Hanford Advisory Board
Agency Update

Ben Harp, Assistant Manager
Waste Treatment and Immobilization Plant Startup and Commissioning Integration
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

<table>
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<tr>
<th>PBS</th>
<th>Project Baseline Summary (PBS) Title</th>
<th>FY 2014 Enacted Budget ($ in 000’s)</th>
<th>FY 2015 President Budget ($ in 000’s)</th>
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<td>Radioactive Liquid Tank Waste Stabilization and Disposition</td>
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Tri-Party Agreement & Consent Decree Milestones (FY 2015)

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<th>Number</th>
<th>Milestone</th>
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<td>M-062-40D</td>
<td>Submit System Plan</td>
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<td>M-062-40ZZ</td>
<td>Submit One Time Tank Waste Supplemental Treatment Technologies Report</td>
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<td>M-045-61</td>
<td>Phase 2 RCRA Facility Investigation/Corrective Measures Study</td>
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<td>LAW Facility Construction Substantially Complete</td>
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<td>M-045-91F</td>
<td>Provide Summary Conclusions Report on Leak Integrity</td>
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<td>Phase 2 Corrective Measures Implementation Work Plan For WMA-C</td>
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<td>Barrier 3 Design/Monitoring Approval From Ecology</td>
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<td>M-045-91G</td>
<td>Provide Summary Conclusions Report of AOR for SSTs</td>
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<td>M-045-82</td>
<td>Submit Comp. Permit Modification Request for Tiers 1,2,3</td>
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*Need to complete Waste Management Area C Performance Assessment
Integrated Path to Mission Completion

200 WEST AREA
- S, SX, SY Farms
- TX, TY Farms
- T Farm
- U Farm

200 EAST AREA
- AW, AP Farms
- A, AX Farms
- AY, AZ Farms
- C Farm
- B, BX, BY Farms

WASTE TREATMENT PLANT
Single-Shell Tank (SST) Waste Retrieval Status
Commence Next SST Retrievals

AX Farm

A Farm
Tank Integrity: Results of SST Visual Inspections
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](http://www.osti.gov)
AY-102 Status

~ 7-feet

~ 21-inches

Riser 87
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
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

- SSTs
- DST System
- Tank Farm
- 242-A Evaporator
- AP-Farm
- WTP
  - Pretreatment
  - HLW Facility
  - LAW Facility
- IHSF
  - Canisters from HLW immobilization
- IDF
  - Canisters from LAW immobilization

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

- SSTs – Single-Shell Tanks
- DST System
- WTP – Waste Treatment and Immobilization Plant
- HLW Facility
- LAW Facility
- IHSF – Interim Hanford Storage Facility
- IDF – Integrated Disposal Facility
- Tank Farm
- 242-A Evaporator
- AP-Farm
- Tank Waste Characterization and Staging (TWCS) Facility
- Direct Feed LAW Pretreatment System

- 202
-pretreatment
-pretreatment

- Facilities in the Tank Farm Baseline to be constructed
- Facilities/Capabilities proposed by DOE
- Existing facilities that require modifications

- DST – Double-Shell Tanks
- HLW – High-Level Waste
- IDF – Integrated Disposal Facility
- IHSF – Interim Hanford Storage Facility
- LAW – Low-Activity Waste
- SSTs – Single-Shell Tanks
- WTP – Waste Treatment and Immobilization Plant
Building a Tank Waste Characterization and Staging Capability of one or more Appropriately-Sized Vessels in a Stand-Alone Facility
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

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<th>Tank Farm Retrievals</th>
<th>Complete C-Farm Retrievals</th>
<th>09/2015</th>
<th>Initiate Retrieval of 2 Tanks</th>
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<th>Initiate Retrieval of 2 Tanks</th>
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**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
Protect the Public, the Environment and Our Workers

Safety Always Comes First

White Bluffs overlooking the Columbia River on the Hanford Reach