

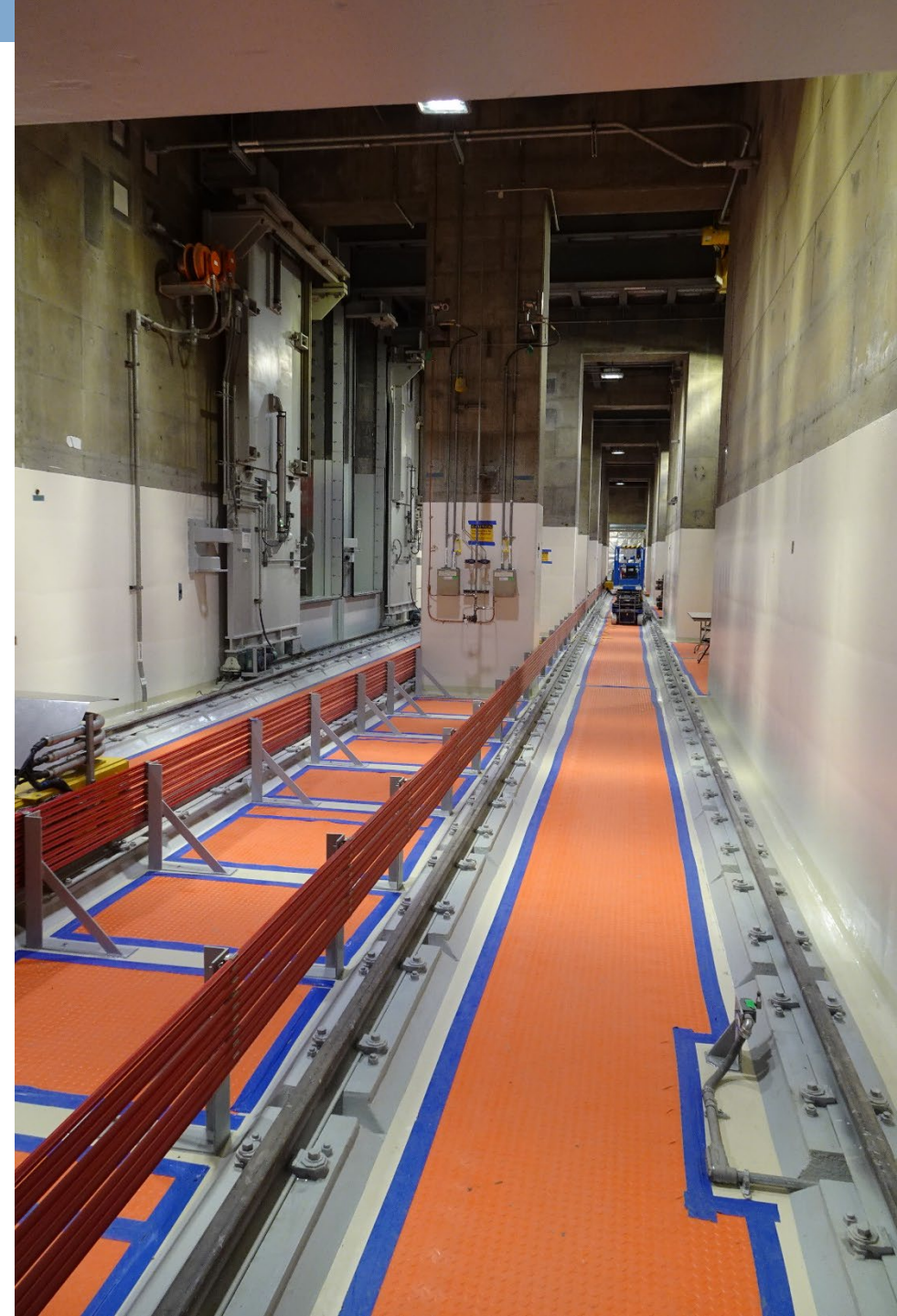


NAS Public Meeting – Continued Analysis of Hanford Supplemental Low Activity Waste Treatment (SLAW)

