

From: Allen, Ruth M
Sent: Wednesday, May 26, 2021 12:01 PM
To: DL - WRPS-NOT-ORP; DL - WRPS-NOT-MGMT; williams.erin@epa.gov; DL - WRPS-NOT-ECY; andy.wilson@ecy.wa.gov; diane.fowler@ecy.wa.gov; d.davis@bces.wa.gov; sdavis@co.franklin.wa.us; terry.wolfe@osp.oregon.gov; Office at Heart of America
Cc: Moser, David R; Mendoza, Ruben E
Subject: TOC-ENV-NOT-2021-4609: National Response Center Report for Tank B-109 Level Decrease
Attachments: TOC-ENV-NOT-2021-4609_Final.pdf

Attached is the follow-up to the National Response Center Incident Report No. 1303776 regarding the Tank B-109 level decrease at the Hanford Site. If you have questions with regard to this report, you may contact me at (509) 373-0560.

Ruth M. Allen



Contractor to the United States Department of Energy
Environmental Compliance Manager
(509) 373-0560
2704HV/C-213

ENVIRONMENTAL OPERATIONAL ACTIVITIES NOTIFICATION

Date: 5/25/2021

TOC-ENV-NOT: 2021-4609

Name: Ruth Allen

Revision No.: 0

Regulatory Requirement: 40 CFR 302.8 and 40 CFR 265.196

RE: Written Follow-up Report for Declaration of B-109 Leak

Notification Information:

Background

The U.S. Department of Energy (DOE) Office of River Protection and the Tank Farms Operations Contractor, Washington River Protection Solutions (WRPS), determined on April 29, 2021, that liquid levels in Hanford single-shell tank (SST) B-109 are decreasing, and that the tank is likely leaking to the underlying soil at approximately 40 ft. below grade. A notification was made to the National Response Center (Report No. 1303776) which reported a release of hazardous mixed waste in excess of a reportable quantity (RQ) level. The leak appears to be continuous and stable in quantity and rate.

The leak was detected through a tank integrity program, which includes visual inspections with remotely operated cameras inside tanks; monitoring of liquid levels inside tanks; monitoring of wells around the tanks; and a standardized leak assessment process when monitoring data indicates a possible leak from an underground tank. DOE and the State of Washington, Department of Ecology will determine if further discussion or actions are necessary to respond to the B-109 leak. Initial assessments indicate that the B-109 tank leak does not represent an increased health or safety risk to Hanford workers or the public.

Facility Description

The Hanford Site is a mostly decommissioned nuclear production complex operated by DOE. The Site encompasses approximately 581 square miles in Benton, Franklin, Adams, and Grant Counties, located in south-central Washington State within the semi-arid Pasco Basin of the Columbia Plateau. Geographic coordinates of the Hanford Site are 46° 38' 30.59" N (latitude) and -119° 35' 32.99" W (longitude). The Tank Farms, containing 177 underground tanks, are located near the center of the Hanford Site within the 200 East and 200 West areas. The waste stored in these tanks is the legacy of the past production of defense-related materials at the Hanford Site which generated large quantities of solid and liquid waste.

Tank B-109 is one of 12 tanks within B Tank Farm that is a part of the B-BX-BY Tank Farms Complex located along the northern portion of the 200 East Area. B-109 is a 530,000-gallon, single-shell tank that was constructed between 1943 and 1944. The tank received contaminated liquids between 1946 and 1976. DOE pumped as much liquid as possible out of B-109 in 1985 during a site-wide campaign to remove liquids from Hanford's single-shell tanks. Some residual liquid remained in the tanks after stabilization. The vast majority of material is sludge and solid (saltcake) waste, with a relatively small amount of residual liquid that could slowly drain in the event of a leak. A relatively low volume of water from precipitation is also entering the tank. B-109 currently contains approximately 123,000 gallons of waste.

The DOE point-of-contact for this leak event is Ben Harp, (509) 376-1462.

Population Density

The population density within a one-mile radius of B-109 is zero due to the tank's location in the 200 East area of the Hanford Site and the security measures that restrict public access to the majority of the federally-controlled site.

Identity/Location of Sensitive Populations and Ecosystems

There are no sensitive populations (e.g., elementary schools, hospitals, retirement communities) within a one-mile radius of Tank B-109. Two endangered and threatened fish

ENVIRONMENTAL OPERATIONAL ACTIVITIES NOTIFICATION (continued)

species, spring-run Chinook salmon and steelhead, have been found in the Columbia River near the Hanford Site; however, the river is not within a one-mile radius of the leaking tank. Umtanum desert buckwheat and White Bluffs bladderpod, federally listed as threatened plant species, also occur on the Hanford Site. In addition, 16 plant species and 4 bird species have been listed by Washington State as either endangered or threatened.

Hazardous Substance Release Data

Starting in 1946, B-109 received decontamination waste produced during the recovery of plutonium from nuclear fuel. The tank also received several other waste streams, including Bismuth Phosphate (BiPO₄), until the late 1970s when the tank was removed from service.

As a result of the leak from B-109, it was determined that RQ thresholds were exceeded for the following Dangerous Waste Codes, as identified in the Single-Shell Tank System

Dangerous Waste Permit Application Part A:

D004, D009, D011, D033, and D043 (> RQ of 1 lb/day)

F001, F002, D006, D007, D008, D010, D018, D019, D022, D030, and D041 (> RQ of 10 lbs/day)

Additionally, no contaminant or hazardous chemical in the waste released from the tank exceeded their respective RQ. Based on the tank inventory, the release does not trigger an RQ sum-of-fraction for radionuclides in the liquid portion of the waste in B-109.

The data evaluated during the formal leak assessment process indicate that B-109 has leaked approximately 3100 gallons into the soil column beneath the tank at the time that the original notifications were made on 4/29/21. This is an active leaker, so the leak volume is increasing every day.

The general direction of groundwater flow from the B Farm Complex is to the south and southeast through the 200 East area and toward the Columbia River which is approximately 10 miles from B-109. The nearest downgradient off-site uses of drinking water are a well field and a water intake to the Columbia River. Both of these facilities are located in North Richland which is approximately 20 miles southeast of B Farm Complex.

Conclusion

Based on the foregoing, DOE and the State of Washington Department of Ecology will determine if further discussion or actions are necessary to respond to the B-109 leak. The leak does not represent an increased health or safety risk to Hanford workers or the public.

The above information is accurate and current to the best of my knowledge.

Signature: Ben J. Harp / **BENTON HARP** Digitally signed by BENTON HARP
Date: 2021.05.26 08:45:43 -07'00' Date: _____

Signature: Ruth M. Allen / **Allen, Ruth M** Digitally signed by Allen, Ruth M
Date: 2021.05.25 14:27:41 -07'00' Date: _____

Distribution of this form shall be completed to the following groups.
Check all applicable distribution lists

- Environmental Records
 Team Line Management

ENVIRONMENTAL OPERATIONAL ACTIVITIES NOTIFICATION (continued)

Other: ORP (multiple recipients)
WRPS Management (multiple recipients)
Environmental Protection Agency, Region 10 (Erin Williams)
Washington State Department of Ecology - Nuclear Waste Program (multiple recipients)
Washington State Department of Ecology - Yakima Office (Andy Wilson)
Washington State EPCRA Coordinator (Diane Fowler)
Benton County Emergency Services (Deanna Davis)
Franklin County Emergency Management (Sean Davis)
Oregon State Emergency Response Commission (Terry Wolfe)
Heart of America Northwest (Gerry Pollett)

Attach a copy of original notification email and any applicable information when submitting Environmental Notification to Document Control.