associated with the DST System, it is itself a Dangerous Waste Management Unit and needs a unit-specific closure schedule under WAC 173-303-610(3)(a)(vii). This provision requires a closure schedule that establishes "the total time required to close each dangerous waste management unit and the time required for intervening closure activities." Because DST 241-AY-102 is proceeding to closure instead of being repaired and returned to service, and in light of the restrictions on the time allowed for closure under WAC 173-303-610(4), the schedule for closing DST 241-AY-102 will necessarily be different from the schedule for closing the other DSTs.
- Because leaked waste still remains in the annulus of DST 241-AY-102, the closure plan must include an enforceable schedule for removing "all released materials" from the secondary containment system "in as timely a manner as is possible." *See* WAC 173-303-640(7)(b)(ii). In order for Ecology to approve an extension of the time allowed for closure under WAC 173-303-610(4), the unit-specific closure schedule must be accompanied by a demonstration of why the removal of all remaining waste from the tank system would take longer than 90 days to complete, why completion of closure activities for DST 241-AY-102 would take longer than 180 days to complete, and how long such closure activities *will* take to complete.

As detailed in letter 21-NWP-070, USDOE must also demonstrate that it is in compliance with all applicable dangerous waste management requirements and that it has taken and will continue to take "all steps to prevent threats to human health and the environment" throughout the extended closure period, if approved.

- In addition to the closure schedule described above, the closure plan for DST 241-AY-102 must include 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” as well as “other activities necessary during the closure period,” pursuant to WAC 173-303-610(3)(a)(v) and (vi). In light of the numerous leak points identified, the significant degradation of the tank bottom, and the continued storage of dangerous waste in the secondary containment system, the detailed description of closure activities to be implemented for DST 241-AY-102 will necessarily be different from the unit-specific closure activities for the rest of the DST System.
- Because dangerous waste is now being stored in the annulus of DST 241-AY-102 and USDOE has no enforceable plan or schedule to retrieve it, the tank system does not have secondary containment that meets the requirements of WAC 173-303-640(4)(b)–(f). Accordingly, the closure plan for DST 241-AY-102 must include both a plan for achieving clean closure performance standards and a contingent plan for closing it as a landfill. *See* WAC 173-303-640(8)(c).
- The clean closure plan must demonstrate how USDOE will comply with the requirement to “remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste.” *See* WAC 173-303-640(8)(a).
- The contingent landfill closure plan must demonstrate how USDOE would comply with the closure and post-closure requirements for landfills set forth in WAC 173-303-610(7)–(10), WAC 173-303-645, and WAC 173-303-665(6). The contingent closure plan must also explain how USDOE would demonstrate impracticability of clean closure pursuant to WAC 173-303-640(8)(b) and include a proposed design for a final landfill cover that meets the requirements of WAC 173-303-665(6)(a).

USDOE and its contractors must also commit to collaborating with Ecology over the coming months as necessary to resolve anticipated permit deficiencies and ensure the closure plan for DST 241-AY-102 is complete when submitted in November. We request that USDOE provide a draft no later than September 1, 2022. In developing the closure plan, Ecology is available to work with USDOE earlier as needed.

We request that USDOE schedule and hold a meeting with Ecology management and project staff to discuss and agree to the path forward outlined in the conditions above no later than May 6, 2022.

If USDOE does not commit to submitting a complete closure plan for DST 241-AY-102 as set forth above, or if USDOE so commits but fails to meet the deadline, Ecology may issue a formal Notice of Violation for the violations of interim status standards identified above.

Pursuant to RCW 70A.300.090(1), failure to comply with a corrective action identified in such a Notice of Violation by the specified deadline may subject USDOE to formal enforcement action, including the issuance of civil penalties of up to \$10,000 per day, per violation. In the case of continuing violations, every day’s continuance shall be a separate and distinct violation.

In the meantime, USDOE may continue to manage DST 241-AY-102 under interim status standards in accordance with Permit Condition I.A.

If you have any questions or concerns, please contact me at [jeff.lyon@ecy.wa.gov](mailto:jeff.lyon@ecy.wa.gov) or (509) 539-1996.

Sincerely,



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Lyon, Jeffery (ECY)  
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Jeffery J. Lyon  
Tank Systems Operation & Closure Project Manager  
Nuclear Waste Program

aa

References:

1. USDOE Letter 21-TF-003249, dated October 5, 2021, “U.S. Department of Energy Response to the Washington State Department of Ecology Letters 21-NWP-081, “Department of Ecology’s Review Comment Record (RCR) on the Closure Extension Request for the Double Shell Tank 241-AY-102 (241-AY-102) Tank System Dangerous Waste Management Unit” and 21-NWP-070, “241-AY-102 Closure Extension Request””
2. USDOE Letter 17-TF-0119, dated December 19, 2017, “The U.S. Department of Energy, Office of River Protection Transmittal of RPP-RPT-60320, Leak Inspection Report for Tank 241-AY-102, Rev. 00, in Response to Section II.B.5.c of the 241-AY-102 Settlement Agreement”
3. Ecology Letter 18-NWP-007, dated January 17, 2018, “The United States Department of Energy – Office of River Protection Transmittal of RPP-RPT-60320, Leak Inspection Report for Tank AY-102, Rev. 00, in Response to Section II.B.5 of the 241-AY-102 Settlement Agreement”
4. Ecology Letter 18-NWP-143, dated August 30, 2018, “Department of Ecology (Ecology) Review of Responses to Dangerous Waste Compliance Inspections on March 8, 2016, and May 18, 2017, at the Double Shell Tanks, RCRA Site ID: WA7890008967, NWP Compliance Index No’s 16.554 and 17.592”
5. USDOE Letter 19-ECD-0052, dated August 6, 2019, “Closure Extension Request for the 241-AY-102 Tank System Dangerous Waste Management Unit”
6. Ecology Letter 21-NWP-070, dated April 30, 2021, “241-AY-102 Closure Extension Request”

cc: See page 9

cc electronic:

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Alyssa Buck, Wanapum	Hanford Administrative Record
Laurene Contreras, YN	Hanford Facility Operating Record
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