Suzanne Dahl
January, 2023

Overview

- Limited time to review the FFRDC report
- FFRDC appears to be on a good path
- Report 3 has some helpful take aways
- Ecology responses in Appendix J of FFRDC Report 2



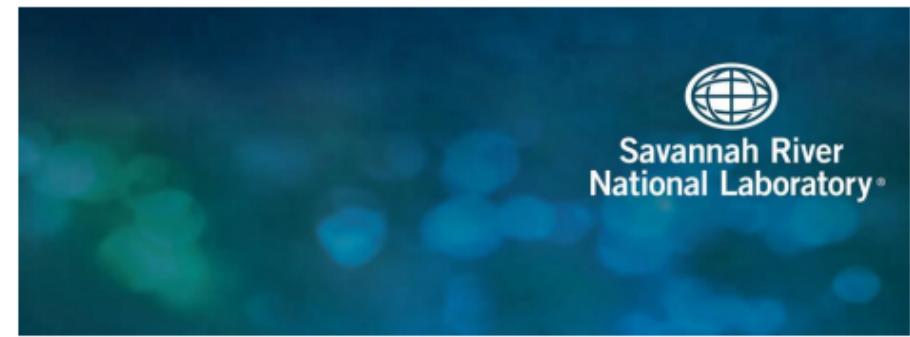
Status

- DFLAW Commissioning and restarting HLW Facility design
- Must maintain progress on both DFLAW operations and WTP construction restart
- Program of Record, Tri-Party Agreement, and Consent Decree
- Holistic Negotiations and Analysis of Alternatives
- SLAW, Alternative Treatment, HLW Vitrification and Pretreatment Schedules are discussed in recent AoA Alternatives Report
- SLAW decision implementation:
 - EIS Supplement and ROD Amendment
 - Ecology regulatory determination - implementation through TPA updates and permits



Key Areas of Report

- Recommendation - Thank you for noting: **Early** treatment via grout and offsite disposal - **concurrently** with DFLAW is beneficial.
- Conclusion 6 - Thank you for noting: Off-site disposal eliminates the concern regarding potential additional impacts to Hanford groundwater and the Columbia River from the on-site disposal of non-vitrified LAW.
- Conclusion 7 – Thank you for noting: Off-site disposal at licensed LLW facilities outside of the state of Washington can result in removing ~70% of the inventory of Tc^{99} , I^{129} , and nitrates.
- Conclusion 9 – Thank you for noting: Supplemental LAW treatment capability is needed as early as possible, and that
 - Technical maturation activities that need to be accomplished need to be identified.



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Follow-on Report of Analysis of Approaches to Supplemental Treatment of Low-Activity Waste at the Hanford Nuclear Reservation



