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Department of Ecology
NWP - Richland

October 6, 2019

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

Dear Department of Ecology:

Following are comments in response to the public comment period for the Proposed Class 2 Permit Modification for the Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF.) The modification would allow DOE to connect a primary waste transfer line from the WTP Effluent Management Facility (EMF) to the LERF, to add a secondary waste load-out system inside ETF, and add a filter sump tank to the existing ETF waste load-in station (September 16 to November 15, 2019)¹.

1. Materials Provided for Public Review are Incomplete

Letter 19-ECD-0069 contains the permit modification notification and the information referenced for public review. Letter 19-ECD-0069 states that the Ecology requested additional supplemental technical information to support the Class 2 permit modification development and Ecology's review, but not intended for public comment. I would appreciate if Ecology will make the supplemental technical information (per Attachment 5) public because the public's review is not supported if the material is withheld. The same documentation should be available to support the public's review as supports Ecology's review. For example, Attachment 5 refers to RPP-IQRPE-50054, Rev. 0, *Independent Qualified Registered Professional Engineer Design Assessment Report for ETF Brine Loadout System*. IQRPE reports are mandatory permit content per the Washington Administrative Code and have been previously released to the public. This report should be made public as part of this permit modification review.

2. Transfer Line Identification is Unclear

The Permit Conditions and text refer to the "WTP" Primary Transfer Line to LERF Basin 42 (4"-WTP-001-M17). The text is unclear whether this transfer line is specific to the EMF to LERF piping. Are there any other WTP to LERF piping routes? Previously, I thought there was a route to LERF from WTP at the LAW facility or at the PT facility for condensates/effluents, when EMF did not exist. If so, it would help if this new line were clearly called out in the text as the EMF line to LERF and not generically the WTP line. Also, page 2 of the change notice calls the line 4"-WTP-001-M17, but page 5, second to last bullet calls it "WTP-001." The previous permit modification request (associated with 242-A Evaporator) referred to this pipeline as a "backup" pipeline. Which is correct? A clarification in the text would help.

¹ <https://www.hanford.gov/pageaction.cfm/calendar?IndEventId=11808>

3. **Direction of Flow is Unclear for the EMF to LERF Pipeline**

The Fact sheet states that the pipeline is from EMF to LERF. However, sheet 8 of the RCRA Permit Change Notice states that the transfer line is “from LERF Basin 42 to WTP EMF.” Is there an intent to return liquid to WTP from LERF? Is the piping equipped with back flow prevention?

4. **The Proposed ETF Brine Loadout System has No NEPA Coverage and Should be Prohibited from Construction because it Implements a Decision that has Not Been Evaluated or Made**

Permit Condition III.3.J.5 establishes that “prior to receipt of any dangerous waste in the brine loadout system, the Permittees will submit a revised Addendum A, Part A Form to include a photograph of the 2025E Container Storage Area to the department.” Permit Condition III.3.J.9 establishes that “Prior to receipt of any dangerous waste in the Brine Loadout Station, the Permittees will submit functional testing for the automatic shutoff valves (60J-334 and 60J-335) to the department.” Section B.1.1 revises the ETF secondary treatment train to include “Brine Loadout.” Section B.6.1.2 allows sampling of the brine. Section C.2.4 similarly adds the Brine Loadout System to the ETF Secondary Treatment Train to allow transfer of waste into “totes.”

These permit conditions and content are not sufficient to allow dangerous waste brine loadout from Hanford. DOE has not prepared an update to the previous project at ETF that would have grouted the brine on-site. Project ORP-0014.C1, “Secondary Waste/ETF Construction” was on hold as of 2012, per a DOE letter from 2014.² This project would have provided at-source grouting of ETF brine. Ecology expressed support for the planned ETF upgrade project in 2009, in a letter encouraging completion of WTP supporting infrastructure.³ I would appreciate if Ecology would request and review the “on hold” project, because DOE Order 413.3B requirements to revisit the NEPA basis, risk analysis, and independent analysis of alternatives for the abandoned project seem not to have been met. The National Academies of Science have pointed out that the secondary wastes from WTP represent a significant risk.

