



UNITED STATES DEPARTMENT OF ENERGY

OFFICE OF RIVER PROTECTION

Hanford Advisory Board Agency Update

Ben Harp, Assistant Manager

Waste Treatment and Immobilization Plant Startup and Commissioning Integration

Wednesday, June 4, 2014



Mission: Safely manage Hanford's 56 million gallons of liquid radioactive tank waste, while designing, constructing, commissioning and operating the Waste Treatment Plant until the mission is complete.



Our Team

Office of River Protection (ORP)

ORP is responsible for planning, integrating, and managing the River Protection Program executed by contractors performing work under ORP overall management.

Washington River Protection Solutions (WRPS)

WRPS is the prime contractor responsible for safely managing and operating the Tank Farms.

Bechtel National, Inc. (BNI)

BNI is responsible for the engineering and construction of the Waste Treatment Plant.

Advanced Technology and Laboratories International (ATL)

ATL is the prime contractor responsible for managing the 222-S Laboratory.





Office of River Protection Profile

PBS	Project Baseline Summary (PBS) Title	FY 2014 Enacted Budget (\$ in 000's)	FY 2015 President Budget (\$ in 000's)
ORP-0014	Radioactive Liquid Tank Waste Stabilization and Disposition	\$ 520,216	\$ 545,000
Subtotal	Radioactive Liquid Tank Waste Stabilization and Disposition	\$ 520,216	\$ 545,000
ORP-0060	WTP – Subprojects A-D	\$ 510,000	\$ 575,000
ORP-0060	WTP – Subproject E	\$ 180,000	\$ 115,000
Subtotal	Major construction – Waste Treatment Plant	\$ 690,000	\$ 690,000
Total – ORP	Office of River Protection Funding Summary	\$ 1,210,216	\$ 1,235,000



Tri-Party Agreement & Consent Decree Milestones (FY 2015)

Number	Milestone	Due Date
M-062-40D	Submit System Plan	10/31/2014
M-062-40ZZ	Submit One Time Tank Waste Supplemental Treatment Technologies Report	10/31/2014
M-045-61	Phase 2 RCRA Facility Investigation/Corrective Measures Study	12/31/2014*
D-00A-07	LAW Facility Construction Substantially Complete	12/31/2014
D-00A-19	Complete Elevation 98 feet Concrete Floor Slab Placements in PT Facility	12/31/2014
M-062-45-ZZ	Negotiate a One Time Supplemental Treatment Selection	04/30/2015
M-045-91F	Provide Summary Conclusions Report on Leak Integrity	06/30/2015
M-045-62	Phase 2 Corrective Measures Implementation Work Plan For WMA-C	06/30/2015*
M-045-92O	Barrier 3 Design/Monitoring Approval From Ecology	06/30/2015
M-045-91G	Provide Summary Conclusions Report of AOR for SSTs	07/28/2015
M-045-82	Submit Comp. Permit Modification Request for Tiers 1,2,3	09/30/2015*

