June 18, 2021

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Comments on Modification of the 200-Area Effluent Treatment Facility (ETF) Delisting Documentation

Dear Ms. McFadden and Dr. Bartus:

I am writing in response to the public comment period (June 7, 2021 to July 7, 2021) for the proposed ETF Delisting Modification[1].

The proposed modification included letter 21-ECD-000789, and attachments including

- 40 CFR 261 Appendix IX Table 2 Modifications (Attachment 2)
- RPP-RPT-63053, Rev 0, *Engineering Report Supporting Treatment of the WTP DFLAW Waste Stream at the 200 Area Effluent Treatment Facility Richland, WA*, March 2021. (Attachment 3)
- Supporting reference list with 14 documents (Attachment 4).

The proposed changes relate to addition of a new waste treatment process (steam stripping) to the 200-Area ETF to accommodate the expected level of "certain constituents" in liquid effluent from the WTP Effluent Management System, specifically acetonitrile.

[1] According to the EPA the delisting process is initiated by the generator (the person who creates the waste), who prepares a petition for delisting the waste. The petition provides information about the waste, including its chemical composition, to demonstrate the rationale for delisting the waste. The petition is reviewed by the appropriate regulatory agency -- either U.S. EPA or an authorized state hazardous waste regulatory agency -- to determine whether the waste should continue to be listed as hazardous.

It appears that the current petition revision is solely to address acetonitrile, but that there are other unknowns and chemicals of concern to be submitted at a later date for future delisting petitions. There is no guarantee that there will be a future capability to treat the future unknowns, leaving a considerable risk of what to do with non-compliant effluent from the WTP.

In reviewing the delisting materials provided for review with letter 21-ECD-00789, RPP-RPT-63053 states in the executive summary:

"The Waste Treatment and Immobilization Plant Direct Feed Low Activity Waste program waste stream is projected to contain a range of organic and inorganic constituents within the 200 Area ETF treatability envelope except for the organic compound acetonitrile. Acetonitrile is projected to be present in Waste Treatment and Immobilization Plant waste stream at concentrations up to 59.9 milligrams per liter (mg/L) which exceeds the approved acetonitrile treatability envelope of 23.1 mg/L. Acetonitrile is projected to be formed as a ***product of incomplete combustion*** *within the Waste Treatment and Immobilization Plant and not present in the waste feed from the tank farms. The Waste Treatment and Immobilization Plant waste stream containing acetonitrile will be primarily generated from the submerged bed scrubber and wet electrostatic precipitator components."*

The basis for this is a preliminary evaluation in RPP-RPT-61923. (See page 1 of RPP-RPT-62739).

Page 16 of RPP-RPT-62739 states that *"The spreadsheet "Estimation of Secondary Waste Concentrate" in Appendix C of RPP-RPT-60974 projected that once the WTP EMF hot operations wastewater was processed through ETF, the secondary waste (****brine or powder****) will exceed the LDR treatment standards for lead, mercury and selenium." ... Therefore, all specific waste acceptance criteria required by IDF for ETF's STT secondary solid waste* ***remains a data gap.*** *" Also "Various projects are underway to mitigate ETF's inability to treat the WTP EMF hot operations wastewater including: restoration of the peroxide destruction modules (PDMs); replacement in kind of a newer UV/Ox unit; addition of a steam stripper and carbonate/CO_2 conversion/ removal system, etc."*

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It appears that the WTP LAW melter/incinerators are ineffective at treating tank waste, and WTP is actually "projected" to produce new and increased quantities of listed waste, beginning with acetonitrile.

Page 38: "TOC has initiated an additional project to install the capability to load-out brine from the ETF STT's concentrate tanks into totes **for shipment off-site**. This project will mitigate brine removal issues from the STT and expand the capacity of WTP EMF hot operations effluent treated."

Also – EPA[2] has noted that acetonitrile is difficult to destroy. Will the yet undiscovered other constituents be similarly difficult to destroy, potentially leading to more "off-site" promises and off-site risks?

There are multiple non-confirmed letter revision inputs to this proposed modification, indicating uncertainty and risk associated with the products produced at ETF (effluent to the SALDS, brine, etc.) They are:

- Data Gaps are admitted and described on 14 pages of the 21-ECD-00789 submittal.