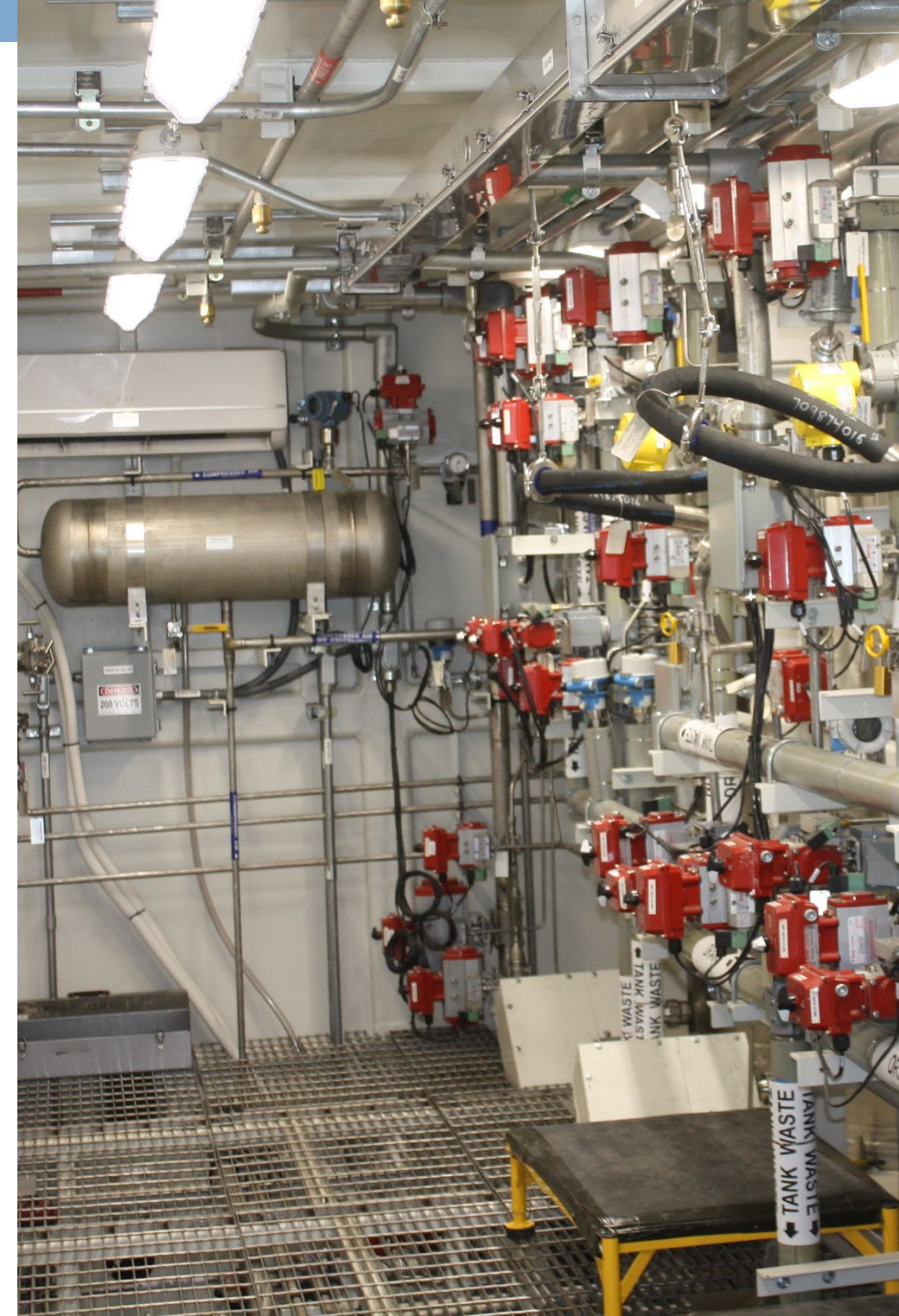
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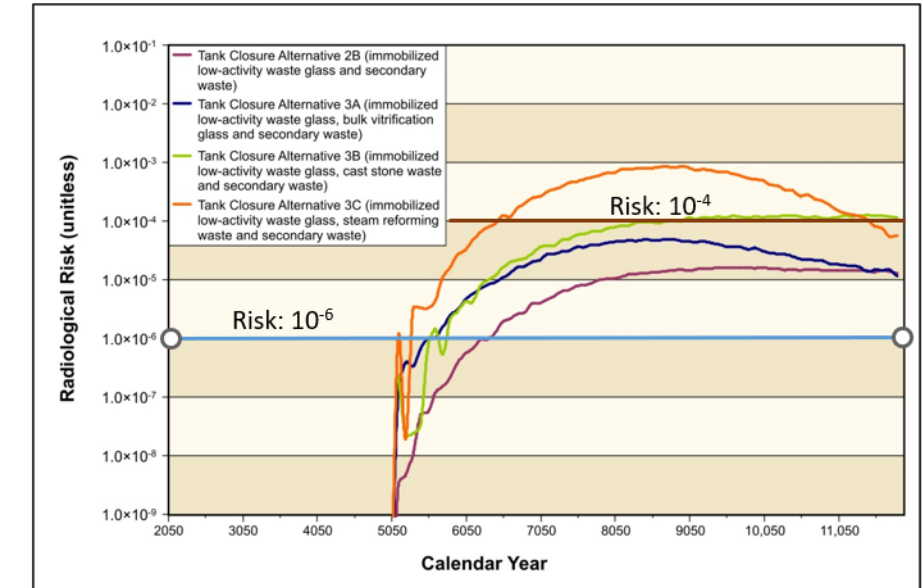
A Point on Nomenclature

