



THE HANFORD SITE

Parametric Evaluations of the High-Level Waste and Pretreatment Facility

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- Discuss the outcome of the U.S. Army Corps of Engineers (USACE) parametric analyses
- Discuss the Bechtel National, Inc. (BNI) parametric analyses results
- Discuss path forward to support the treatment mission compliance with the Amended Consent Decree (ACD)

USACE evaluated four cases:

- **Case 1A – Completion of both HLW and PT facilities** (considering these are in preservation and maintenance [P&M] for an additional 3 to 5 years)
- **Case 1B – Completion of HLW Facility only** (in direct-feed HLW [DF-HLW] mode), with PT Facility in P&M indefinitely
- **Case 2 – Expedited completion of HLW Facility** (in DF-HLW mode), with PT Facility in P&M
- **Case 0 – Completion of both HLW and PT facilities with additional funding** (similar to Case 1A except availability of additional funding of \$50 million for HLW Facility for fiscal years [FY] 2018 through 2020)

Methodology/Assumptions:

- Annual funding for WTP at \$690 million
- Cost estimated by primary functions, including engineering, procurement, construction, and commissioning
- Engineering progress adjusted to reflect known system and design changes not included in previous estimates
- Cost foundation based on remaining HLW and PT scope
- DF-HLW modifications assumed to be similar to direct-feed low-activity waste (DFLAW)
- Current cost growth of DFLAW used as input to risk model
- Cost escalation at 3 percent per year

Case 1A/Case 0 – Completion of both HLW and PT facilities

9% probability of achieving ACD milestones for HLW and PT facilities

- Not an executable plan – resource ramp-up limitations
- \$2.0 to \$2.5 billion annual funding required
- Total Project Cost (TPC) = ~\$30 billion

Case 1B – Completion of HLW Facility only

50% probability of achieving ACD milestone for HLW Facility

- 85% probability of achieving ACD milestone for HLW Facility at \$800 million/FY starting in FY 2020
- TPC = ~\$21 billion (without PT Facility completion)

Case 2 – Expedited completion of HLW Facility

85% probability of achieving ACD milestone for HLW Facility

- ~1 billion/FY funding required between FY 2020 and FY 2022; reduced to \$690 million/FY in FY2023 and beyond
- TPC = \$21 billion (without PT Facility completion)

Estimate Basis

- Used historical 2015 LBL estimate (LAW Facility, Balance of Facilities, and Analytical Laboratory - collectively referred to as LBL) as a starting point
- Included known risks as of 2015
- Added known and proposed scope with known additions and changes
 - (e.g., for HLW – DF-HLW, melter assembly building, Balance of Facilities modifications; for PT – standard high-solids vessel design)
- Preservation maintenance and core competency retention for next 3 to 5 years while DFLAW is completed
- Funding required to support ACD milestone
 - HLW – \$800 million per fiscal year starting in FY 2023
 - PT – \$900 million per fiscal year starting in FY 2023

