



January 19, 2023

Comments Submitted Electronically at: <https://nw.ecology.commentinput.com/?id=JFVp9>

Washington State Department of Ecology  
3100 Port of Benton Boulevard  
Richland, Washington 99354

To Whom It May Concern,

Thank you for the opportunity to again submit comments on the *Proposed Class 3 Permit Modification for the Integrated Disposal Facility Leachate Collection System*. The safe and effective treatment of Hanford's high-level tank waste is essential to the protection of human health and the environment. All facilities that are a part of managing, storing, and treating Hanford's tank waste are a top concern of Hanford Challenge.

Hanford Challenge is an independent 501(c)(3) non-profit, public interest, environmental, and worker advocacy organization incorporated in the States of Washington and Oregon with a mission to create a future for the Hanford Nuclear Site that secures human health and safety, advances accountability, and promotes a sustainable environmental legacy. Hanford Challenge includes members who work at Hanford Nuclear Site; who work, live, and/or recreate near the site; and who are affected by conditions that endanger human health and the environment. Each member has a strong interest in ensuring the safe and effective cleanup of the nation's most toxic nuclear site for current and future generations.

Thank you for considering the following comments:

**Improve Public Accessibility:** Public accessibility to engage in meaningful comment is vital for Hanford cleanup. The added burdens to accessing information is an issue that must be addressed. We ask the State to provide a process that ensures information is clearly presented to the public for comment. Specifically:

- There is not a uniform process on how permit revisions are presented to the public for comment and key information is not available online, which creates confusion. We suggest providing a key on 'how to review permit revisions for comment' to increase public accessibility. Each key should set the commenter up to easily begin their review and remove the steps of (1) reaching out to the State to confirm which revision color(s) are open for comment and (2) reviewing the Focus or Fact Sheets to confirm which permit files are new.<sup>1</sup>

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<sup>1</sup> Providing new permit files in non-revision black text causes confusion as to whether they are open for comment. See Appendixes C7 Leachate Monitoring Plan, C7A Sampling and Analysis Plan for IDF Leachate, C8 Sub-surface Liquids Monitoring and Operations Plan, and 11A Visual Sampling Plan Report Documentation.

- We suggest providing a definitions chapter for each comment period. In the latest revisions, the term ‘leachate collection tank(s)’ replaces the word ‘tank(s)’ with unit(s), system, or system dangerous waste management unit(s) and thus, changing the easily understood term ‘tank(s)’ to the more specific industry acronyms LCUs, LCS, and LCS DWMUs.<sup>2</sup> We suggest taking the opposite approach by requiring common terms be defined with industry terms/acronyms whenever possible to remove the barrier that industry language creates. For example, ‘Leachate Tanks’ could be defined as the technical term/acronym Leachate Collection System Dangerous Waste Management Units (LCS DWMUs) with a brief explanation. This change not only makes the information more easily read, understood, and commented upon, but also should maintain compliance with language requirements.
- We suggest providing links to all permit documents and documents incorporated by reference<sup>3</sup> during each comment period to increase public accessibility. The current phased permitting limits the commenter’s access to the documents that are open for public comment. To understand and comment on the revisions without all the documents ranges from challenging to impossible. Requiring this change would not only increase public accessibility, but also provide additional accountability.

**Address IDF Waste Stream Uncertainty:** The future use of Integrated Disposal Facility (IDF) includes important unknown factors. A concern previously raised is the uncertainty about what contaminants will end up in IDF that could then end up in the leachate collection system (LCS). We ask that the permit specifically address the unknown variables that contaminant uncertainty creates, focusing on testing as available, monitoring consistently, and thorough action plans to help ensure the LCS is safely and effectively able to manage the IDF waste stream. Specifically:

- We suggest requiring a periodic review of assumptions that covers bounding conditions. For example, as more clarity emerges about waste that will be disposed of in IDF and collected through LCS, a periodic review of assumptions will help ensure the LCUs, LCS, LCS DWMUs, and the IDF leachate transport trucks will be adequately and safely equipped to handle the IDF contaminated leachate.
- We suggest including testing and monitoring for air emission hazards and contingency plans. It is concerning that the only mention of the air under *Procedures to Prevent Hazards* is an assumption that “based on the waste disposed in IDF, the resulting leachate is not anticipated to present an air emission hazard.”<sup>4</sup> Given the uncertainties regarding the waste disposed of in

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<sup>2</sup> See Chapter 3 Waste Analysis Plan, page 11; Chapter 4 Process Information, pages 16, 21, 30, and 34; Chapter 6 Procedures to Prevent Hazards, page 8; and etc.