- Ecology views early (during this decade) grout treatment and offsite disposal as alternative treatment
 - Potential and promising
- Ecology views supplemental LAW treatment (SLAW) as the treatment needed to take care of additional LAW effluent that is generated once Pretreatment begins washing HLW sludges.
- Nuanced point, the two are different in scope, schedule and cost.



Remaining Different Points of View

- Don't agree that glass and grout housed in onsite disposal will be equally effective at protecting the groundwater and Columbia River.
 - Current NEPA document of record does not reflect grout as protective.
- Don't agree that grout is acceptable for onsite SLAW disposal.
 - Have not seen evidence of a production scale grout formula that is acceptable for onsite disposal.



Peak Groundwater Results Primary Forms and Secondary Waste (EIS 2012)

	Glass	Glass and Bulk Vit	Glass and Cast Stone	Glass and Steam Reforming	Drinking Water Standard
iodine-129 (pCi/L)	1.4	1.7	0.7	10.7	1
technetium-99 (pCi/L)	471	1,604	5,022	29,171	900
chromium (mcg/L)	4	2	436	436	100
nitrate (mcg/L)	14,243	14,381	50,234	14,512	45,000

Conclusion 8 - Disagreement

- RCRA Principle #1: RCRA waste codes and LDR treatment standards attach at a waste stream's point of generation. For wastes generated prior to the effective date of an applicable LDR treatment standard, that LDR treatment standard attaches to the waste on the effective date of EPA's final rule promulgating that standard.
 - o All of Hanford's tank waste was generated during the 1940s through 1980s.
 - o The effective date of the HLVIT treatment standard, as set forth in 55 Fed. Reg. 22520, was May 8, 1990.
 - o None of Hanford's tank waste had been separated into HLW and LAW fractions when the HLVIT treatment standard went into effect.
 - o Accordingly, the HLVIT treatment standard attached to all of Hanford's tank waste on May 8, 1990.
- RCRA Principle #2: Once attached, LDR treatment standards remain attached until satisfied or until the appropriate regulatory authority issues/approves a treatability variance, determination of equivalent treatment, or no-migration petition.
 - o The HLVIT treatment standard will remain attached to all of Hanford's tank waste until:
 - It is vitrified in accordance with 40 CFR §§ 268.40, 268.42; or
 - The appropriate regulatory authority issues/approves a TV, DET, or no-migration petition.
 - o Following filtration and pre-treatment, non-vitrified LAW *may* be eligible for a TV or no-migration petition, if properly reclassified under the AEA (i.e., valid WIR determination) and disposed of in a sufficiently protective disposal site.