Conclusion

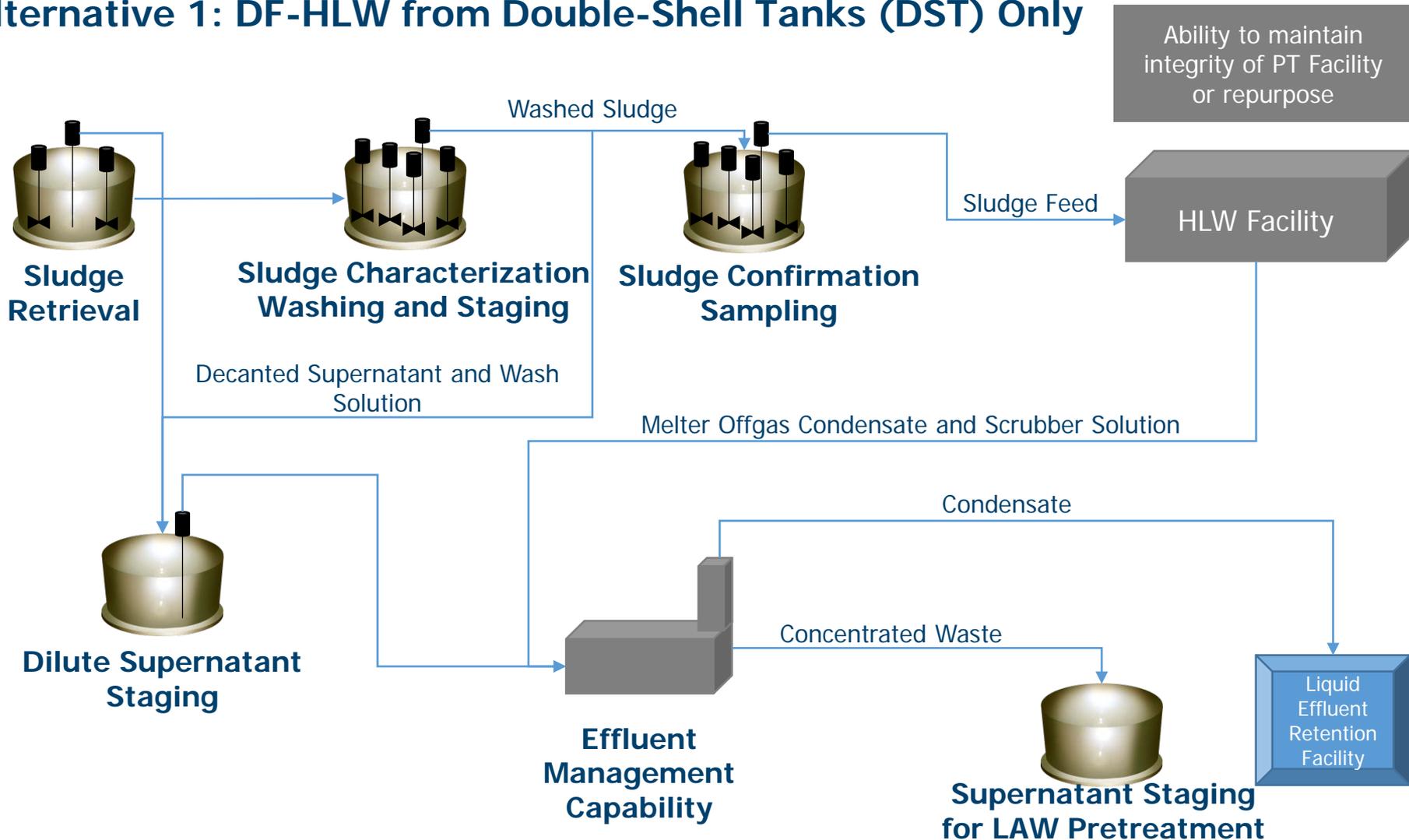
- Both the USACE and BNI parametric evaluations indicate the WTP Project would require a large increase in to achieve all major facilities within Consent Decree milestone dates

