



# Oregon

Kate Brown, Governor



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Submitted via Email to [BPlantEECA@rl.gov](mailto:BPlantEECA@rl.gov)

William F. Hamel,  
Assistant Manager for the River and Plateau  
U.S. Department of Energy  
Richland Operations Office  
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Dear Mr. Hamel,

Oregon understands and appreciates the desire and value in continuing to shrink the footprint of aging structures at Hanford. In our July 2019 letter<sup>1</sup>, we supported the Non-time Critical Removal Action (NTCRA) for the PUREX facility. In the current case of the B Plant proposed NTCRA, we similarly agree that completing the paperwork authorizing anticipated risk reduction is proactive and will allow for work to be conducted as soon as funding is available. However, there are some concerning details about the particular actions described in the recently published Engineering Evaluation/Cost Analysis (EE/CA) for the B Plant NTCRA (DOE-RL-2016-14). Below we provide comments on the EE/CA.

We also believe it is time for an open discussion about where, how, and when wastes are planned to be immobilized in place on the Central Plateau, as well as plans for their final disposition. We would like to better understand how these decisions are made and understand as well the overall strategy moving forward.

### Demolition Timing and Disposal Considerations

With the proposed action in this EE/CA, Deactivation, Decontamination, Demolition, and Disposal (D4) activities at B Plant would apparently be conducted sometime between fiscal year 2022 and 2032. The Remedial Investigation/Feasibility Study (RI/FS) to support the final Record of Decision (ROD) for the canyon has a 2026 milestone (M-15-00). There is therefore a high potential that contemporaneous D4 activities could make the sampling necessary to complete the RI/FS more difficult as staging and exclusion areas may restrict the locations which drilling equipment can access. We recommend that DOE consider the need to access potential future soil sampling sites when determining where to establish operations and support areas for the D4 activities.

In addition to these potential impedances to sampling, EPA and Ecology recently have raised concerns about a lack of contaminated soil to mix with demolition debris in ERDF<sup>2</sup>, leading to clean soil

<sup>1</sup> Oregon Comments on PUREX NTCRA, Niles, July 17, 2019

<sup>2</sup> October 2019 Hanford Advisory Board (HAB) Committee of the Whole, June 2020 Virtual HAB Meeting

unnecessarily taking up limited disposal space. The NTCRA demolition work at REDOX, PUREX, and B-Plant should be conducted in coordination with soil remediation elsewhere at the site to ensure that ERDF space is used efficiently.

### Waste Classification

The preferred action in the EE/CA proposes to grout the 291-B system in place, including six vaults containing loaded HEPA filters. B Plant was a critical piece of the spent fuel reprocessing effort that comprised the production mission. The plant eventually served as what could be considered a precursor waste treatment plant, removing cesium and strontium from tank waste and creating the capsules now stored in WESF. During the production mission and subsequent tank waste reprocessing, the HEPA filters located in the 291-B system vaults effectively captured a substantial amount of highly radioactive radionuclides. The 291-B system vaults are estimated to contain more than 135,000 curies of cesium and strontium, representing more than 50 percent of the total radioactivity remaining in the B-canyon complex.<sup>3</sup> In the late 1990s when the plant was decommissioned, Oregon<sup>4</sup>, the DNFSB<sup>5</sup>, and others voiced concern about the high levels of radiation in the plant HEPA filters and the potential for their degradation. In order to reduce the risk of contamination spread, DOE installed interim physical barriers to isolate the filters within the 291-B System vaults until a final decision could be made.

The EE/CA in its current state does not provide sufficient rationale to determine that grouting the system vaults would not make future removal of the HEPA filters technically and economically impractical. The NCP (40 CFR 300.430) specifies that interim actions should not be inconsistent with or preclude implementation of the expected final remedy for an Operable Unit. A DOE CERCLA Information Brief on the use of CERCLA for decommissioning activities at Federal Facilities further states that, “DOE needs to coordinate removal actions with EPA and state authorities to ensure that removal actions are consistent with and will not preclude final actions.” The EE/CA’s only evaluation of this criterion relative to a future final action is anemic at best, stating that the preferred alternative will, “support future remedial decisions and characterization activities at the B Plant Complex.” These “future remedial decisions” are not identified in the EE/CA, nor is there any technical or economic analysis to support the implied assertion that the HEPA vaults will be technically and economically practical to exhume after they have been entombed in grout.