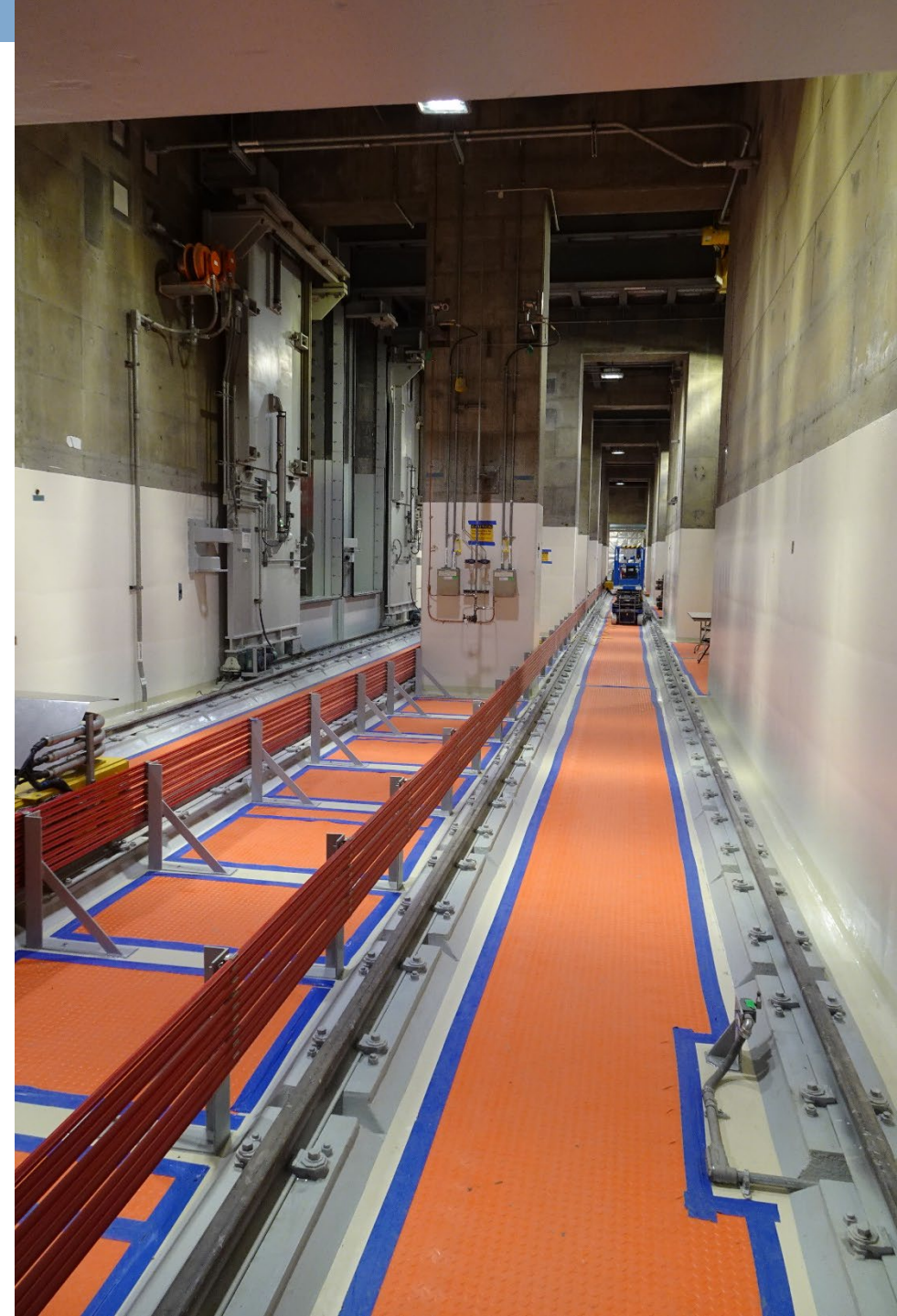
Supplemental Treatment Need

- Right Sizing:
 - 2 decades of running DFLAW, + 2 decades of running DFHLW (without sludge washing), + greater glass loading + 2 decades of Alternative LAW treatment (early SLAW) = less capacity needed in SLAW facility
- Right Waste for the Disposal Site:
 - Current acceptable onsite LAW forms = glass
 - Alternative 4B might be a viable path for offsite grouted supplemental treatment and disposal. Suggested offsite disposal location has a more robust geology.
 - Important to have sufficient characterization data for the waste, appropriate getter information, applicable limitations and restrictions on waste processing. Also important to understand the uniqueness of disposal site.
- Right Timing:
 - Supplemental Treatment = when Pretreatment of sludge is occurring
 - Doing early Alternative LAW grout treatment (offsite disposal) has distinct advantages:
 - Proof of concept
 - Early risk reduction for SST waste
 - Drives shorter mission duration and potentially lower cost
 - May move significant key inventory offsite and away from Hanford groundwater and Columbia River and into more robust landfill



Summary

- Limited FFRDC report review
- FFRDC appears to be on a good path
- Seems to be a convergence of ideas and thoughts





Thank you

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