

FFRDC Response to NAS Recommendations **DRAFT**

NAS Recommendation (summarized):	FFRDC Approach/Response	Applicable Section
A: Include a discussion of the tank integrity program with references to describe the strategy that is adopted and the status to provide perspective for decision makers.	- Added References & Discussion of Hanford structural integrity programs - FFRDC scope does not assess or predict structural failures	1.3.2
B: The affordability concept should be removed from the "likelihood of successful mission completion" criterion and not assume any funding limit for this purpose. The FFRDC should then compare unconstrained lifecycle cost profiles with sensitivity analyses about what funding levels would be required.	- Changed to "benchmark annual funding" - Expanded discussion of insensitivity to unconstrained funding - Retained annual funding needs in Criterion 3 (Likelihood of Successful Completion)	Executive Summary, 3.2, 4.1, 5.0, and 6.1 Appendix I.A., I.C., II.D., II.F.
C: i. Make defensible assumptions related to cost (e.g., capital cost, interest rates, escalation, operating cost, time to construct), calculate the cost profile for the duration of the mission, and then perform sensitivity studies on this analysis.	Costs, rates, timing, & mission impacts clarified in Appendices	Appendix II. F.
C: ii. Provide graphs depicting the amount of SLAW processed and the amount remaining each year in terms of waste volume and radioactivity, and the annual projected budget requirements for each alternative to achieve a comparable rate of SLAW processing.	Table moved from Appendix to Main Body of report showing quantities and curies removed and dollars spent vs. time for selected alternatives (Risk Reduction)	Section 3.4 (Table 3.4-1) and Appendix II.F.

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D: Include a discussion of issues associated with obtaining regulatory approval for the various options. Specifically, it would be helpful to focus on the significant adverse consequences of grouted SLAW not being acceptable for disposal at IDF or other out-of-state disposal sites.	- Expanded discussion of dual paths for offsite disposal - Expanded discussion of risks and likely options if offsite options are unavailable	Section 6.2
E: Expand consideration of the consequences of potential impediments impacting the safe and expeditious SLAW management, such as grouted SLAW not being accepted for transportation, disposal at IDF, or other out-of-state disposal sites. The FFRDC should incorporate insights from public comments obtained to date in the final report, as well as the experiences of other sites that have transported radioactive waste to distant treatment or disposal locations	- Expanded discussion of transportation requirements - Expanded discussion of Offsite Facility Requirements - Discussed Dual Pathway Risk Mitigation	Sections 6.1 and 6.2 Appendix I.D., II, G., and II.H (H.13)
F: Acknowledge as a sub-criterion under key criterion 6 (community/public acceptance), consideration of the location and amount of land to which tribal members are likely to have access among the four alternatives that were evaluated.	- Added Tribal Treaty Aspects and reference to DOE Order 144.1 - Did not revise Criterion 6 because treaty rights aspects involve government to government interactions	Executive Summary Sections 2.0 and 6.2
G: Give more discussion of the consequences for cost, time to completion, and likelihood of completion of the delayed start date of the vitrification treatment.	Tables from Appendix moved into the Main Body	Section 3.4 Appendix II.F.
H: Address the implications of using monthly averages of pre-treated liquid SLAW compositions when dose limits are on a tanker-by-tanker basis	- Expanded discussion of monthly feed vector - Performed LSA Dose Modeling	Section 1.3.1.1. Appendix II.H. (H.10)

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NAS Recommendation (summarized):	FFRDC Approach/Response	Applicable Section
I: The FFRDC needs to resolve this possible dose rate inconsistency: i. Describe how tanker dose rates were calculated and provide some summary results, especially for the dose rate at 3 meters and ii. Reconcile the inconsistency between using shielding to meet the dose rate limit at 3 meters with the statement that such an approach is prohibited to underpin the conclusion that liquid SLAW will be LSA waste (USNRC, 2021).	Documented Dose Rate modeling & results	Appendix II.H. (H.5.3) Appendix II.H. (H.5.3)
J: The FFRDC report should elaborate the potential negative consequences of the unavailability of off-site disposal by (1) discussing the possibility that permission to dispose of grouted SLAW at WCS and/or Clive might never occur or someday be withdrawn; (2) discussing what is known about public acceptance regarding potential grouted SLAW disposal in Texas and Utah; and (3) providing more information surrounding the orphaned waste issue including specifics on how the issue might develop and what the consequences/coping measures might be.	- Discussed “orphaned” waste consequences and logical approaches if offsite options become unavailable - Reinforced ~92% Supplemental LAW meets Class A enabling two offsite options - Did not discuss Public Acceptance at offsite locations (consistent with approach to criterion 6)	Section 6.2 Appendix I.D (D.3.7)
K: The differences between on-site and off-site grouting treatment should be separately analyzed in the same level of detail as on- and off-site disposal. The grout alternatives should identify potential variations on the on-site and off-site alternatives, such as tank-side treatment or pretreatment, to provide DOE with the ability to make a financial “business case” with a range of budgetary possibilities for on- and off-site alternatives, including additional upfront DOE funding. This is also captured by a public comment from Hastings (see Appendix C) regarding possible technologies to increase the speed with which tank waste is retrieved.	Recognized potential for modular onsite grout plants and added discussion	Section 3.3.4

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L: Comparisons should be quantified, and as such, charts and graphs that lack a quantified basis should be eliminated (see Finding 4). This recommendation is particularly directed at the presentations in Section 4.0 Comparative Analyses.	Modified & replaced qualitative graphics	Section 4.3
M: If the FFRDC is to offer a recommendation, it needs to be fully transparent concerning the methods used to reach the recommendation and the analysis that supports the recommendation. In particular: i. The report should explain the process that led to the recommendation, who participated, and explicitly acknowledge the value judgments made in implementing the process. ii. The report should describe how the key criteria of regulatory and public acceptance were considered. If regulatory and public acceptance factors were not considered, except as significant uncertainties, by the FFRDC in developing its recommendation this should be made explicit	- Expanded description of how Recommendation was derived & who participated - Explained that the recommendation is based on assessments not sensitive to Regulatory & Public Acceptance criteria	Section 6.2 Section 4.1, 4.3, and Appendix I.A (A.2)