A review of the NEPA documentation in the Tank Closure and Waste Management EIS shows that an upgrade (not a downgrade) to the ETF Facility was included in the Record of Decision (ROD). The ROD selected Tank Closure Alternative 2B, which requires treatment of secondary waste at ETF (and not elsewhere). The ROD includes using ETF upgrades (not downgrades). The ROD includes disposal of secondary Mixed Low Level Waste and Low Level Waste onsite at the IDF (and not elsewhere) (Waste Management Alternative 2). These items are from the EIS-0391-ROD#1–2013.

² Department of Energy Memorandum for Michael A. Peek from Christopher Honkomp, “Notification of Six Office of Environmental Management Capital Asset Projects Status to remain On-Hold,” August 15, 2014.

³ Department of Ecology Letter, Suzanne Dahl (for Jane Hedges) to Shirley Olinger, “Re: United States Department of Energy Study on Low-Activity Waste Treatment Strategy: External Technical Review of System Planning for Low-Activity Waste Treatment at Hanford, Dr. David S. Kosson, Vanderbilt University, et al., November 2008,” May 28, 2009.

Detailed sections of the TC&WM EIS show that the analyzed upgrades for ETF did NOT envision a loadout of brine, which would have been a downgrade requiring additional facilities and creating additional risks.

Appendix E of the TC&WM EIS, Section E.1.2.3.3, states that the secondary waste from ETF is a *powdery solid waste material* (page E-62.) Section E.1.2.3.3.4 states that an example solution for improving secondary waste disposal from WTP was to add a solidification capability to the ETF, however mass balance calculations and preliminary design information were not available. Therefore, specific changes to ETF were not evaluated in the TC&WM EIS. The alternatives assumed as-was ETF processing to a powdery solid, with a replacement ETF available when needed. Complete replacement of the ETF was expected to “bound the environmental impacts of “a solidification capability at the ETF.” Nowhere in the TC&WM EIS was downgrading of ETF to ship out brine instead of drying it evaluated or even discussed. The environmental impacts and risks of transportation and handling of liquid ETF brine were not addressed, and certainly not decided. As a result, construction should be prohibited because it wastes funds on a decision not made.

5. Tote Design Information is Missing – Tote Waste is New Orphan Waste

The permit modification does not describe brine “totes” sufficiently to determine if they meet DOT regulations for off-site transportation on public roads, as is envisioned. Design parameters and operating conditions for the totes are not described. A corrosion analysis or material compatibility analysis is not provided. Waste acceptance criteria and permitting for the unidentified receiving facilities are not provided. Filled totes appear to be another “orphan” waste, without an actual disposal path. This is similar to the case of the new “orphan” loaded non-elutable cesium ion exchange columns from the Tank Side Cesium Removal Project, where WTP has no capability, no design, and no funding to receive or process them.

6. Leachate Disposal from Landfills is Unclear

Section B.1.2 (page Addendum B.8) deletes the Environmental Restoration Disposal Facility landfill from the examples of sources of leachate to be treated at ETF. Is this change intended to exclude ERDF leachate? Will leachate from the IDF also be accepted at ETF?

7. Treatment of ETF Secondary Waste is too Vague

Section B.2.2.3 (page Addendum B.12) states that containers of secondary waste from ETF will be transferred to an “appropriate” treatment, storage, or disposal facility. Examples of the Central Waste Complex or ERDF are provided without providing limitations that are consistent with the EIS Record of Decision. The EIS requires disposal of the ETF secondary or treated waste on-site, and it does not provide for off-site treatment or on-site storage of liquids. Limitations consistent with the EIS should be included here. In addition, waste acceptance criteria are documented and available for

the Central Waste Complex and ERDF, but not for any off-site brine treatment facility.

8. Authorization and Environmental and Risk Evaluation Process Limitations for ETF Brine are Omitted

Section B.6.1 (page Addendum B.22) states that ETF dangerous waste brine may be transferred to an “authorized” dangerous waste facility for additional treatment. The limitations on what is authorized should be stated. The TC&WM EIS requires the brine, if any, to be grouted at ETF and not stored as a liquid or sent off site. As shown above, these scenarios were NOT analyzed in the EIS. Nor were they selected in any of the TC&WM EIS Records of Decision. The risks of shipping and treating this material have not been analyzed for impacts to the public and the environment.