Path Forward

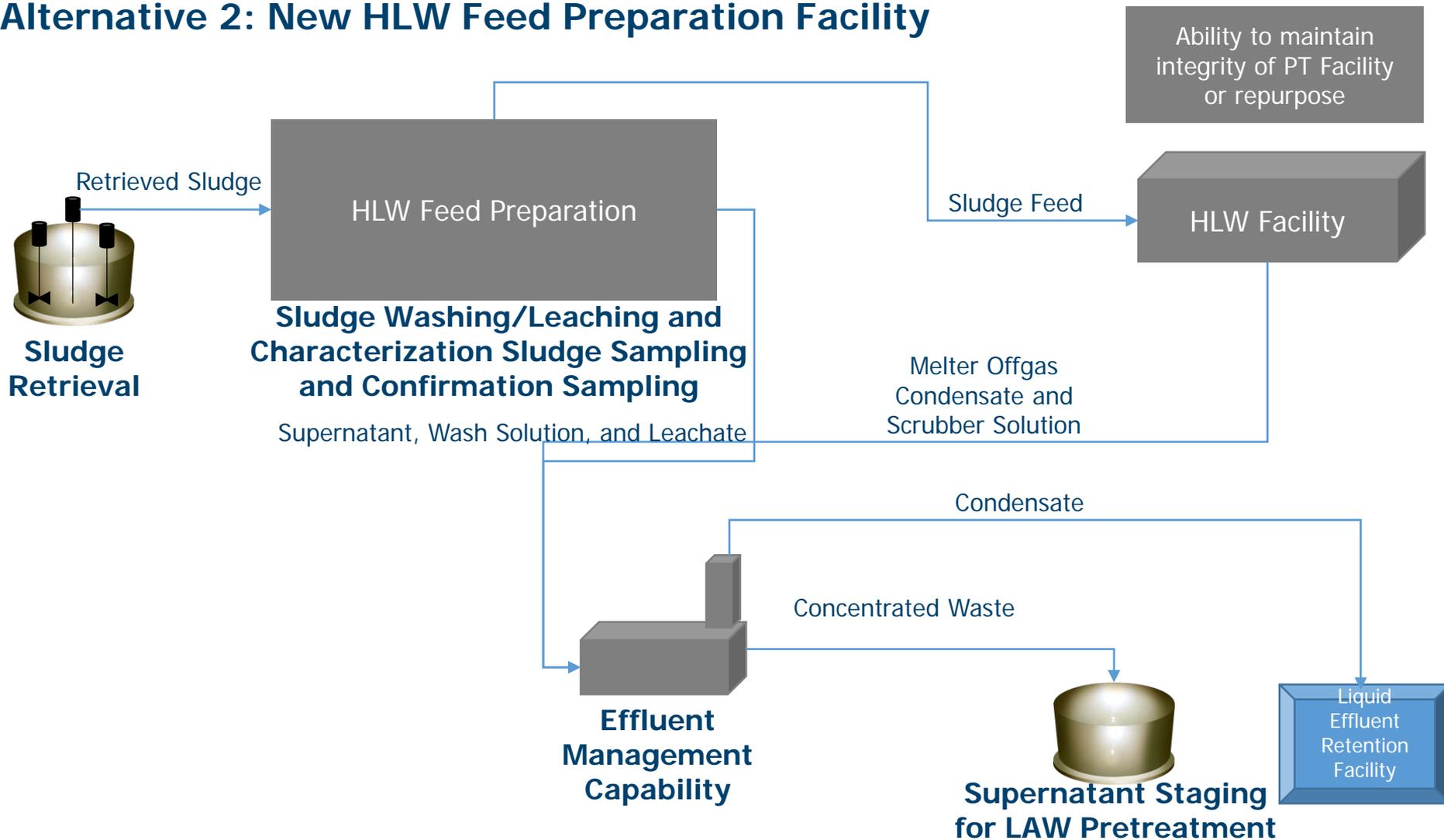
- The U.S. Department of Energy (DOE) initiated weekly meetings with the Washington State Department of Ecology in November 2018 to discuss concerns and develop a path forward
- Working together to find realistic, meaningful, cost-effective solutions to the challenge of the Hanford Site cleanup mission
- Five alternatives for HLW treatment were collaboratively selected as starting point for further evaluations and decision making as part of Analysis of Alternatives

- HLW vitrification would occur within the HLW Facility currently under construction
- No major changes to the HLW Facility
- DOE's priority remains the DFLAW program and startup of operations no later than ACD milestone
- In evaluating any DF-HLW options, consideration should be given to a future role for the PT Facility
- The team would focus on technical attributes of each alternative without ranking them based on stakeholder values or other potential decision criteria

