Topics to be Discussed

- Budget Update
- Direct-Feed Low-Activity Waste (DFLAW)
- Tank Farms
- High-Level Waste Facility (HLW)
- Test Bed Initiative (TBI)
- 2019 Life-Cycle Report
- System Plan Tri-Party Agreement (TPA) Negotiations
ORP Mission: Safely, efficiently, and effectively treat tank waste and close Hanford tanks

ORP Vision: Unified, prepared, and empowered high-performing team driven to achieve effective tank waste treatment operations
### Office of River Protection Budget Profile

($ in Thousands)

<table>
<thead>
<tr>
<th>PBS</th>
<th>Project Baseline Summary (PBS) Title</th>
<th>FY 2018 Omnibus</th>
<th>FY 2019 Minibus</th>
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<td>ORP-0014</td>
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<td>WTP-LBL</td>
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<td>ORP-0070</td>
<td>WTP Commissioning</td>
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<td>Total – ORP</td>
<td>Office of River Protection Funding</td>
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Culture shift for the Hanford Site
Direct Feed Low-Activity Waste Overview

**DFLAW**
Direct Feed Low-Activity Waste

**TANK-SIDE CESIUM REMOVAL SYSTEM (TSCR)**
An at-tank "first feed" pretreatment technique to remove cesium and prepare LAW waste for immobilization using ion exchange.

**AP TANK FARM**
Feeds untreated tank waste to cesium removal system and prepares waste for feed to the Low-Activity Waste Facility.

**LOW-ACTIVITY WASTE (LAW) FACILITY**
Mixes LAW feed with glass-forming materials; produces vitrified waste form in stainless steel containers for long-term storage.

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**LEGEND**
- Untreated Tank Waste
- Pretreated Low-Activity Waste
- Liquid Effluent (from LAW Facility)
- Liquid Effluent (from LAW Facility)
- Cesium Transport (from TSCR to Ion Exchange Column)

**EFFLUENT MANAGEMENT FACILITY (EMF)**
Evaporates liquid effluent from the LAW Facility.

**EFFLUENT TREATMENT FACILITY (ETF) & LIQUID EFFLUENT RETENTION FACILITY (LERF)**
System providing storage and treatment for a variety of mixed liquid waste.

**INTEGRATED DISPOSAL FACILITY (IDF)**
Accepts containers of vitrified low-activity waste for long-term disposal.

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**OFFICE OF RIVER PROTECTION**
United States Department of Energy
Direct Feed Low-Activity Waste Successes

• DFLAW
  • Maturing DFLAW technical and organizational integration
  • Culture transition progressing towards operations
  • Executed ORP organization transition
• Waste Treatment and Immobilization Plant (WTP):
  • Completed LAW Design Safety Analysis (DSA)
  • Completed turnover of 132/178 DFLAW systems from construction to startup (SU) & handover of 37 systems from SU to plant management
  • Completed major structural concrete placements for Effluent Management Facility (EMF)
• Tank Farms
  • Reshaped LAWPS Project, awarded TSCR contract
  • Started Tank Farm upgrade designs
  • Completed TSCR 60% design review
  • Developed integrated site-wide DFLAW schedule
On track to stage feed for DFLAW Operations as soon as 2022
Direct Feed Low-Activity Waste Immobilization Facilities
Direct Feed Low-Activity Waste - Flow Diagram

Tank Farms
- DSTs
- DFLAW Tanks
  - AP-108
  - AP-106
  - AP-107
  - AP-105
- SSTs
  - AW-102
  - Supernate
  - Supernate
  - Supernate

DFLAW Tanks:
- Plant Wash Liquids
- Treated Feed
- Supernate

DFLAW Tanks:
- Returns
- Treated Feed

TSCR:
- Treated Feed
- Condensate

LAW Facility
- Containers
- Condensate

LERF/ETF
- Condensate

Additional Abbreviations:
- DFLAW: Direct-Feed Low-Activity Waste
- DST: Double-Shell Tank
- EM: Effluent Management
- ETF: Effluent Treatment Facility
- IDF: Integrated Disposal Facility
- LAW: Low-Activity Waste
- LERF: Liquid Effluent Retention Facility
- SST: Single-Shell Tank
- TSCR: Tank-Side Cesium Removal
- ETF: Effluent Treatment Facility
- WTP: Waste Treatment and Immobilization Plant
An aerial photo shows the new interim surface barriers at SX Farm. At left is the evapotranspiration basin.

Prefabricated panels of polyethylene synthetic rubber cover were bonded together inside the massive basin. The new cover is resistant to chemicals, temperature extremes and ultraviolet light.
A/AX Tank Farm Update

- Electrical Infrastructure Install
- Caustic/Water Line Installation
- A-AX Single-Shell Tank Farms
- Exhauster Stacks Installation
- AX-101 Pit A Cleanout
All dates are estimates, subject to change. Public meetings are intended for DOE and NRC discussion with public invited to observe and comment at the end of meeting. DOE shares all public comments with NRC. DOE and NRC may, if mutually agreed, have technical staff to staff, non-decision conference calls to ask clarification type questions and if used, will post a public meeting summary. All NRC and DOE documents will be made public.
• Maintain constructive Ecology relationship
• Army Corps of Engineers Report
• Project Management Assessment
• 413.3B
• Workshops
• Execute Analysis of Alternatives
Test Bed Initiative Phase II
In-Tank Pretreatment System

Tank 241-SY-101 Field Deployment Concept

**Key Milestones**

- Test Bed Initiative (TBI) Final Design
- Receipt of Ion Exchange (IX) System and Equipment
- Installation of the TBI system
- Issue Declaration Of Readiness
- Treatment of 2,000 gallons
- Waste incidental to reprocessing (WIR) Determination
- Ship Waste for off-site stabilization
- Dispose of solid MLLW at WCS

- Waste transfer hose with secondary containment is supported and sloped for gravity drain back to tank
- Tank 241-SY-101 is actively ventilated, controlling potential tank vapors and hydrogen buildup
- Delay tote allows for direct measurement of contents to confirm IX process performance
- In-tank pretreatment system in Riser 14
- 2,000 gallons collected in 6 DOT approved commercial totes with spill protection

2,000 gallons collected in 6 DOT approved commercial totes with spill protection
• Increase in the cost
  • $215-$569 billion more than in 2016
  • “To-go cost” at $323-$677 billion in escalated dollars
  • 25 years of activities funded at $400 million per year

• RL scope
  • $83.3-$128.6 billion in total costs

• ORP scope
  • $239.9-$548.4 billion in total costs
  • Figures include out-year planning range update of tank farms & WTP, plus estimated cost of DFLAW operations
System Plan TPA Negotiations
• Results-driven, completion-focused to deliver safe, efficient, and effective treatment and disposal in the best interest of the tax payer.

• Key elements include:
  - A constructive, mission-aligned working relationship with state regulators & stakeholders that is biased towards progress
  - High performing DOE-contractor team driving to deliver a successful transition to WTP operations
  - World-class contractor delivery performance