*Need to complete Waste Management Area C Performance Assessment

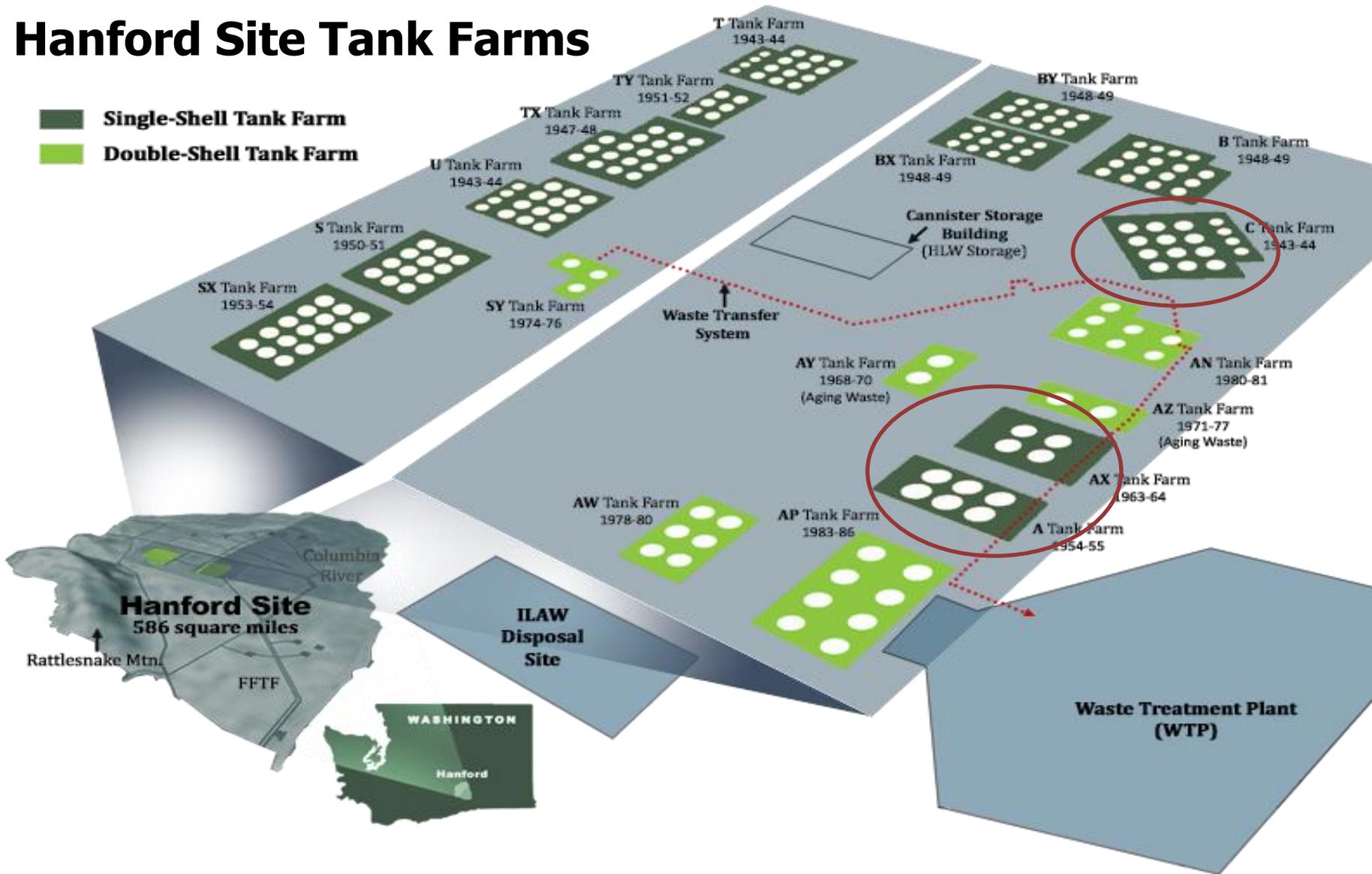


Integrated Path to Mission Completion



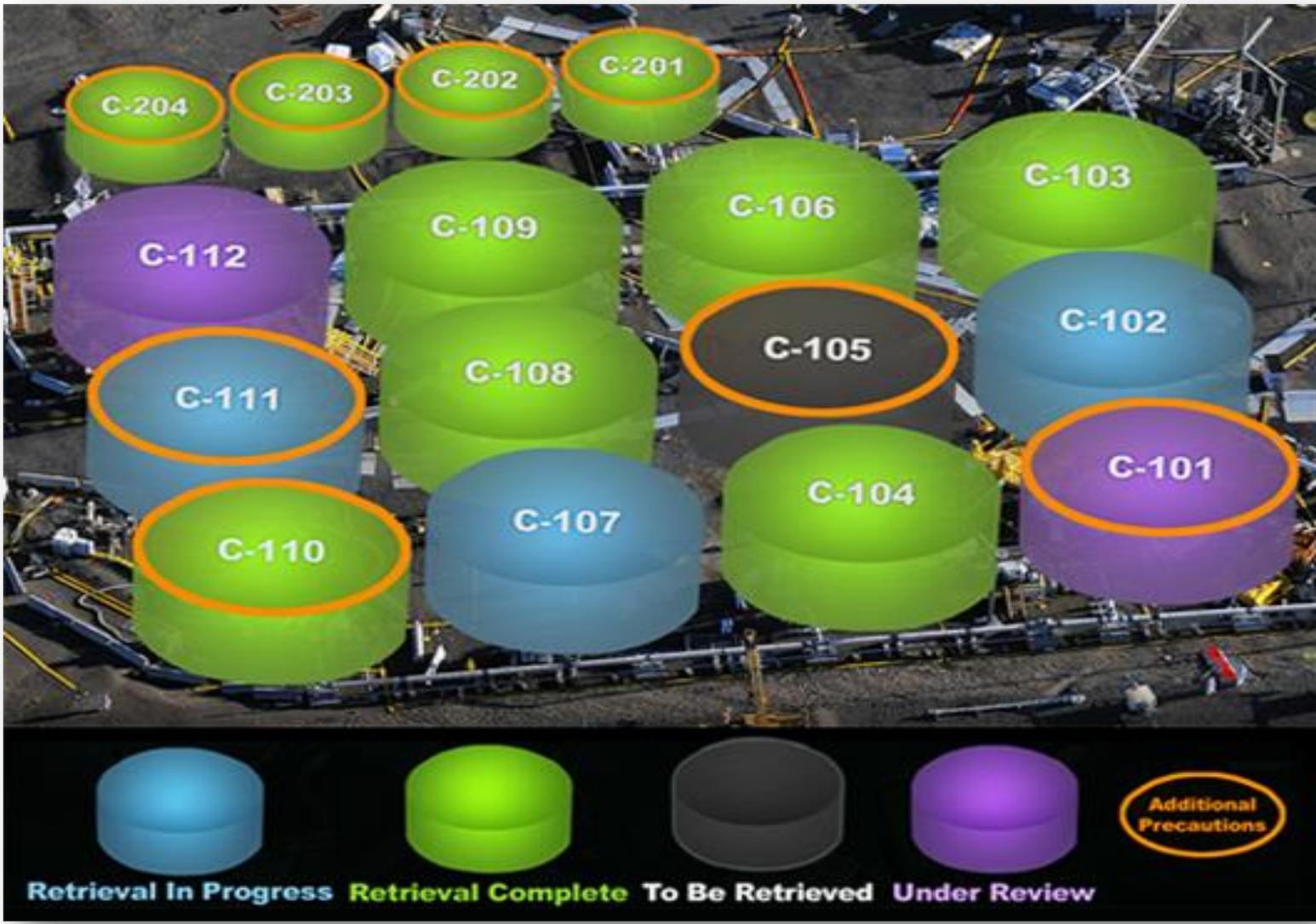


Hanford Site Tank Farms





Single-Shell Tank (SST) Waste Retrieval Status





Commence Next SST Retrievals





Tank Integrity: Results of SST Visual Inspections

1985



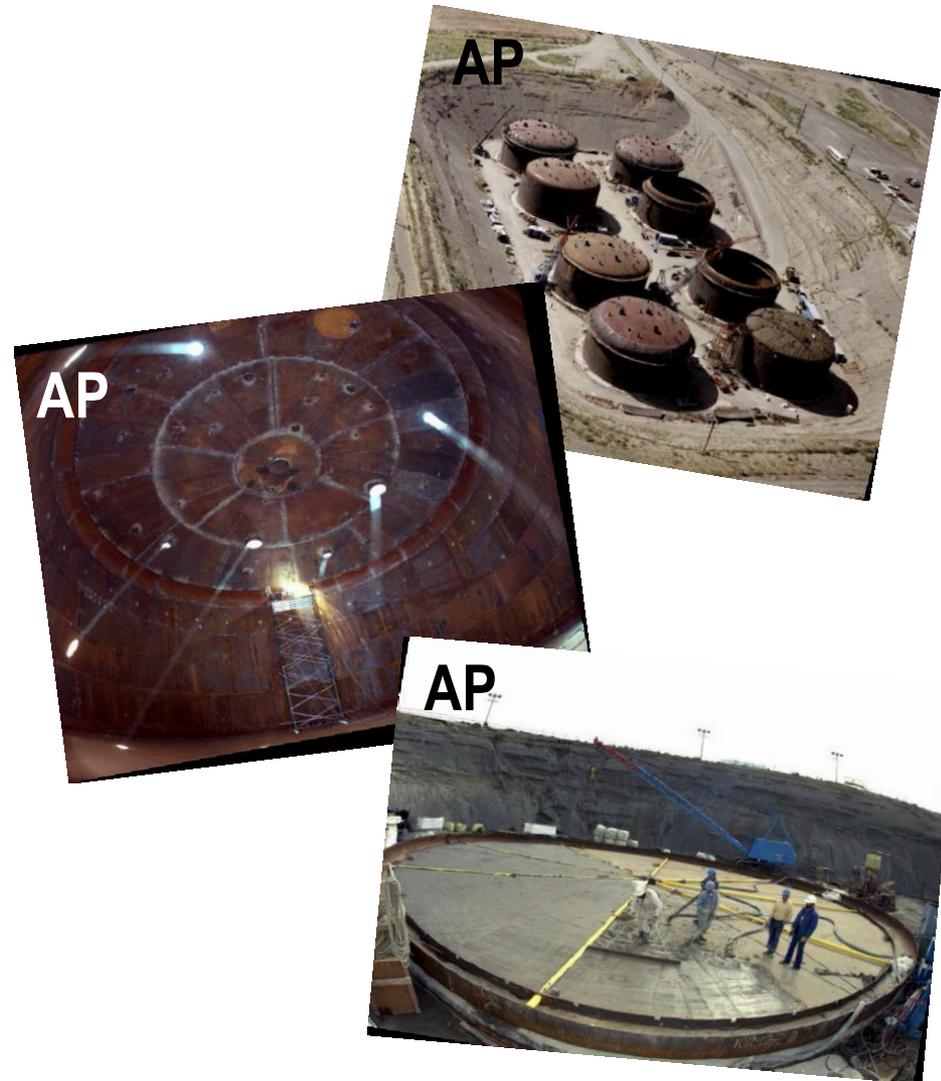
2010





Update on Double-Shell Tank (DST) Integrity

- Systematic ongoing approach for identifying necessary management options to confirm structural adequacy of DSTs
- At Hanford, requirements enhanced with additional visual inspections of the annulus
- The main purpose of the Extent of Condition's (EOC) were to determine whether the construction methods adopted after completion of the AY Tank Farm improved the quality and integrity of the DST farms
- EOC reviews posted on Department's Office of Science and Technology Information website: www.osti.gov





