



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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June 1, 2021

21-NWP-081

Brian T. Vance, Manager
Office of River Protection
United States Department of Energy
PO Box 450, MSIN: H6-60
Richland, Washington 99352

John R. Eschenberg, President
Washington River Protection Solutions
PO Box 850, MSIN: H3-04
Richland, Washington 99352

Re: Department of Ecology's Review Comment Record (RCR) on the Closure Extension
Request for Double Shell Tank 241-AY-102 (241-AY-102) Tank System Dangerous Waste
Management Unit

References: See page 2

Dear Brian T. Vance and John R Eschenberg:

In letter 21-NWP-070 (Reference 1), the Department of Ecology (Ecology) committed to provide more detailed comments on the 241-AY-102 closure extension request (Reference 2). Enclosed is the RCR with Ecology's comments.

Ecology's expects the United States Department of Energy will meet with us to resolve the deficiencies and update the 241-AY-102 closure plan for submittal to Ecology.

If you have any questions or concerns, please contact me at jeff.lyon@ecy.wa.gov or (509) 372-7914.

Sincerely,

Digitally signed by
Lyon, Jeffery (ECY)
Date: 2021.06.01
13:48:37 -07'00'

Jeffery J. Lyon
Tank Systems Operation & Closure Project Manager
Nuclear Waste Program

kr/aa
Enclosure

References:

1. Letter 21-NWP-070, dated April 30, 2021, “241-AY-102 Closure Extension Request”
2. Letter 19-ECD-0052, dated August 6, 2019, “Closure Extension Request for the 241-AY-102 Tank System Dangerous Waste Management Unit”

cc electronic:

David Einan, EPA	Caroline Cress, AAG
Ricky Bang, USDOE-ORP	Jim Alzheimer, Ecology
Kaylin Burnett, USDOE-ORP	David Bowen, Ecology
Lori Huffman, USDOE-ORP	Phillip Buser, Ecology
Christopher Kemp, USDOE-ORP	Kathy Conaway, Ecology
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Mason Murphy, CTUIR	Adam Shaffer, Ecology
Jack Bell, NPT	Mign Walmsley, Ecology
Rex Buck, Jr., Wanapum	Environmental Portal
Laurene Contreras, YN	Hanford Administrative Record
ERWM Staff, YN	Hanford Facility Operating Record
Steve Wiegman, HAB	HMIS Correspondence Control
David Reeploeg, Hanford Communities	USDOE-ORP Correspondence Control
Max Woods, ODOE	WRPS Correspondence Control

Document Title(s)/Number(s): Ecology Comments on the Closure Extension Request for Double Shell Tank 241-AY-102 Tank System Dangerous Waste Management Unit

Document Lead/Phone #/Email: Jeff Lyon, (509) 372-7914, jeff.lyon@ecy.wa.gov **Project Manager/Phone #/Email: Jeff Lyon, (509) 372-7914, jeff.lyon@ecy.wa.gov**