9. Perma-Fix is the Intended Baseline Pathway for ETF Brine, Without Any Environmental, Safety or Technical Basis

ORP Operational Awareness Database Entry No. 37276, “Chief Engineer/ TPD/ TOD/ MIO/ECD review of DFLAW Readiness, Downstream Treatment & Disposal (LERF, ETF, Off-Site Treatment of MLLW, SALDS, TEDF, IDF,” April 2018, shows that “the bottleneck in the ETF process for some waste streams is the thin film dryer, which reduces the waste to a powder form. To address this the plant can be modified with a brine load-out port to bypass the thin-film dryer, taking liquid waste to Permafix for grouting (transported in 330 gallon totes). This is the baseline plan for DFLAW.”

The entry further states that: “There is an outstanding question whether Permafix will have its SEPA done and permits in place to support off-site solidification consistent with the One System Decision Document on the subject (OSDD 4).” ... “There is a question whether Permafix has the physical capacity and personnel required to handle the volume of waste which will be generated from the DFLAW operations.” ... “There is a lot of ammonia in the ETF feed. Throughout the ETF process, pH is adjusted to 5.0 to keep the ammonia as ammonium, and keep it from evolving. Permafix would have to neutralize the brine solution to make grout, which would evolve the ammonia. Permafix has not raised concerns, but there is concern that Permafix may be underestimating the amount of ammonia that will evolve.” ... There is a question regarding on how transportation of ORP waste from Hanford to Permafix will be documented for NEPA purposes. ... “Suggest DOE consider treating waste on site to meet LDR requirements, similar to what was done prior to 2008, when capacity existed at Central Waste Complex, WRAP and T-Plant to treat waste.” ... The brine solution coming to Perma-Fix from ETF would be approximately 82,000 gallons per year. ... Primary Waste Constituents include

... 99-Tc	8.86E+06 pCi/L
... Hg	2.1 mg/L...

Putting the ETF Solidification Upgrade Project on hold was predicated on ETF not being as a result a bottleneck. The result has been a poor decision to use a “baseline” off-site process that has no environmental basis, and perhaps will generate new safety risks. Revisiting Central Waste Complex or WRAP capacities that have been abandoned would

be a good idea, as suggested above. These facilities are farther from the public and subject to more transparent reporting.

10. A Comparison is Needed

Since Perma-Fix is the DFLAW “baseline” I would appreciate if Ecology will draw a circle on a map around ETF for a distance of two miles. Then draw a circle around Perma-Fix for a distance of two miles.. How many members of the public are affected in each case? How many if the distance is 5 miles? There are lessons from the recent contamination of a school near Portsmouth, Ohio from a nearby DOE facility. DOE should not be allowed to construct (implement a decision) without a public review and NEPA record of decision.

In addition PERMA-FIX treats mainly Hanford waste, based on EPA biennial report records⁴. Because the amounts from Hanford reported are well above 50%, Ecology should request that Permafix be included in the Hanford Air Operating Permit, so that its stack and boundary are evaluated. The current Hanford Air Operating Statement of Basis⁵, (page 10) incorrectly states that “the share of PFNW service output provided to DOE Hanford operations is currently less than 50%” such that “PFNW is not included in the Hanford Site Title V AOP .” This error should be corrected.

I would appreciate if Ecology will consider these comments before issuing the proposed permit.

⁴ Available from EPA Biennial Report Search for PERMA FIX NORTHWEST at <https://www.epa.gov/enviro/br-search>. Data are available for reporting years 2001 to 2015. 2015 Data are located at https://enviro.epa.gov/enviro/brs_report_v2.get_data?hand_id=WAR000010355&rep_year=2015&naic_code=&naic_code_desc=&yvalue=2015&mopt=0&mmopt=&wst_search=0&keyword1=&keyword2=&keyword3=&rvalue1=&rvalue2=&rvalue3=&cvalue1=&cvalue2=&cvalue3=

⁵ Located at https://fortress.wa.gov/ecy/nwp/permitting/AOP/renewal/two/Revision_B/07_28_16/SB-STGC/SB-STGC_R2RB.pdf

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