Vapors – Current Status

- On May 29, 2014 – six Washington River Protection Solutions LLC (WRPS) workers received medical evaluation following reports of chemical vapors in AP and SY tank farms
- Since March 19, 2014 – 34 WRPS and subcontractor employees have reported chemical-vapor concerns and/or exposures
- All employees are cleared through HPMC before returning to work at the site; stop work in place for employees waiting lab results
- Tank farm areas involved: A complex (A, AX, AY, AZ), AP, S/SX, SY and T; area outside of U Farm; and C Farm





Tank Vapors

- WRPS requested Savannah River National Laboratory to manage a third independent study of tank vapors
- Study will put the full resources of the national laboratory system behind the investigation
- WRPS Chemical Vapors Solutions Team (CVST) established five sub-teams to pursue improvements and recommend actions
 1. Medical Protocol and Communications
 2. Engineered Controls
 3. Streamlined Use of Personal Protective Equipment
 4. A Farm Vapor Controls
 5. Event Protocol





Engineering Controls in Place at the Tank Farms for Vapors

- Active ventilation, including portable exhausters and increased flow rates
- Stack extensions to disburse emissions
- Sealed emission sources
- Hard-piping CAM (continuous air monitor) cabinets or installing fans
- Radial filters with valves on risers





Administrative Controls, Including Training for Workers Concerning Tank Vapors

- Vapor control and vapor reduction zones
- Voluntary respiratory protection encouraged, working to ease access
- Chemical Hazard Awareness Training - topics include:
 - Origin of tank farm waste characterization
 - Health effects
 - Odors
 - Exercises and instrument demonstration
- Occupational and Environmental Health Overview training in FY 2014 by medical doctors





