

River Protection Project Waste Treatment & Disposition

January 2009

Insights From External Review Analyses

- No need to make LAW ST decision now: make in 2015 – 2017 once Na/Al uncertainties reduced, M-2/M-3 Pretreatment issues resolved, and improved overall integrated RPP system understanding in place (e.g., System Plan 4)
- WTP LAW Facility alone cannot complete LAW immobilization mission in same timeframe as HLW mission even with 3rd melter or higher capacity melters. Third melter would require significant LAW Vit Facility construction changes
- Prior benefits associated with BV including deployment in 200-E and 200-W reduced by BV cost increases and enhancements in WTP LAW waste loading
- 2nd LAW provides most favorable present worth while achieving 30 years (or less) LAW treatment mission completion (shorter duration possible with higher capacity ST, e.g., Enhanced 2nd LAW. Well understood technology with flexibility to establish ST size once Na/Al management strategy in place
- IPS availability & cost impacts ELAW value -- IPS may not be ready until 2016 reducing ELAW waste processing and additional SST retrieval benefits
- Tank waste TRU management strategy required to obtain necessary approvals and establish WIPP disposal schedules
- Present worth analyses address capital & operating cost-time profile differences between scenarios

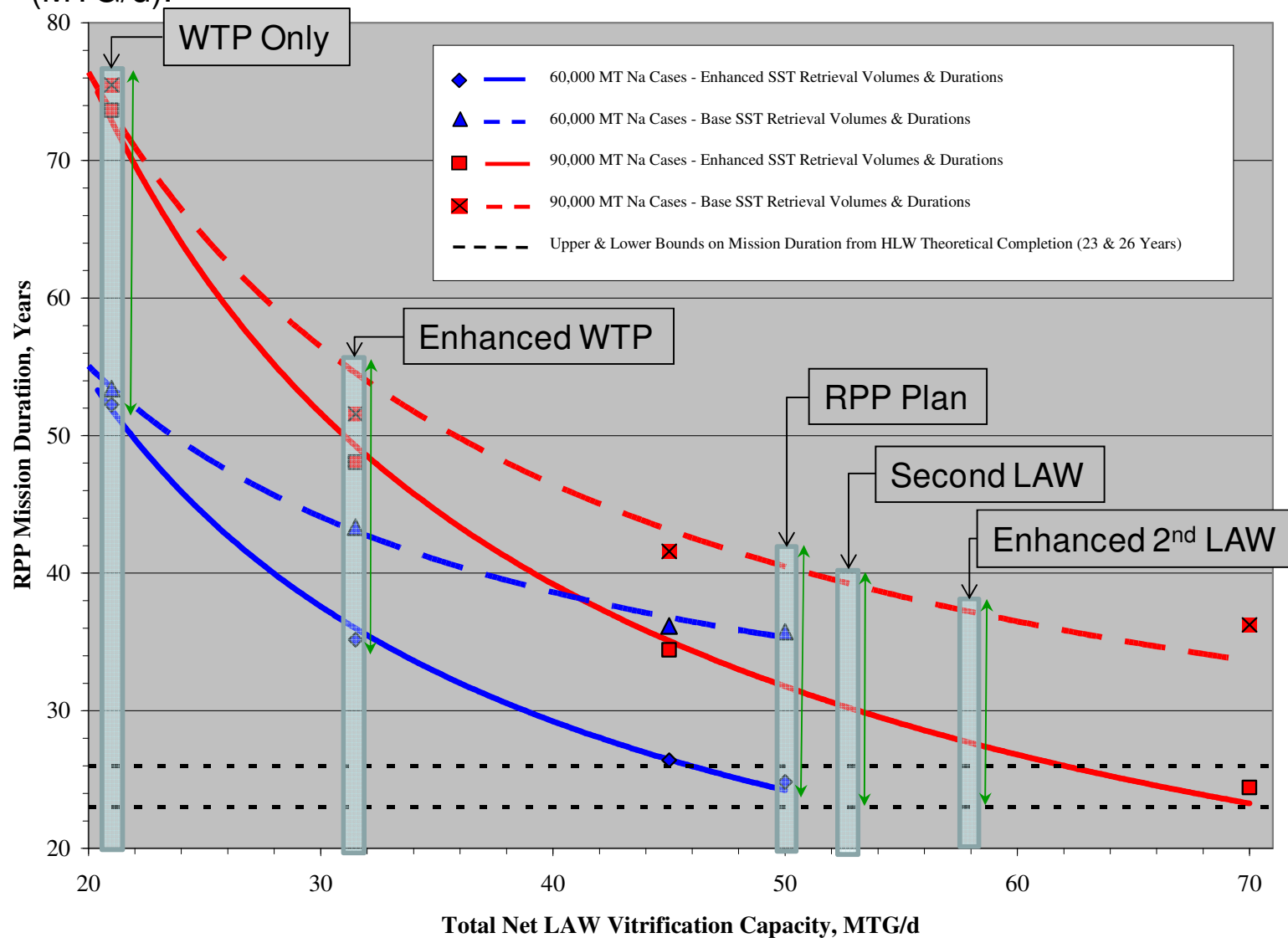
External Review Results

LAW Treatment Scenario	60,000 MT Sodium		90,000 MT Sodium	
Scenario	Completion (Duration)	PV (\$B)	Completion (Duration)	PV (\$B)
1a. WTP Only	2073 (54)	29.3	2093 (74)	34
1b. WTP/ELAW/IPS	2068 (54)	29.3	2088 (74)	33.8
2a. WTP/BV	2049 (30)	27.1	2055 (36)	29.8
2b. WTP/BV/ELAW/IPS	2046 (32)	27.0	2052 (38)	29.7
2c. WTP/BV/ELAW/IPS	2049 (35)	28.2	2055 (41)	30.8
3a. WTP/3 rd melter	2055 (36)	25.9	2070 (51)	31.2
3b. WTP/two 22.5 MTGD melters	2055 (36)	26.1	2070 (51)	31.5