The radiological material in the HEPA filters comprises key radionuclides that resulted directly from the reprocessing of spent nuclear fuel. As such, in accordance with the Nuclear Waste Policy Act, we see the need for DOE to undergo a formal process to determine whether they constitute high-level radioactive waste before any action is taken that could complicate future classification and/or disposal. The HEPA filters at B Plant captured cesium-137 and strontium-90 from a tank waste stream, so they may be appropriately compared to the Tank Side Cesium Removal ion exchange columns, the difference being that they removed key radionuclides from air instead of supernate. The TSCR columns have not been classified and are acknowledged to have no current path for disposal. It is our position that there needs to be consistency between the disposal paths and interim handling of these two waste streams. Even if

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<sup>3</sup> <https://pdw.hanford.gov/document/AR-03957>

<sup>4</sup> <https://pdw.hanford.gov/document/0064688H>

<sup>5</sup> <https://ehss.energy.gov/deprep/1996-2/dm96a15a.pdf>

the HEPA filters are not classified as high-level waste, the reported concentrations of cesium and strontium contained in them would seem to make them Greater Than Class C waste by the NRC's standards in 10 CFR 61.55. It follows that the grouted facility would potentially become a de facto shallow GTCC storage facility, which is a disposal context that the NRC characterizes as, "generally not suitable."

#### Recommendations for this CERCLA Action

While this EE/CA is appropriate for risk reduction and building demolition prep, the inclusion of grouting the 291-B system vaults potentially precludes a final remedial decision for the HEPA filters and dictates additional consideration. First, the range of reasonable alternatives in the EE/CA should include a removal option for the 291-B system, including an assessment of the disposal options for the HEPA filters based on their waste classification. This assessment was largely completed in 1997, when "alternatives for further risk reduction... ranging from in situ stabilization to complete remediation using remote methods"<sup>6</sup> were evaluated. This work could be updated to include a waste determination discussion. Second, alternatives 2 and 3 in the EE/CA should evaluate the cost and additional future technical requirements involved with future excavation and disposal of the HEPA filters if they are entombed in grout. The Nuclear Waste Policy Act should also be listed on the EE/CA as an ARAR for this CERCLA action.

If sufficient technical and economic justification is not provided in a revised EE/CA, it cannot be stated that the interim isolation of the HEPA filters would not preclude an expected final remedy, especially when no expected final remedy is named in the EE/CA. Therefore, assuming they can be classified as other than HLW, any wastes entombed as part of the proposed interim removal action would need to be evaluated consistent with the requirements of a low-level waste (LLW) disposal facility under DOE Order 435.1, including a performance assessment.

The EE/CA also discusses that waste generated during decommissioning preparation that is determined to be LLW, "...would preferentially be disposed as ERDF," without describing the process needed to make that LLW determination. As previously mentioned, an evaluation demonstrating that the filters (and other building debris that is radiologically active) qualify as Waste Incidental to Reprocessing would also seem to be required.

If, prior to the B Plant final ROD, there appears to be a substantive risk of collapse for the 291-B system, a more readily retrievable flowable fill should be used to stabilize the structure, or a temporary protective surface cover should be deployed until the final disposition status is known.

#### Broader Discussion of Central Plateau Disposal Principles Needed

Following DOE's cleanup successes along the river corridor, the Central Plateau contains the majority of the remaining risk at Hanford. There is an understandable desire to mitigate that risk and reduce the cost of managing aging structures. However, there are complexities involved with the Central Plateau that have not yet been resolved publicly. It is critical that decisions made now include an eye to the future. Will a Removal Action delay RI/FS completion? Is there enough contaminated material to

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<sup>6</sup> <https://www.osti.gov/servlets/purl/10149014>

accompany demolition debris so valuable landfill space at ERDF is not wasted? Will grouting highly contaminated subsurface structures make future remediation impractically expensive, or unachievable?

A broader question is one for which Oregon has been requesting a conversation with DOE since October of 2018. Because a variety of wastes within the Central Plateau were produced directly by the reprocessing of spent nuclear fuel, we are uncertain how and whether DOE proposes to make waste classification determinations to ensure that the fraction that qualifies as high-level waste is disposed appropriately. We have previously asked for clarification via e-mail and phone conversations and received no response from DOE on waste classification of residual sludge in hexone tanks (276-S-141, 246-S-142), vitrified tank waste in PUREX Tunnel 2, the "German Logs," Z-9 crib soils (both in-place and mined), and soil contaminated with tank farm waste under the 324 Building.

Our agency has periodically conducted staff-to-staff discussions with DOE and its contractors for complex topics and topics of special interest. The in-place solidification or onsite disposal of potential high-level or GTCC wastes as part of interim decisions appears to be a growing trend and strategy that warrants such a discussion. We would therefore like to request a staff-to-staff discussion (virtual in the time of COVID) so we can have a better understanding of the process DOE goes through to make these waste determinations for potential high-level waste outside of the tank waste treatment train.

If you have any questions related to these B-Plant NTCRA comments, please contact Tom Sicilia of my staff. Please contact me (or my successor) to discuss potential meeting times for the requested waste discussion.

Sincerely,



Ken Niles  
Assistant Director for Nuclear Safety

Cc: Alex Smith, Washington Department of Ecology  
Dave Einan, U.S. Environmental Protection Agency  
Matt Johnson, Confederated Tribes of the Umatilla Indian Reservation  
Jack Bell, Nez Perce Tribe  
Laurene Contreras, Yakama Nation  
Susan Leckband, Hanford Advisory Board  
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