Waste Treatment and Immobilization Plant Update

**High-Level
Waste Facility**

**Pretreatment
Facility**

**Analytical
Laboratory**

**Balance of Facilities
(20 support buildings)**

**Low-Activity
Waste Facility**

September 10, 2013

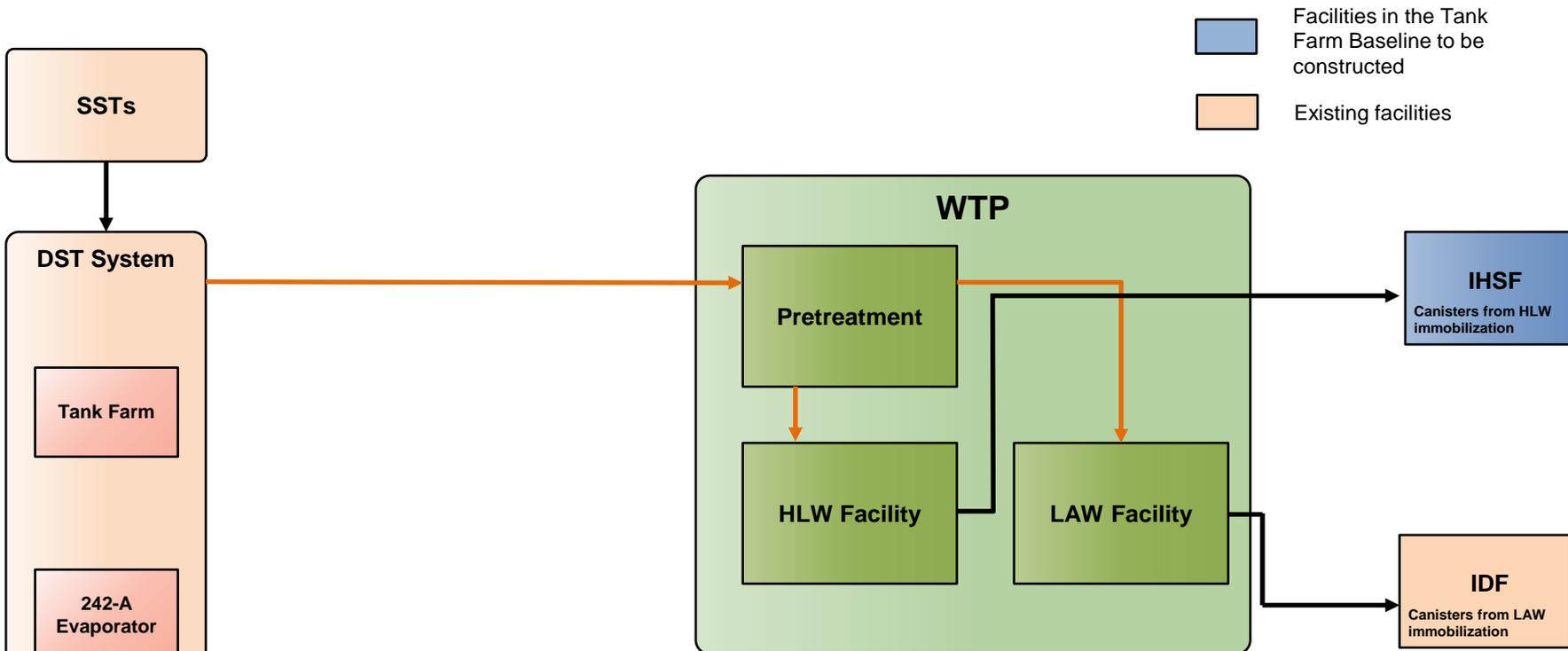


DOE Proposed Approach

- Begin low activity waste vitrification by December 31, 2022
 - Requires Low-Activity Waste Pretreatment System (LAWPS)
- Resolve remaining technical issues:
 - Continue technical issue resolution efforts
 - Select the capabilities for the Tank Waste Characterization and Staging Facility so that the facility can be designed and constructed
- Establish a defined and transparent process for setting future milestones
- Increase efficiency in single-shell tank retrievals and complete next 9 tank retrievals by September 30, 2022:
 - Adjusts some of the tank retrieval milestones to maximize efficiencies while maintaining the September 30, 2022 completion date for Consent Decree single-shell tank retrievals