- Page 48 of RPP-RPT-62739 states that "The modeling effort by the WTP Organization has not been validated by chemical sampling and analyses, and thus is a data gap with the uncertainty that additional constituents or higher concentrations of identified constituents are present. *The risk of not resolving this data gap is that LERF/ETF will not be able to adequately treat the WTP EMF hot operations waste stream associated with DFLAW operations; and regulatory permitting limits exceeded.*

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  These documents indicate further uncertainty in compositions in this submittal, contrary to EPA's need for composition information in a delisting petition (footnote 1).

Further, Ecology noted, in response to comments Publication 21-05-009[3], that Ecology's acceptance of an incomplete data set for Milestone M-062-50 per letter 20-ECD-0057, was based on DOE's promise of future work on the mass balance, *including submittal of mass balance*

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information related to the permit application and modifications. In the present petition the permit and delisting modifications are **continuing without a verified flow sheet.**

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Information in the proposed delisting package notes that ETF brine could be sent "off-site" for further treatment. See RPP-RPT-62739, pages 35, page 38, page 39, and page 108.

I appreciate that DOE is developing a grout process at ETF, because this keeps the hazardous, contaminated liquids on site, far above the water table. I believe this grouting process should be expanded to include other wastes, so that they do not have to be shipped off-site.

I would appreciate if DOE would discontinue efforts to send any tank waste related liquids "off-site" for treatment, because the expected location is at Perma-Fix Northwest, which is only a few feet above the water table, and PFNW has a painful safety history[5].

When I looked at prior EPA and Ecology delisting petition changes for ETF, I found that the composition information was much more clear. Looking at DOE/RL-92-72[6], while compositions were known to vary, they were better known from sources such as the 242-A evaporator than they are from WTP. In the case of 242-A condensate, condensates had been sampled, and surrogate wastes were processed through pilot scale ETF treatment units in order to provide an "up front" petition.

No pilot scale processes have been conducted for the current WTP EMF effluent. There is no pilot EMF and no integrated pilot scale DFLAW process treatment train. The integrated WTP "pilot scale" equipment does not exist for DFLAW. Rather WTP itself is being built as a full scale pilot plant, with unknown and uncertain (but certain to be expensive) results.

The above information leads directly to a conclusion that, once again, fast track design-build coupled with phased permitting has led to the approach that – no matter what we do, the deep pockets of the federal government will be used to fix it. No need for responsible design completion before construction and startup.

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[6] ***200 Area Effluent Treatment Facility Delisting Petition,*** DOE/RL-92-72, Rev 1, August 1993. In the case of the 242-A Evaporator, the use of a surrogate waste was necessary because the 242-A Evaporator currently was not operating. The surrogate waste was processed through pilot-scale treatment units, which were selected to reflect the capabilities of the technologies that were to be incorporated into the 200 Area Effluent Treatment Facility.

RPP-63093, page 19 states that in the acetonitrile steam stripper, **ETF-treated effluent from the verification tanks** is used as *make-up water* to the boiler system and for contact cooling in the distillate storage tank. Since the treated effluent contains tritium, this results in increased tritium releases from the facility stack to the air – contrary to ALARA and contrary to the purpose of ETF to ensure that tritium decays before release to the environment, through percolation in the SALDS. The acetonitrile risk caused by ineffective incineration is being managed by increasing other risks.

Ecology has accepted DOE's approach of "finish DFLAW at all/any costs" and "trust us," "we will spend any amount to fix our errors and omissions." However, I would appreciate if you will insist that DOE's waste be processed on site, far above the water table, rather than spreading the waste and risk inside the Richland City Limits. The recent GAO report, GAO-21-585R[7], *"Department of Energy Environmental Liabilities Continue to Grow,"* notes that "EM's environmental liability has grown at a rate that has outpaced its spending on cleanup activities." Ecology and EPA should not approve a delisting petition that contains a pathway for spreading the risks to the vicinity of Richland residents and businesses.

Any tank-waste-related feeds to LERF/ETF and any brines produced as a result of the changing "projections" of WTP waste compositions as described in the current delisting petition, should be prohibited from off-site treatment. The cradle to grave liability for this waste rests with DOE, and DOE should not share it with a facility that has a poor track record and a poor environmental location.

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