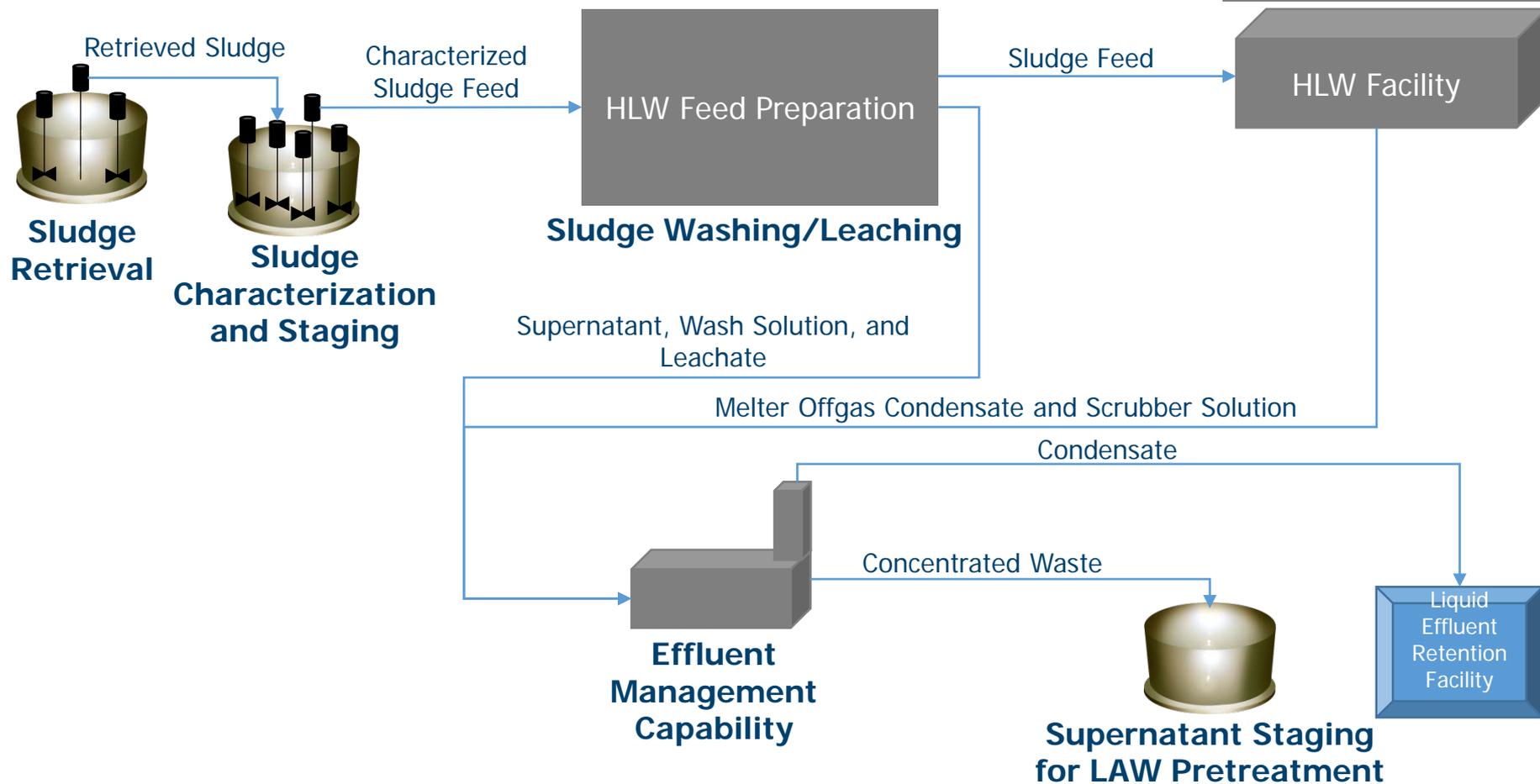
Alternative 1: DF-HLW from Double-Shell Tanks (DST) Only