Current WTP Design

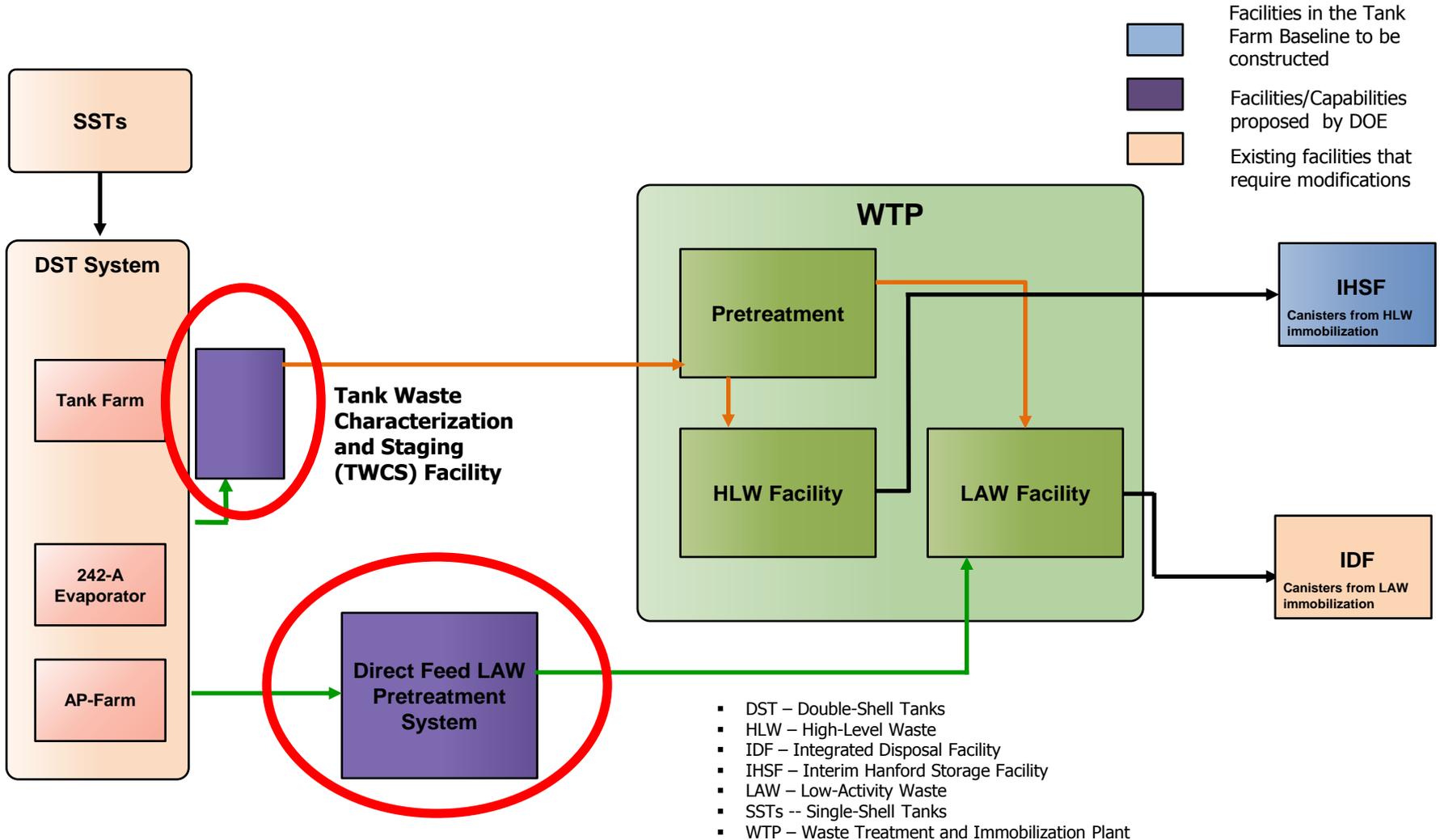


Facilities in the Tank Farm Baseline to be constructed
Existing facilities

- DST – double-shell tank
- HLW – high-level waste
- IDF – Integrated Disposal Facility
- IHSF – Interim Hanford Storage Facility
- LAW – low-activity waste
- SST – single-shell tank
- WTP – Waste Treatment and Immobilization Plant

