



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

August 30, 2023

23-OCC-0008

Mr. Thomas Zeilman
P.O. Box 34
Yakima, Washington 98907

Dear Mr. Zeilman:

**RESPONSE TO YAKAMA NATION CONCERNS REGARDING THE DISPOSAL OF THE
300-296 WASTE SITE AT THE HANFORD ENVIRONMENTAL RESTORATION
DISPOSAL FACILITY**

This letter is in response to the Yakama Nation (YN) letter to U.S. Environmental Protection Agency (EPA) Region 10 counsel, dated October 18, 2022, regarding the designation and disposal of waste at the Hanford Environmental Restoration Disposal Facility (ERDF) generated during remediation of the 300-296 waste site. In the letter, the YN contend that the contaminated soil from the 300-296 waste site is high-level radioactive waste (HLW) and is not suitable for shallow land disposal at ERDF. On December 6, 2022, EPA facilitated a meeting with the U.S. Department of Energy (DOE) for the YN to reiterate and expand on their concerns; DOE committed to evaluate and respond to the YN's concerns.

Background Information

The 300-296 waste site originated from a spill of concentrated Cs¹³⁷ and Sr⁹⁰ that occurred in 1986. An undefined quantity of concentrated Cs¹³⁷ and Sr⁹⁰ leaked through a breach in the floor into the soil below the B hot-cell. Hanford has initiated planning activities to remotely excavate the contaminated soils in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 2013 Record of Decision (ROD) with EPA Region 10 as the lead regulatory authority. Under the ROD, Hanford is required to treat the radioactive contaminated soils posing the principal threat by mixing them with grout, as appropriate, to reduce the dose rate and to stabilize. The stabilized materials will be disposed at "an appropriate disposal facility."

The Soils are not HLW

Neither the spilled material nor contaminated soils are HLW. The definition of HLW is set forth

in the Atomic Energy Act of 1954, as amended, the Nuclear Waste Policy Act and the Waste Isolation Pilot Plant Land Withdrawal Act as follows:

(A) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and (B) other highly radioactive material that the [Nuclear Regulatory] Commission, consistent with existing law, determines by rule requires permanent isolation.

The following points explain why the material is not “resulting from the reprocessing of spent nuclear fuel (SNF)” and is not waste:

1. The Cs¹³⁷/Sr⁹⁰ nitrate solutions that were spilled in 1986 were not produced during the reprocessing of SNF. The activities to produce the concentrated Cs¹³⁷ and Sr⁹⁰ nitrate solutions, used during the production of sealed isotopic radiation and heat sources for the Federal Republic of Germany (FRG), occurred independent from the SNF reprocessing separations process, for a different purpose, at a different time, and in different buildings from where prior SNF reprocessing occurred. These activities, taken after SNF reprocessing separated out the Cs¹³⁷ and Sr⁹⁰, included many physical and chemical steps such as steps to convert the Cs¹³⁷ and Sr⁹⁰ into concentrated Cs¹³⁷/ Sr⁹⁰ nitrate solutions and into a form usable as heat sources. In accordance with DOE Manual 435.1-1, *Radioactive Waste Management*, attachment 2, paragraph 41, reprocessing of SNF does not include post-separation activities, such as those activities used to produce the Cs¹³⁷ and Sr⁹⁰ nitrate solutions product and the associated processes used to produce the heat sources.
2. Furthermore, when the spill of useful isotopes occurred, the spilled material was not a waste.¹ The material was a product used in the manufacturing of radiological heat sources for the FRG. Germany planned to use the heat sources for research and development.

Thus, the spilled material was not HLW.

Since a release to the environment occurred, the contaminated media at the 300-296 waste site is properly evaluated and addressed under CERCLA.

Disposal of Soils at ERDF

ERDF is a CERCLA facility that accepts low-level waste (LLW), hazardous/dangerous waste, asbestos, polychlorinated biphenyl, and mixed wastes from Hanford National Priority Listing sites, which include the 300-296 waste site. The designation of waste is based on appropriate

¹ Non-waste materials are excluded from DOE Order 435.1 and DOE Manual 435.1-1.

characterization activities conducted consistent with requirements established under the EPA-approved 2013 ROD; the “300 Area Remedial Action Sampling and Analysis Plan,” (DOE/RL-2001-48); DOE M 435.1-1, “Radioactive Waste Management Manual;” and other applicable Federal and State Regulations. Additionally, waste is designated at the time of generation, in this case, when the 300-296 waste site is remediated.

Prior to receiving waste at ERDF, a rigorous process is followed to ensure the waste is compliant with the ERDF Waste Acceptance Criteria (WAC). This includes evaluating the source, quantity, physical form, chemical, and radiological constituents in the waste. Based upon a rigorous evaluation, DOE has determined that the contaminated soils in their final waste packages are not expected to exceed Class C concentration limits, are expected to meet the ERDF WAC, and are expected to meet the performance objectives for disposal of LLW so that the soils can be disposed of at ERDF as LLW. Disposal operations at ERDF are overseen by EPA.

If you have any questions, you may contact me or your staff may contact Benjamin Zelen, Assistant Chief Counsel for Environment, Safety, Security, and Health, on (509) 376-0340.

Sincerely,

**Mark D.
Silberstein**

Digitally signed by Mark
D. Silberstein
Date: 2023.08.30 11:03:49
-04'00'

Mark D. Silberstein, Acting Chief Counsel
Hanford Office of Chief Counsel

OCC:BWV

cc: J. Bell, NPT
R. Buck, Wanapum
L. Contreras, YN
D. R. Einan, EPA
A. C. McCartney, EPA
M. Murphy, CTUIR
J. H. Temple, ECY
M. Tosch, YN
N. Vidargas, EPA
Administrative Record (OU: 300-FF-2; TPA Milestone: M-016-85A, M-016-85)
Environmental Portal