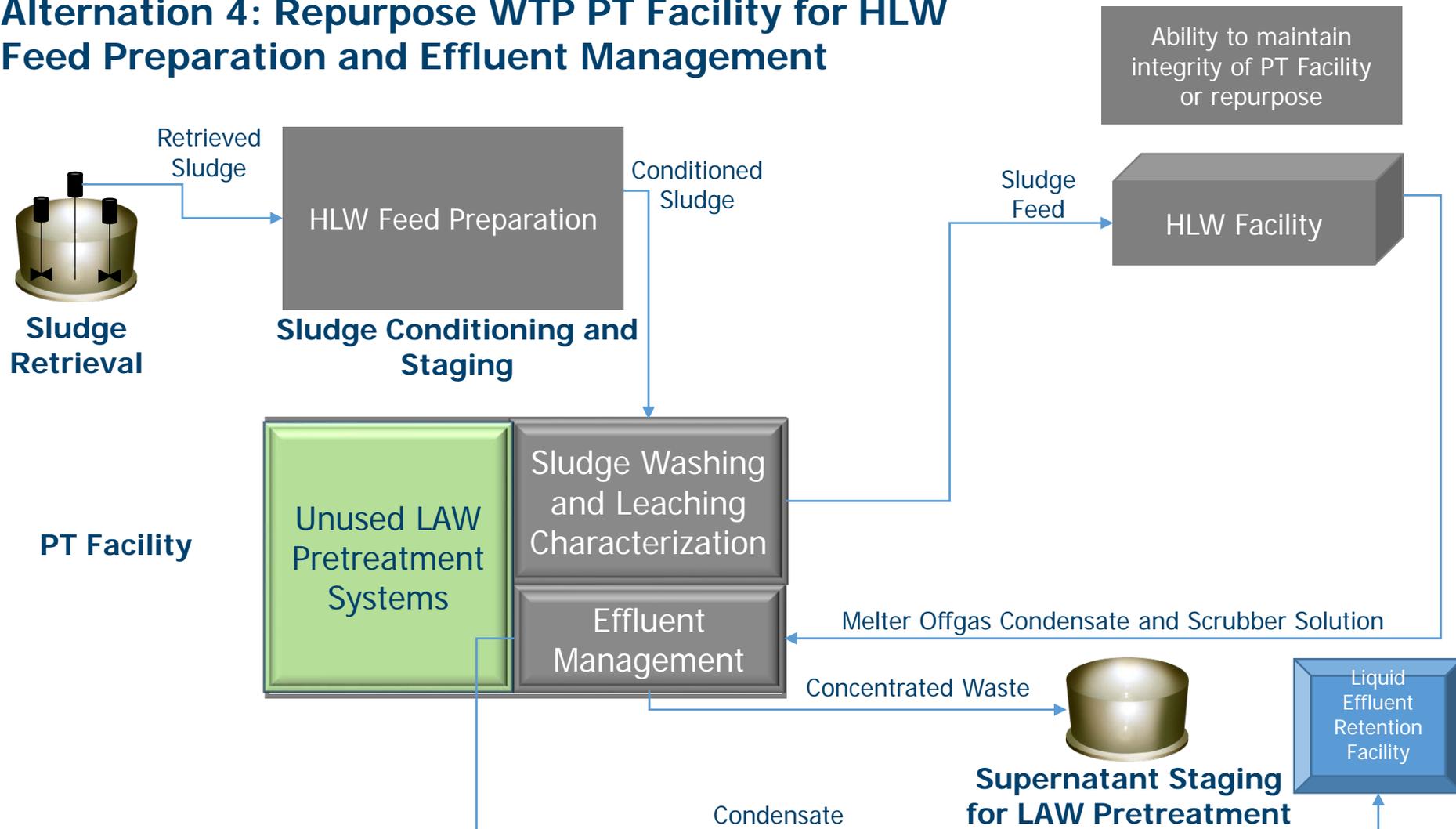
Alternative 2: New HLW Feed Preparation Facility



