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Department of Ecology
NWP - Richland

May 8, 2022

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

Dear Department of Ecology:

Comments below are for the 60-day public comment period for the proposed Class 2 permit modification to the Hanford Dangerous Waste Permit, "Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility" chapter. The proposed permit modification adds an Acetonitrile (Methyl Cyanide) Distillate Loadout Facility, Acetonitrile Distillate tote storage, Acetonitrile Distillate storage tanks, and Brine Storage tanks to the 200 Area Effluent Treatment Facility (ETF). The new units will conduct dangerous waste operations resulting from Hanford's Waste Treatment and Immobilization Plant. The comment period ends June 4, 2022.

No.	Comment
1.	Before approving this permit change, I would appreciate if Ecology will investigate the feasibility of DOE being able to meet permit condition III.3.J.9, which states, <i>"Prior to processing waste through the steam stripper system, the Permittees must provide to Ecology the treatment and disposal pathway for the concentrated acetonitrile distillate secondary waste stream."</i> The current permit change would allow DOE to construct equipment for which there is no identified disposal path. As a result, the tanks will be an attractive nuisance, and will provide motivation to try to be able to use them no matter the cost or hazard. What is the likelihood that DOE can come up with a permitted and approved acetonitrile disposal path before WTP startup?
2.	Permit Condition III.3.J.7 states, <i>"Prior to operations of the brine loadout system, the Permittees must provide to Ecology for review and approval information demonstrating that the liquid brine waste stream will be shipped to authorized treatment, storage, or disposal facilities for treatment and disposal."</i> Again, the current permit change would allow DOE to construct equipment for which there is no identified disposal path. As a result, the brine tanks will also be an attractive nuisance, and will provide motivation to try to be able to use them no matter the cost or hazard. What is the likelihood that DOE can come up with a brine disposal path before WTP startup? Grouting of brine onsite (which is consistent with the on-site treatment preference in DOE O 435.1, has been "paused." Why?
3.	Increased concentrations for Acetonitrile in ETF streams are directly attributed to operation of the WTP LAW melters, (it is newly generated dangerous waste) rather than attributed to tank waste, which has much lower concentrations. Specifically, the acetonitrile in the current permit request will be generated in the WTP off-gas system. In WTP, acetonitrile, a volatile organic, is generated in the gas phase. The

	<p>best available technology, which is used in WTP for volatile organics, has been selected as thermal catalytic oxidation (thermal treatment). Why then, does WTP scrub this gas into the liquid rather than sending it to a TCO? Please note that tank farms is even testing thermal oxidation for tank ventilation systems, per letter 21-NWP-218. Organics are much lower in tank farms off-gases than the WTP-generated acetonitrile, aren't they? Why use steam stripping, which does not destroy the waste?</p> <p>Why has DOE been allowed to use steam stripping, which concentrates the hazard, instead of installing thermal treatment at WTP or ETF?</p>
<p>3.</p>	<p>Ecology noted the hazards of acetonitrile processing at PFNW and at ETF in unresolved comments, even showing that the <i>majority of the acetonitrile</i> [a dangerous waste] <i>goes to the atmosphere!</i></p> <p>Ecology's comments and questions are excellent ones. See: 21-TF-003810, <i>Submittal of DOE/ORP-2021-05, DFLAW to Meet M-062-51-T01 & M-062-52-T01 RCR comments on DFLAW secondary waste work plan (002)_ECY_3-2-22.docx.</i></p> <p>I would appreciate if Ecology would require the comments you wrote in the "RCR for DOE/ORP-2021-05, Rev. 0 Direct-Feed Low-Activity Waste Secondary Liquid And Solid Waste Work Plan," March 2, 2022, be thoroughly resolved, with appropriate "best available technology" analyses completed, and with appropriate universal treatment standards met, <u>on-site</u>, at Hanford.</p> <p>Ecology's comments should be resolved before construction is allowed to begin, and the responses published in the TPA Administrative Record.</p> <p><u>The acetonitrile waste should not be processed off-site, and neither should the brine.</u> Nothing in the PFNW EIS even approaches the compositions or volumes that will be transferred from a lower risk to a much higher risk location.</p>
<p>4.</p>	<p>Page 8196 of the review package, RPP-CALC-64876, sheet 9 of 15, states "Information is not readily available regarding the specific expected corrosion rates of grades 316 and 316L stainless steel in contact with a 2.3% by weight acetonitrile / DI water solution. For this analysis, the use of a 2 mil per year deterioration factor was selected based upon available information including vendor compatibility charts, material compatibility report RPP-RPT-62550, Rev. 0, and constituent measurements of a sample of the acetonitrile provided in the Inorganic Compounds Report."</p> <p>The material compatibility reports for brine and for acetonitrile, such as RPP-RPT-62550, are not included in the permit package. I would appreciate if Ecology will check and see if the estimated compositions in these reports match the integrated</p>

	<p>process flow sheet, including the effects of the dissolved and entrained Carbon Dioxide from the previous permit modification. Often the inputs to these documents are out of date so that the conclusions may not be reliable. Is the compatibility analysis complete and current? Is the input assumption and application for corrosion defensible?</p>
5.	<p>Secondary containment is addressed in the permit modification package for acetonitrile and brine tanks and totes. Section C.3.10.3 says a portable pumping system will be used, but vapor releases are not contained by the secondary containment equipment in this permit. Acetonitrile has a NIOSH recommended airborne exposure limit of 20 ppm over a 10 hour work shift, with a legal limit of 40 ppm over an 8 hr work shift. At 22,964 ppm in the liquid, the acetonitrile distillate will exceed exposure limits by a lot in the vapor phase, as it is volatile. In the event of a spill how are workers protected from vapors? Are the secondary containment pits sealed or equipped with local ventilation?</p>

Thank you very much for considering these comments.