



UNITED STATES DEPARTMENT OF ENERGY

OFFICE OF RIVER PROTECTION

Hanford Tank Waste Retrieval, Treatment, and Disposition Framework

Hanford Advisory Board
December 11, 2013

Ben Harp, Manager
WTP Start-Up and Commissioning Integration



Secretary Moniz Visits Hanford

- June 19, 2013
 - Secretary Moniz toured Tank Farms and Waste Treatment and Immobilization Plant (WTP)
- Two Briefings with State of Washington
- Announced Framework for New Path Forward Through Phased Approach
 - Begin immobilization of tank waste as soon as practicable for direct-feed to Low-Activity Waste (LAW) Facility
 - Process transuranic tank waste for disposal at the Waste Isolation Pilot Plant (WIPP) in New Mexico
 - Resolve technical issues for Pretreatment (PT) and High-Level Waste (HLW) Facilities



Tank Farm Project Assistant Manager Tom Fletcher points out C-Farm activity from observation platform



ORP Manager Kevin Smith (Far Left) discusses WTP construction with Secretary Moniz



Hanford Tank Waste Retrieval, Treatment, and Disposition Framework

- The Framework document is not a proposal, but rather a framework for discussion with the State of Washington to seek to resolve concerns regarding completion of the waste treatment mission
- Framework describes an approach that would allow for immobilization of tank waste to begin as early as practicable
- Moves forward without waiting for completion of work to resolve the technical issues associated with PT and HLW Facilities
- Framework identifies potential waste treatment options, based on a combination of:
 - Previous alternatives analyses
 - External reviews
 - Testing
 - Ongoing analyses



Hanford's Three Waste Streams

The 56-million gallons of tank waste can be binned into three major categories for treatment:

1. LAW
2. Potential Contact-Handled Transuranic Waste (CH-TRU)
3. HLW
 - Easier to process
 - Harder to process



Phased Construction and Startup of the Waste Treatment and Immobilization Plant

- Completion of the WTP in a phased sequenced manner
 - U.S. Department of Energy, Office of River Protection will apply resources to address the most mobile tank waste, supernate
 - Resolve the remaining technical issues associated with PT and HLW Facilities
- As technical issues are resolved, construction resources will move to the HLW Facility followed by the PT Facility
- Allows WTP vitrification operations to begin as soon as practicable