<sup>3</sup> See, e.g., Appendix 4A1 Phase 1 Critical Systems Design Report, page 98 (“Operation and maintenance procedures for the tank will establish the required responses to be performed if leakage is detected.” Emphasis added as O&M Procedures aren’t available to the public and this is the only remaining reference to tank(s).) and Publication 22-05-024, pages 13 and 15 (states that “Ecology added Permit Conditions [III.11.E.5 and III.11.E.4],” but neither are added to the 09/22/22 draft permit. Emphasis added).

<sup>4</sup> Chapter 6 Procedures to Prevent Hazards, page 14.

IDF, it is confusing how this assumption was reached. Further explanation and emission protections seem warranted.

- We suggest including a verification process for IDF-generated wastes rather than making all “IDF-generated wastes [] exempt from waste confirmation and receipt activities.”<sup>5</sup> This exempt process seems to leave room for human error and make assumptions that other confirmation processes have dealt with the IDF leachate contaminant uncertainty. Without a verification process, it is unclear what measures are in place to help ensure only certain contaminants are left in IDF.
- We suggest providing thorough information on monitoring and action plans. There are several sections lacking vital information throughout the permit materials. For example:
  - “During Active Life, the above ground portions of the system and tank level indicators are inspected daily. Leak detection and level sensor inspections occur annually.”<sup>6</sup> Given the drastic difference between daily above ground inspections and annual sensor inspections, it leads one to question: Why only annual? Are annual inspections adequate?
  - “Leachate from the leachate collection and removal system (LCRS) shall be sampled and analyzed monthly for the first year of disposal cell operation, and quarterly thereafter[.] [] Leachate from the leak detection system (LDS) shall be sampled semi-annually[.]”<sup>7</sup> It is unclear why inspections of the LCRS should change from monthly to quarterly or what semi-annual sampling means.<sup>8</sup>
  - “Following removal of wastes from the LCS DWMUs, the concrete foundation for each building will be visually inspected for contamination (e.g., stains or residuals), cracks or other openings that reach the underlying soil.”<sup>9</sup> It is unclear whether there are periodic checks of the building and the soil prior to removal of wastes, specific inspection processes, or other groundwater monitoring operations.
  - “If IDF identifies a change in analytical data, additional analysis may be required.”<sup>10</sup> This part is quite vague, it is unclear at what point additional analysis is required, who would determine this, or whether it would be reported and/or logged.
  - “Since liner performance guarantees are required in the technical specifications for the tank manufacturer for three years following installation, it is likely that the inspection program would be initially set up around this time frame and gradually be increased over the life cycle of the tank.”<sup>11</sup> Given the IDF leachate contaminant uncertainty, it is irresponsible to

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<sup>5</sup> Chapter 3 Waste Analysis Plan, page 15.

<sup>6</sup> Chapter 6 Procedures to Prevent Hazards, page 11. Emphasis added. See also Appendix C8 Sub-surface Liquids Monitoring and Operations Plan, page 7 (provides for weekly monitoring of the Secondary Leak Detection System).

<sup>7</sup> Appendix C7A Sampling and Analysis Plan for IDF Leachate, page 7.

<sup>8</sup> Semi-annually has varied definitions, it is defined in parenthesis elsewhere within Appendix C7A as “(i.e. every six months).” Appendix C7A Sampling and Analysis Plan for IDF Leachate, page 9.

<sup>9</sup> Chapter 11 Closure, page 12.

<sup>10</sup> Appendix C7A Sampling and Analysis Plan for IDF Leachate, page 10.

<sup>11</sup> Appendix 4A1 Phase 1 Critical Systems Design Report, page 98. Emphasis added.

assume to rely on a manufacturer guarantee. We suggest including proactive inspections and a liner inspection process.