Item # Page # Section # Line/¶ #s	Comment and Basis/Justification	Modification Needed	DOE Response	Ecology Response	O/C	Reviewer (Initials)
Item 1 P: S: L/¶:	The most recent Ecology letter regarding closure of AY-102, letter 21-NWP-070, dated April 30, 2021, stated that USDOE must submit a closure plan for AY-102 no later than October 1, 2021. Basis/Justification: 40 CFR 265.113(a) and (b)	Submit a closure plan for AY-102 no later than October 1, 2021. See CAP checklist question 5.2-19.c for question on extensions. USDOE must submit an extension request with the approved closure plan.				AP
Item 2 P: S: L/¶:	The extension request must address 40 CFR 265.113(a)(1) and (b)(1). Basis/Justification: 40 CFR 265.113(c)	Ensure the extension request above addresses 40 CFR 265.113(a)(1) and (b)(1).				AP
Item 3 P: S: L/¶:	Ecology acknowledges that the Closure Extension Request for 241-AY-102, 19-ECD-0052, is to fulfill interim status standards. However, the extension request that must be submitted with the AY-102 closure plan in comment #1 above must fulfill and reference final status WAC requirements. Basis/Justification: 40 CFR 265.112(d)(2)	Ensure that the extension request required in comment #1 fulfills and references final status WAC requirements.				AP
Item 4 P: S: L/¶:	Closure is performed on a dangerous waste management unit (DWMU) by DWMU basis, per 40 CFR 265.112(b)(1), incorporated by reference in WAC 173-303-400, for units operating under interim status standards. The USDOE Closure Extension Request suggest deferral of closure of AY-102 until 30-days after the DST System completes its mission of providing feed delivery to WTP. Additionally, USDOE stated that since AY-102 ancillary equipment must remain in service to support the management of wastes within AY-101, closure of AY-102 and ancillary equipment must begin within 30 days after AY-101 has received its final volume of waste as part of the closure of 241-AY Tank Farm. DOE has not documented, and Ecology has not approved, either the decision to close on a farm-by-farm basis or waiting until the entire operating unit group is ready for closure, before closing individual DST DWMUs that are unfit-for-use. Basis/Justification: 40 CFR 265.112(d)(2)(i)	As stated in letter 21-NWP-070, USDOE must provide a closure plan for AY-102 by Oct 1 2021. Further, the closure plan must reflect removal of the waste from AY-102 by Sept 30 2026. Only then will Ecology will consider any request for deferring closure that includes adequate justification and is integrated with other site cleanup activities.				AP
Item 5 P: 6 S: N/A	Comment: Attachment to USDOE Closure Extension Request states that, "Waste residue remains within the tank and secondary containment." Weekly monitoring the LDP for accumulation and quarterly pH testing of	Include a description of actions to mitigate waste migrating outside secondary containment and into the environment. These actions may be treatment by solidification/stabilization, etc.				AP

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L/¶: 1 st Table item	<p>accumulated liquids are the only proposed measures to ensure waste remaining in secondary containment is not leaking.</p> <p>40 CFR 265.113(a)(2) requires the permittees take and will continue to take, “all steps to prevent threats to human health and the environment, including compliance with all applicable interim status requirements.”</p> <p>40 CFR 265.113(b)(2) requires the permittees “take all steps to prevent threats to human health and the environment from the unclosed but not operating hazardous waste management unit or facility...”</p> <p>Since waste will remain in the 241-AY-102 tank and annulus, DOE needs to describe what measures will be or have been taken to prevent the waste from migrating outside of secondary containment.</p> <p>Basis/Justification: 40 CFR 265.113(a)(2) and (b)(2)</p>					
Item 6 P: 2	<p>The residual waste in the primary tank and in the annulus after the water rinse and caustic addition needs to be sampled to determine conformance with cleanup standards.</p> <p>Basis/Justification 40 CFR 265.111 and 40 CFR 265.114</p>	<p>Understanding what remains in the tank and annulus is necessary for informing closure. Describe how the residual waste will be characterized.</p>				SL
Item 7 P: 2-3	<p>The liquid level in the primary tank needs to be monitored daily.</p> <p>Basis/Justification: 40 CFR 265.195.</p>	<p>Include inspection requirement to obtain daily waste level readings.</p> <p>Insert inspection additions into the general inspection table on the next page.</p>				SL
Item 8 P: 2-3	<p>Intrusion can occur at any time and ancillary equipment must be monitored for such accumulation.</p> <p>Basis/Justification: 40 CFR 265.195.</p>	<p>Monitoring of leak detection for ancillary equipment must be increased to “Daily”.</p> <p>Insert inspection additions into the general inspection table on the next page.</p>				SL
Item 9 P: 2-3	<p>Headspace in AY-102 must be monitored for flammable gas concentration every 6 months.</p>	<p>Add inspection requirement for monitoring AY-102 headspace flammable gas concentration every 6 months.</p> <p>Insert inspection additions into the general inspection table on the next page..</p>				SL