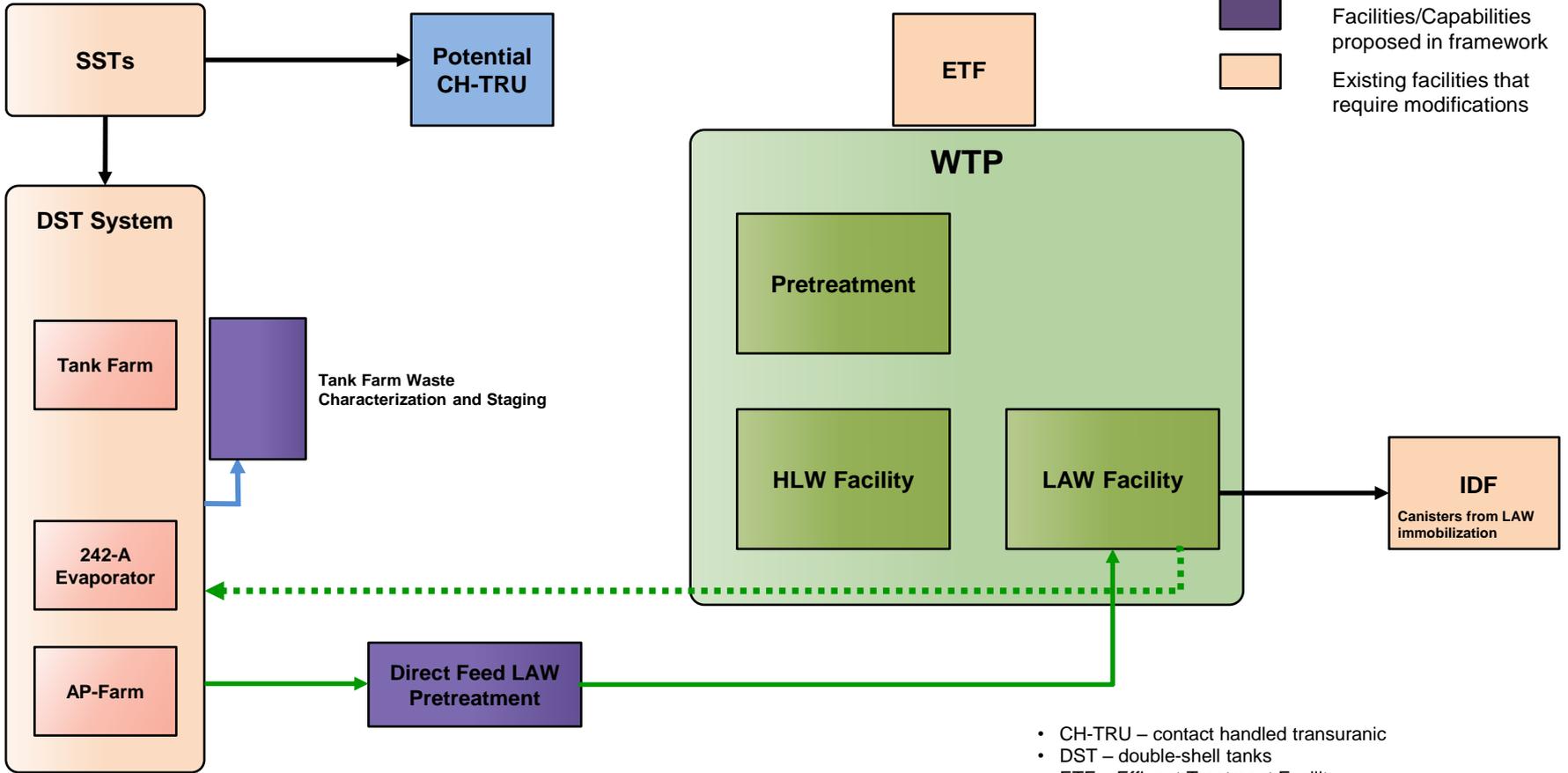
Phased Construction and Startup of the WTP

Phase 1 Key Activities Include:

- Current activities
 - Completion, commissioning, and startup of Balance of Facilities and the Analytical Laboratory
 - Completion of the ongoing C-Farm retrievals
- Direct Feed Low-Activity Waste Activities (DFLAW)
 - Completion of the tank farm infrastructure and an interim pretreatment capability (for removal of cesium and miscellaneous solids) needed to directly feed the LAW Facility
 - Completion, commissioning, and startup of the LAW Facility
 - Final permitting of the onsite Integrated Disposal Facility for LAW
- CH-TRU Activities
 - Retrieval and shipment of any CH-TRU waste from the single-shell tanks to the WIPP, pending the proper and legal classification of the waste as transuranic and obtaining the necessary permits
- Direct Feed High-Level Waste Activities (DFHLW)
 - Initiation of a tank waste characterization and staging (TWCS) capability in the tank farms to support HLW
- Technical Issue Resolution
 - Completion of full-scale vessel testing and resolution of technical issues in the PT and HLW Facilities



Phase Startup – Phase 1 Flow Diagram



- CH-TRU – contact handled transuranic
- DST – double-shell tanks
- ETF – Effluent Treatment Facility
- HLW – high-level waste
- IDF – Integrated Disposal Facility
- LAW – low-activity waste
- SSTs -- single-shell tanks
- WTP – Waste Treatment and Immobilization Plant



