STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950
711 for Washington Relay Service • Persons with a speech disability can call (877) 833-6341

March 8, 2021 21-NWP-038

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: Unknown Liquid Detected in Annulus of Double-Shell Tank (DST) 241-AN-105

Reference: See page 3

Dear Brian T. Vance and John R. Eschenberg:

The Department of Ecology (Ecology) received the environmental notification TOC-ENV-NOT-2021-4597 on February 16, 2021 (Reference), which reported that liquid in the annulus of DST 241-AN-105 had caused the leak detector AN105-WSTA-LDI-153 to alarm on February 13, 2021. The other two leak detectors (-151 and -152) did not alarm. According to this notification, the source of the liquid was unknown.

On February 24, 2021, Ecology met with the United States Department of Energy (USDOE) to get an update on the source of the liquid. At that meeting, USDOE reported that a visual inspection of the annulus was performed through four risers on February 18, 2021. The liquid at that time covered approximately half of the annulus floor, and beach lines could be seen on the tank wall where the liquid depth had been greater. Liquid could be seen on the leak detector.

During the meeting, USDOE speculated that the alarm for AN105-WSTA-LDI-153 was triggered by snow melt that entered through the AN-05B annulus pump pit. However, the pump pit had not yet been opened to verify if that was indeed the source of the liquid, and there was no operating leak detector in the pit.

Ecology raised the possibility that corrosion at the liquid-air interface could possibly cause pitting that would result in a different source for the annulus liquid, since the tank had been stagnant for many years. USDOE discounted that, asserting the liquid did not appear to be waste. However, we understand that you declined to sample or otherwise characterize the released liquid.

Resource Conservation and Recovery Act interim status standards, incorporated by reference in Washington Administrative Code (WAC) 173-303-400, currently apply to the DST system per the *Hanford Dangerous Waste Permit* Condition I.A.

The detection of an unknown liquid in the secondary containment of DST 241-AN-105 triggers the applicability of Title 40 of the *Code of Federal Regulations* (40 CFR) 265.196, Response to Leaks or Spills and Disposition of Leaking or Unfit-for-use Tank Systems. When an unknown liquid is detected in the secondary containment of a tank system that is actively storing dangerous waste, the default presumption is that the released liquid is dangerous waste.

Pursuant to WAC 173-303-070(4), Ecology is requiring USDOE to immediately sample and test the liquid in the annulus according to the methods, or an approved equivalent method, set forth in WAC 173-303-110, to determine whether or not the liquid designates as dangerous waste under the dangerous waste lists, characteristics, or criteria, WAC 173-303-080 through 173-303-100.

Unless and until USDOE prove that the liquid in the annulus is pure water and contains no dangerous waste constituents, Ecology considers this to be a release of dangerous waste into the tank system's secondary containment. Pursuant to 40 CFR 265.196, USDOE must:

- Immediately remove the DST 241-AN-105 from service.
- Immediately inspect the tank system to determine the cause of the release.
- Remove all released materials from the annulus within 24 hours or in as timely a manner as is possible.

We would also like to remind USDOE of the need to monitor for leaks and accumulated liquids in pits and other secondary containment structures in the Tank Farms. Specifically, each tank must have a leak detection system that is designed and operated so that it will detect a release of dangerous waste or accumulated liquid in the secondary containment within 24 hours or at the earliest practicable time [40 CFR 265.193(b) and (c)(3)]. Leaked waste and accumulated precipitation must also be removed from the secondary containment system within 24 hours, or in as timely a manner as is possible to prevent harm to human health or the environment [40 CFR 265.193(c)(4)].

If USDOE verifies the liquid in the annulus of DST 241-AN-105 is not waste and contains no dangerous waste constituents, then they must identify the source of water intrusion and assure that no further intrusion will occur.

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: 2021.03.08
14:04:02 -08'00'

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

sl/aa

cc: See page 3

Reference: WRPS Environmental Notification Form, dated February16, 2021, Notification Number TOC-ENV-NOT-2021-4597

cc electronic:

Dave Bartus, EPA
David Einan, EPA
Christopher Kemp, USDOE-ORP
Erik Nelson, USDOE-ORP
Glyn Trenchard, USDOE-ORP
Duane Carter, USDOE-RL
Joe Franco, USDOE-RL
Mostafa Kamal, USDOE-RL
Jon Perry, HMIS
Reuben Mendoza, WRPS
Eric Van Mason, WRPS
Mason Murphy, CTUIR
Jack Bell, NPT
Rex Buck, Jr., Wanapum
Laurene Contreras, YN
ERWM Staff, YN
Susan Leckband, HAB
David Reeploeg, Hanford Communities
Max Woods, ODOE
Kathy Conaway, Ecology
Steve Lowe, Ecology
Jeff Lyon, Ecology
Nina Menard, Ecology
Stephanie Schleif, Ecology
Mign Walmsley, Ecology
Environmental Portal
Hanford Administrative Records
Hanford Facility Operating Record
HMIS Correspondence Control
USDOE-ORP Correspondence Control
USDOE-RL Correspondence Control
WRPS Correspondence Control