Review Comment Record

**Washington State Department of Ecology
Nuclear Waste Program
Cleanup Section/TSOC Project**

Date: June 1, 2021

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Item	Inspection Requirement / Evaluation Criteria	Frequency
<i>DST AY-102 (Leaker)</i>		
AY-102 Primary Tank Liquid Level (NEW)	<p>PROBLEM: Waste remains in the AY-102 primary and secondary tanks after retrieval and flushing. Open pathways exist through the many leak sites in the primary tank bottom. An unexpected decrease in the primary tank waste level may indicate a leak in the secondary tank. An increase may indicate intrusion or the addition of waste to the primary tank which is not allowed. Monitoring the primary tank liquid level further corroborates changes observed in the annulus.</p> <p>INSPECT: Measure the primary tank liquid level in AY-102 and monitor for unexpected changes.</p>	Daily
AY-102 Ancillary Equipment Leak Detection (REVISED from AY-102 Closure Extension Request)	<p>PROBLEM: Waste transfers to/from AY-101 pass through the AY-02A pump pit and a leak may occur. Intrusion and non-process leaks may also occur and accumulate in the pits and would otherwise be undetected.</p> <p>INSPECT: Monitor the leak detectors in the AY-02A, AY-02B, AY-02C, AY-02D, AY-02E pits and POR385-WT-DB-001 for the presence of liquid.</p> <p>Leak detectors in the pits shall be maintained operational until closure of AY-102.</p> <p>3/3/2021: Changed to Daily at all times, not just when transfers are occurring. What is POR385-WT-DB-001?</p>	Daily
AY-102 Annulus Liquid Level AY102-WSTA-LDT-151 AY102-WSTA-LDT-152 AY102-WSTA-LDT-153 (REVISED from AY-102 Closure Extension Request)	<p>PROBLEM: An unexpected decrease in the annulus liquid level may indicate a leak in the secondary tank. An increase may indicate intrusion or the addition of waste to the primary tank which is not allowed.</p> <p>INSPECT: Measure the annulus liquid level in AY-102 and monitor for unexpected changes. The annulus liquid level shall be measured at three locations approximately equidistant around the tank.</p>	Daily

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Item	Inspection Requirement / Evaluation Criteria	Frequency
AY-102 Annulus Visual Inspection (NEW)	<p>PROBLEM: AY-102 has waste in the secondary tank. The waste may cause corrosion of the primary and secondary tanks, or degrade the insulating refractory base of the primary tank. Intrusion may occur from connecting lines and pits or external sources.</p> <p>INSPECT: Perform a visual inspection in the AY-102 annulus to look for changes in the condition of the waste, and the integrity of the primary and secondary tanks. The inspection shall use at least two risers located approximately equidistant around the tank. Subsequent inspections shall then be rotated approximately 90° from the previous inspection to provide a more complete view of the annulus.</p>	Quarterly
Liquid Level in AY-102 Leak Detection Pit (REVISED from AY-102 Closure Extension Request)	<p>PROBLEM: AY-102 has waste in the secondary tank. Water in the LDP may contact the underside of the secondary tank and cause external corrosion. Waste in the secondary tank may leak out to the LDP and cause the water level in the LDP to increase.</p> <p>INSPECT: Measure the liquid level in the AY-102 LDP and compare to previous readings.</p> <p>The liquid level in the AY-102 LDP shall be less than 66 in.</p> <p>3/3/2021: Ecology verified in OSD-7 Rev 27 the AY-102 maximum LDP liquid level is correct. Added text about external corrosion. Did not add operations requirement to maintain LDP level ≥ 4 in. so the weight factor instrumentation operates correctly.</p>	Weekly
pH of Water in AY-102 Leak Detection Pit (REVISED from AY-102 Closure Extension Request)	<p>PROBLEM: AY-102 has waste in the secondary tank which may leak out to the LDP and the environment. An increase in the pH of the water in the LDP may indicate the presence of tank waste.</p> <p>INSPECT: Measure the pH of the water in the AY-102 LDP and compare to previous readings.</p> <p>If the pH is > 9.0, sample the water in the LDP to determine if tank waste is present.</p> <p>3/3/2021: Changed Quarterly to Monthly as there is waste in the secondary tank which may leak to the environment. Does AY-102 have a history of high water levels in the LDP?</p>	Monthly

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Item	Inspection Requirement / Evaluation Criteria	Frequency
AY-102 Tank Pressure	<p>PROBLEM: The AY-102 primary tank vapor space vacuum is greater than the allowable maximum vacuum.</p> <p>INSPECT: Measure the primary tank vapor space vacuum in AY-102 and compare it to the evaluation criteria.</p> <p>The primary tank vapor space vacuum shall be less than -2 in. w.g.</p> <p>3/3/2021: Ecology verified in OSD-7 Rev 27 this AY-102 primary tank vacuum limit is correct.</p>	Daily