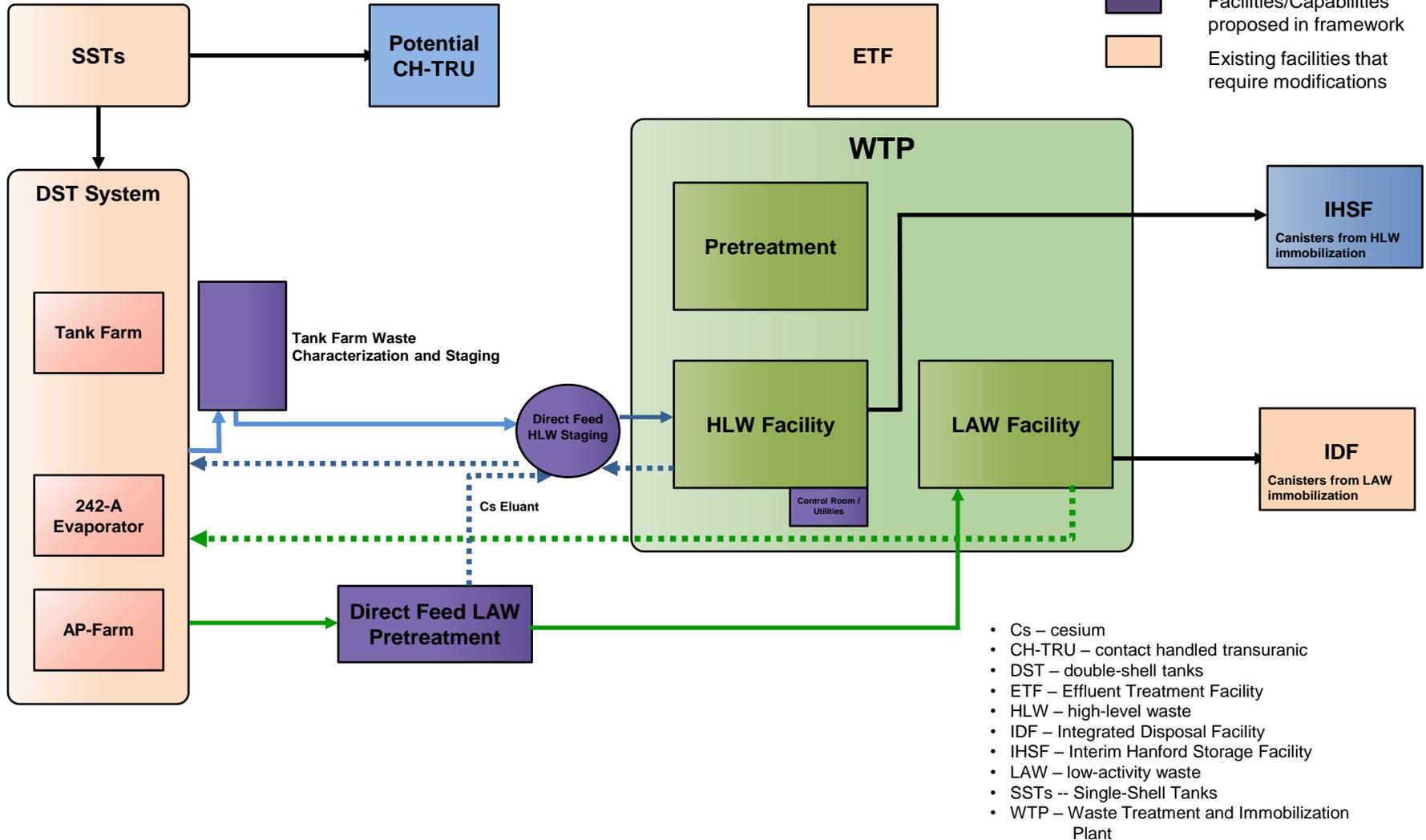
Phased Construction and Startup of the WTP

Phased 2 Key Activities Include:

- DFHLW Activities
 - Completion of HLW
 - Completion of a TWCS capability
 - Completion and commissioning of the Interim Hanford Storage Facility
- PT Facility
 - Continue construction of the PT Facility



Phase Startup – Phase 2 Flow Diagram





Phased Construction and Startup of the WTP

Phased 3 Key Activities Include:

- Full WTP Completion
 - PT Facility commissioning
 - Initiating integrated WTP operations
 - Possible additional preconditioning capability for the harder to process waste



Current Actions To Date

- Preparing contract direction to Tank Operating Contractor and WTP for DFLAW
- Submitted justification of mission needs for TWCS capability
- Waste designation for potential CH-TRU in process
- Class 3 Permit Modification in New Mexico for WIPP
- Technical issues resolution underway



Conclusion

- Multipronged, phased approach to the startup and completion of the tank waste mission is intended to facilitate the start of tank waste immobilization
- Continue to resolve the remaining technical issues in PT and HLW Facilities
- Framework recommends two Phase 1 waste treatment options
 - DFLAW
 - CH-TRU
- Discussed a third option of DFHLW
- While preferred alternatives are identified based on current analyses, the alternatives analysis process continues