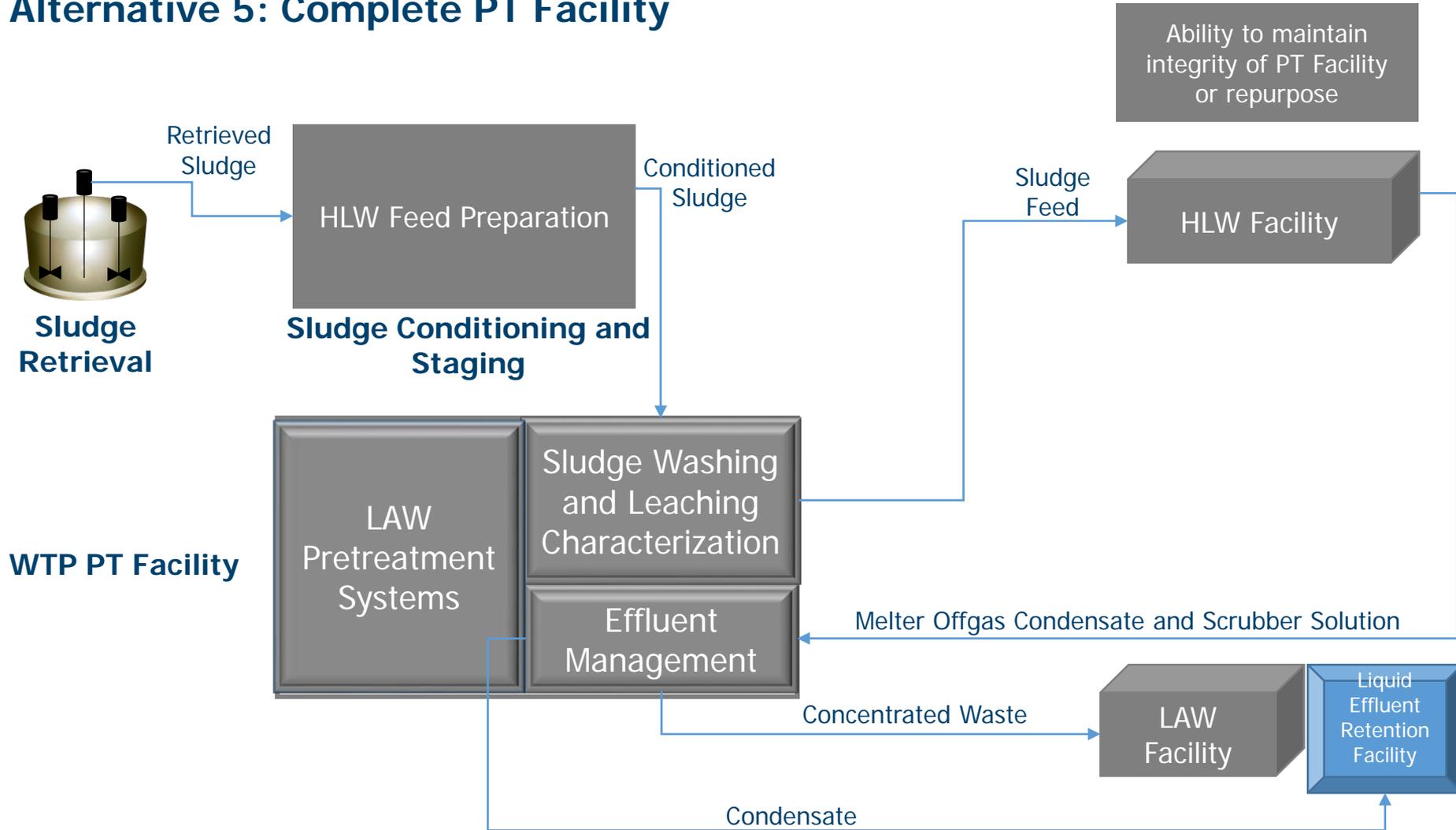
Alternative 3: Smaller New Feed Preparation Facility with Feed Characterization in DST



Alternation 4: Repurpose WTP PT Facility for HLW Feed Preparation and Effluent Management



Alternative 5: Complete PT Facility



- Complete the preliminary model run for Alternatives 2 and 3 and make any necessary changes for optimization
- DOE hired a contractor in March that is performing the Analysis of Alternatives with these and other potential alternatives
- Consider any assumption changes alternatives to finalize relevant scenarios
- Continue to work with the Washington State Department of Ecology
- Complete draft analysis report by November 15

Questions?