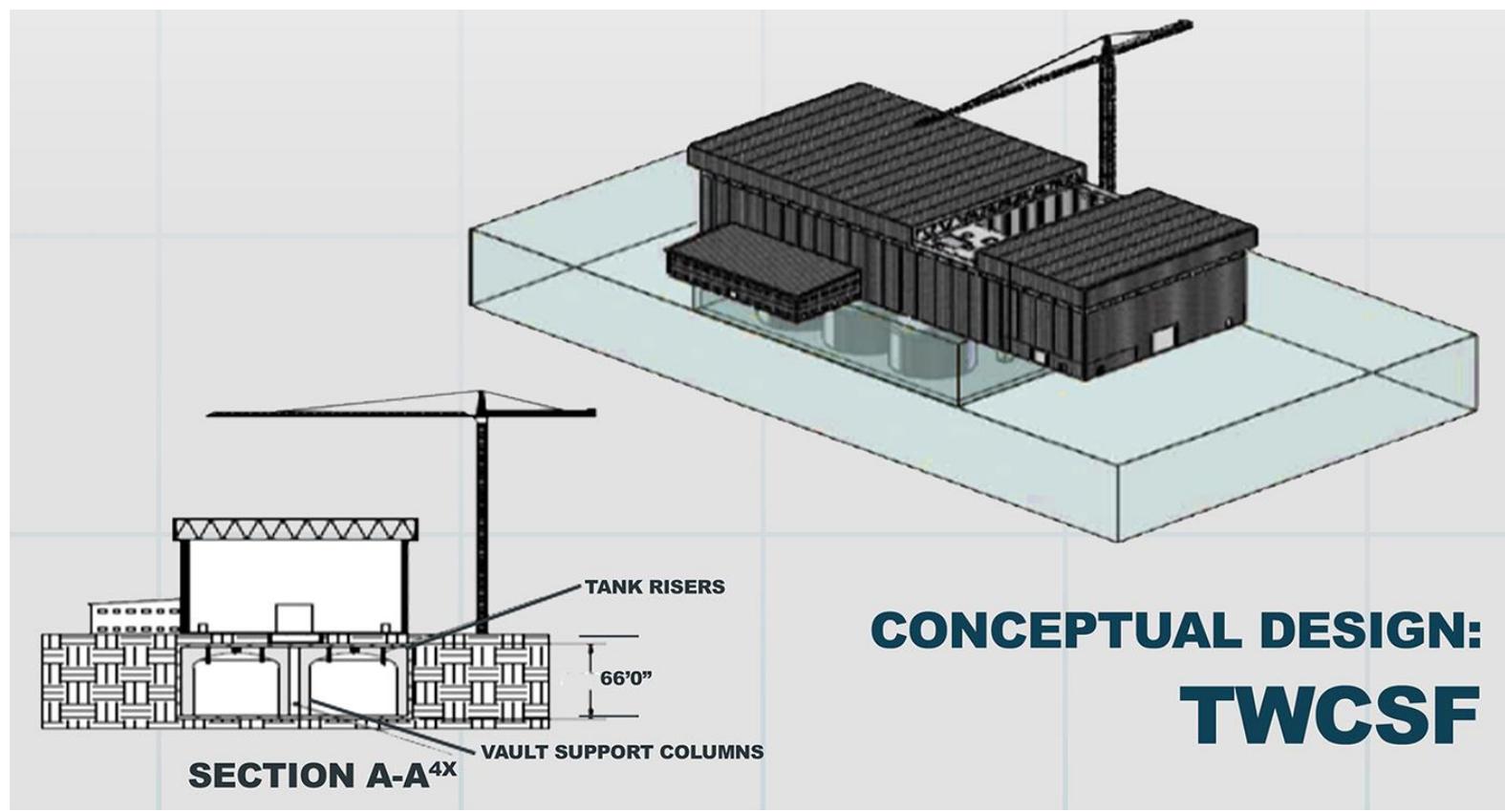


DOE Proposal – Phased Approach to Waste Treatment





Building a Tank Waste Characterization and Staging Capability of one or more Appropriately-Sized Vessels in a Stand-Alone Facility



**CONCEPTUAL DESIGN:
TWCSF**



Low-Activity Waste Pretreatment System (LAWPS)