4a. WTP/2 nd LAW	2049 (30)	25.0	2054 (35)	27.5
4b. WTP/2 nd LAW/ELAW	2046 (32)	24.9	2051 (37)	27.8
4c. WTP/2 nd Enhanced LAW	2049 (30)	26.4	2049 (30)	26.7

Assumptions: Minimum treatment duration of 30 years; Full WTP starts hot operations in 2019; ELAW starts hot operations in 2014 (IPS could delay start until 2016); ST/2nd LAW on-line 2022-2024; RPP System Plan-3 waste loadings and feed assumptions.

Supplemental LAW Treatment Variables

Graph compares several LAW alternatives (e.g., Enhanced WTP, 2nd LAW, Enhanced 2nd LAW) at 60,000 and 90,000 MT Na and at baseline and enhanced SST retrieval rates as a function of RPP Treatment Mission Duration and Total Net LAW Vitrification Capacity (MTG/d).



Review Team Recommendations

High Priority

1. Complete WTP, start hot operations by 2019, and ensure timely feed delivery
2. Develop and implement a Na management strategy to reduce Na mass requiring LAW immobilization and Na uncertainties
3. Improve integrated RPP systems model to accurately reflect current understandings of total system including uncertainties, formal optimization, and updating in near real time for system planning and evaluation

Medium Priority

4. Reduce uncertainty in LAW supplemental treatment capacity needs
5. Evaluate WTP LAW upgrades that could enable future WTP LAW capacity (throughput) enhancements

Review Team Recommendations (Continued)

Medium Priority (Cont)

6. Enhance support for focused technology demonstrations to enhance waste retrieval efficiencies, improve Na and Al management, improve systems modeling, reduce LAW STneeds, low-temperature secondary waste treatment
7. Coordinate with WIPP to refine TRU strategy, obtain needed approvals for disposal, establish schedules, and define requirements
8. Make decision of whether or not to proceed with Early LAW and then plan accordingly

Low Priority

9. Further development of Bulk Vitrification is not an urgent priority at this time