- “If sampling activities deviate from the frequencies identified in this SAP, an explanation will be documented in the Hanford Facility Operating Record (IDF portion).”<sup>12</sup> It is unclear how this is an effective process if deviations are simply noted, not reported, investigated, or otherwise acted upon regardless of the number of deviations.
- “Each LCU is designed and installed to prevent run-on from entering the unit. The units’ steel walls and aluminum dome covers prevent precipitation run-on from entering the unit. As no precipitation can enter the unit to contact the waste, no runoff can occur.”<sup>13</sup> In the testing process was the runoff prevention 100% effective? Are there no extenuating circumstances in which runoff can occur? Such information should be acknowledged and a plan should be in place for the possibility. In addition, an explanation on the difference between run-on and runoff would be helpful.
- We appreciate Ecology’s requiring a Secondary Waste Form Technical Requirements Document.<sup>14</sup> We hope it will allow for thorough review and prevent off-site treatment of brines, acetonitrile effluent, and other Hanford tank waste derivatives at Perma-Fix Northwest (PFNW) located within Richland city limits.<sup>15</sup> We have previously commented on PFWN’s disturbing history of accidents, violations, findings, and non-compliances that raise serious concerns about its treating waste from Hanford Nuclear Site. We ask that the State prohibit IDF waste transfers to PFWN explicitly.
- We suggest requiring a current “Sampling and Analysis Plan to support clean closure of the LCS DWMUs” with periodic updates to the public as information becomes available rather than “no later than six (6) months prior to acceptance of the last shipment of waste at the IDF.”<sup>16</sup> This change would proactively help all invested in Hanford Nuclear Site cleanup decisions understand what ‘clean closure’ means for IDF as a permanent landfill.
- We suggest prioritizing worker health and safety by providing both required and optional training opportunities for Hanford Nuclear Site Workers beyond the one training offered titled ‘Leachate Operations Qualification Card.’<sup>17</sup> For example, new and/or refresher trainings on IDF operations and spill protocols.

**Increase Specificity of Environmental, Health, and Safety Protections:** We appreciate the inclusion of environmental, health, and safety protections<sup>18</sup> and the addition of procedures that had

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<sup>12</sup> Appendix C7A Sampling and Analysis Plan for IDF Leachate, page 7.

<sup>13</sup> Chapter 6 Procedures to Prevent Hazards, page 13.

<sup>14</sup> Publication 22-05-024, pages 13 and 15.

<sup>15</sup> See Risky Business at Perma-Fix Northwest, <https://www.HanfordChallenge.org/pfnw>, 12/4/2020.

<sup>16</sup> Unit Specific Conditions, page 15.

<sup>17</sup> Chapter 8 Personnel Training, page 8.

<sup>18</sup> See, e.g., Chapter 4 Process Information, page 28 and Appendix C7A Sampling and Analysis Plan for IDF Leachate, page 8.

yet to be provided.<sup>19</sup> We have concerns about seemingly incomplete protections and procedures sections, for example:

- We are confused about the use of the language ‘clean closure.’ Specifically the part that provides, “In the unlikely event the soil beneath the LCS cannot meet clean closure performance standards, the Permittees will meet with Ecology to discuss closure.”<sup>20</sup> This leads one to question what the clean closure performance standards for LCS are, why there is a presumption for a clean closure of LCS given the IDF leachate contaminant uncertainty, and whether the boundary for LCS is so narrow that it does not include IDF.
- We are concerned about parts under the *Process Information* chapter that do not include key procedure details to enhance safety. For example, the following actions must be taken when there is a spill into the environment from (1) the LCU Liner system, then “stop the leak and contain any surface leakage, and manage as dangerous and/or mixed waste;”<sup>21</sup> or (2) the ancillary equipment, then “remove and dispose of all visible releases of dangerous waste to the environment.”<sup>22</sup> There is no further explanation or reference made to another set of procedures, yet many unanswered questions: how is the spill to be stopped and contained? How and where is the spilled waste disposed of? What protective equipment is used? At what point should workers call for additional help? What reporting is to be done?
- We are concerned about presumptions made about ‘rare storm events.’ Specifically, the part that provides “LCRS operations ensure that the fluid head on the top liner does not exceed 30.5 cm (12.0 in.) measured above the LCRS sump floor (except for a rare storm event []).”<sup>23</sup> Given the increase in environmental anomalies across the nation and world, it would be prudent to proactively plan.
- The permit provides that “any liquids remaining in the LCS will be drained and [] transported via tanker truck to a RCRA-permitted disposal facility.”<sup>24</sup> What are the RCRA-permitted disposal facilities and processes being considered? As previously mentioned, we are concerned about Perma-Fix Northwest (PFNW) treating waste from Hanford Nuclear Site due to its disturbing history of accidents, violations, findings, and non-compliances. Further, we strongly support vitrification, especially in opposition to the increasing interest in finding ways to grout Hanford’s tank waste.<sup>25</sup>