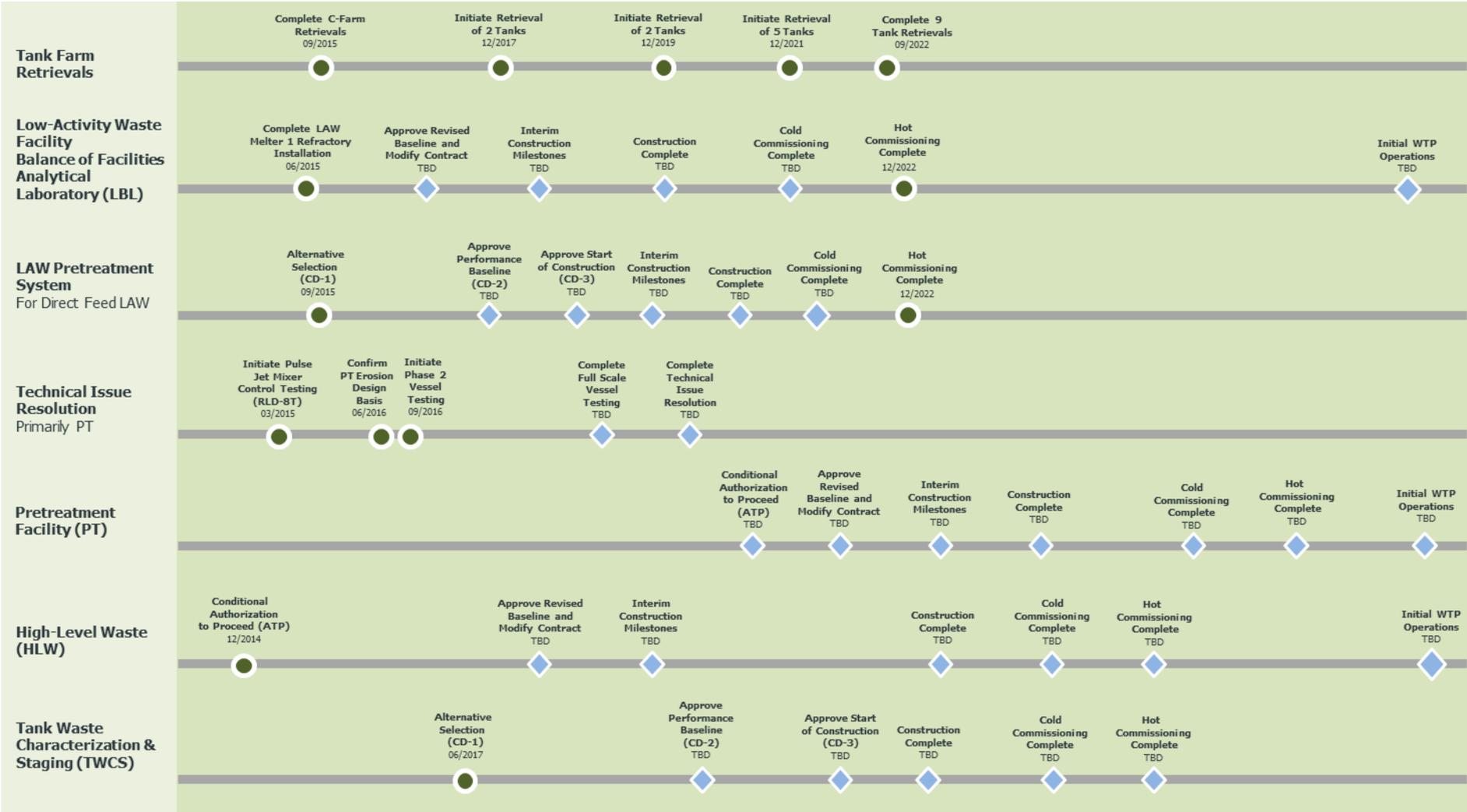
Low-Activity Waste Pretreatment System for Two Melters

Key DFLAW Feed Functions

- Solids removal from LAW stream
- Cs-137 removal from LAW stream



Key Activities Under Proposed Consent Decree Amendment



Not to Scale – Relationship between TBD activities is not meant to imply specific dates

LEGEND: Proposed Milestones: ● Milestone Trigger Points/Potential Milestones: ◆



Moving Forward With ORP Cleanup

- DOE's Proposal represents a viable path forward and includes meaningful and achievable near-term milestones related to:
 - Direct feed low activity waste (DFLAW) (through LAW Pretreatment System)
 - TWCS Facility
 - Technical issue resolution
 - High-Level Waste Facility full production engineering and construction
 - Single-shell tank retrievals
- Creates a process that, as certain initial milestones are completed, requires DOE to establish additional milestones:
 - Commits to those milestones for which there is adequate information
 - Ensures transparency with clear trigger points and defined timeframes for setting future milestones
- The technical issues are solvable and DOE has identified an approach to resolving many of the key issues that remain



ORP Cleanup Priorities

- Safety
- Base Operations
- Waste Treatment and Immobilization Plant technical issues resolution
- Direct Feed Low Activity Waste
 - Waste Treatment Plant Low Activity Waste/Analytical Laboratory/Balance of Facilities completion
 - Low Activity Waste Pretreatment System
- C Farm Retrieval
- Retrieval of next nine single-shell tanks



UNITED STATES DEPARTMENT OF ENERGY

OFFICE OF RIVER PROTECTION

Protect the Public, the Environment and Our Workers

Safety Always Comes First



White Bluffs overlooking the Columbia River on the Hanford Reach