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<sup>19</sup> Compare Chapter 4 Process Information page 8 (crossed out section 4.2 Leachate Collection Tanks, which said “procedures will be written”) with page 30-34 (added section 4.3.4 Leachate Collection Units). See, e.g., Appendix C7A Sampling and Analysis Plan for IDF Leachate, page 16 (provides specific and clear expectations for logbooks).

<sup>20</sup> Chapter 11 Closure, page 12. Emphasis added.

<sup>21</sup> Chapter 4 Process Information, page 33. Emphasis added.

<sup>22</sup> Chapter 4 Process Information, page 34. Emphasis added.

<sup>23</sup> Appendix C7 Leachate Monitoring Plan, page 7.

<sup>24</sup> Chapter 11 Closure, page 11.

<sup>25</sup> See *Relabeling and Grouting Tank Waste at Hanford: Frequently Asked Questions*, <https://static1.squarespace.com/static/568adf4125981deb769d96b2/t/608c8d11cf966f0ac2885e2f/1619823889391/2021+04.30+FINAL+FAQ+on+rclassification+of+HLW.pdf>, 04/30/2021 and *Why Grout Failed at Hanford: Chronology of the Failed Grout Program*, <https://static1.squarespace.com/static/568adf4125981deb769d96b2/t/60f9b2bdb9480b7aeb6cbe15/1626976958173/2021+06.15+Why+Grout+Failed+at+Hanford.pdf>, 06/15/2021.


- We are concerned with the Leachate Monitoring Plan’s lack of thoroughness.<sup>26</sup> The entire plan is only 2.5 pages, including introduction, charts, and references. For example, the plan provides that an LDS liner with liquid above a certain depth “will be removed at the earliest practicable time after detection,” but does not indicate how often the liners are inspected or how they are otherwise monitored.<sup>27</sup>
- We suggest requiring components and specifications meeting Washington Administrative Code (WAC) requirements be provided rather than accepting the statement that “the following tank components and specifications were assessed and verified to meet the [WAC] requirements.”<sup>28</sup> Such information should be easy to provide as it has been confirmed as assessed and verified. Plus, the inclusion would increase transparency and accountability.

Finally, we’d like to bring your attention to the following:

- We noted that XR-5 proprietary geomembrane tank liners have been changed to Linear Low Density Polyethylene (LLDP) geomembrane tank liners<sup>29</sup> with little to no changes to other, seemingly connected parts. For example, this part was not updated so presumably is referring to XR-5 rather than LLDP “In addition, the results of previous chemical compatibility testing and studies were evaluated against leachate composition. Information gained from this evaluation was used to select a liner that will be compatible with the expected leachate.” Though this part may still be applicable to LLDP, it brings to question whether there are other parts that should be removed or updated.
- We noted a typo: twice in the acronym for “Quality Assurance Project Plan (QAPjP).”<sup>30</sup>

The safe and effective treatment of Hanford’s high-level tank waste is essential to the protection of human health and the environment. All facilities that are a part of managing, storing, and treating Hanford’s tank waste are a top concern of Hanford Challenge. We appreciate the work the State of Washington is doing to hold the Department of Energy to its commitments and can see that reflected in the permit conditions for the Integrated Disposal Facility.

Thank you for considering our comments.



Nikolas Peterson, Executive Director

<sup>26</sup> Appendix C7 Leachate Monitoring Plan, pages 7-9.

<sup>27</sup> Appendix C7 Leachate Monitoring Plan, pages 8.

<sup>28</sup> Chapter 4 Process Information, page 28-29. Emphasis added.

<sup>29</sup> Appendix 4A1 Phase 1 Critical Systems Design Report, page 97.

<sup>30</sup> Appendix C7A Sampling and Analysis Plan for IDF Leachate, page 13.