



OFFICE OF  
**RIVER PROTECTION**  
United States Department of Energy

# DOE-ORP Update

## Oregon Hanford Cleanup Board

**Jon Peschong, Director,  
WTP Project Controls Division**

**Nov. 5, 2018**

**ORP Mission: To safely manage the waste in Hanford's underground tanks while delivering the waste treatment capability needed for waste immobilization and final disposition**







# The Tank Farms

## A 200 Area Aerial Overview

200 West Area

200 East Area

Waste Treatment and Immobilization Plant

- Single-Shell Tank Farm
- Double-Shell Tank Farm



## DFLAW

DIRECT FEED LOW-ACTIVITY WASTE

**AP FARM TANKS:**  
AP-105 | AP-106 | AP-107 | AP-108  
Feeds untreated tank waste to cesium removal systems and prepares waste for feed to the Low-Activity Waste Facility

TSCR ION EXCHANGE COLUMN (IXC) STORAGE PAD

### TANK-SIDE CESIUM REMOVAL SYSTEM (TSCR)

An at-tank "first feed" pre-treatment technique to remove cesium and prepare LAW waste for immobilization

### LOW-ACTIVITY WASTE (LAW) FACILITY

Mixes LAW feed with glass-forming materials; produces vitrified waste form in stainless steel containers for long-term storage

### EFFLUENT MANAGEMENT FACILITY (EMF)

Evaporates liquid effluent from the Low-Activity Waste Facility



### INTEGRATED DISPOSAL FACILITY (IDF)\*

Accepts containers of vitrified low-activity waste for long-term disposal



### EFFLUENT TREATMENT FACILITY (ETF) LIQUID EFFLUENT RETENTION FACILITY (LERF)\*

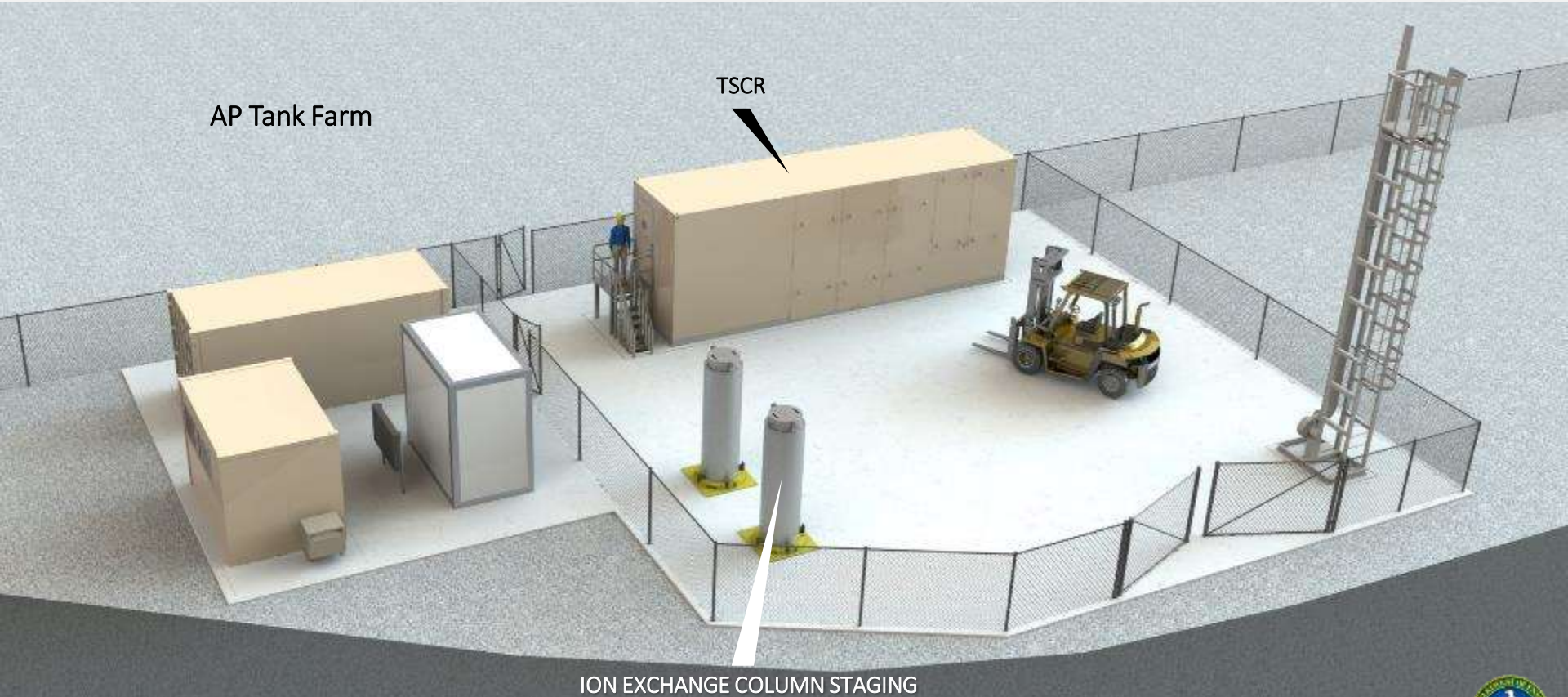
System providing storage and treatment for a variety of aqueous mixed waste

\*NOTE: IDF, ETF and LERF NOT PICTURED ON MAP

**KEY**

- TSCR Campaign
- Cesium Transport - TSCR to IXC Storage Pad
- Untreated Tank Waste
- Pretreated Low-Activity Waste (LAW)
- Liquid Effluent Feed from LAW Facility





# DFLAW Immobilization Facilities



## State approves permit to complete construction





## Culture shift for the Hanford Site



## Working Timeline for the Draft Waste Incidental to Reprocessing Evaluation (WIR) for Closure of Waste Management Area C at the Hanford Site



= Specific Dates to be announced



Conference calls may take place up to the time that DOE issues a Final WIR Evaluation

Updated: Sep 27, 2018

**Public meetings held October 16 & 18 in Portland & Seattle**  
**Comment period ends November 7**





**C Farm before & after  
completion of waste  
retrieval**





Electrical Infrastructure Install



A-AX Single-Shell Tank Farms



AX-101 Pit A Cleanout



Caustic/Water Line Installation



Exhauster Pad Installation

**Waste retrieval in AX Farm set to begin in summer 2019**

## AW-103 Pump Removal Project



The pump from Tank AW-103 is safely removed and packaged for shipment to Hanford's Environmental Restoration Disposal Facility (ERDF)

## Liquid Effluent Retention Facility



Prefabricated panels of polyethylene rubber were bonded together inside one of three massive LERF basins. The new cover is resistant to chemicals, temperature extremes and ultraviolet light.

## Visual inspection systems navigate refractory of double-shell tank

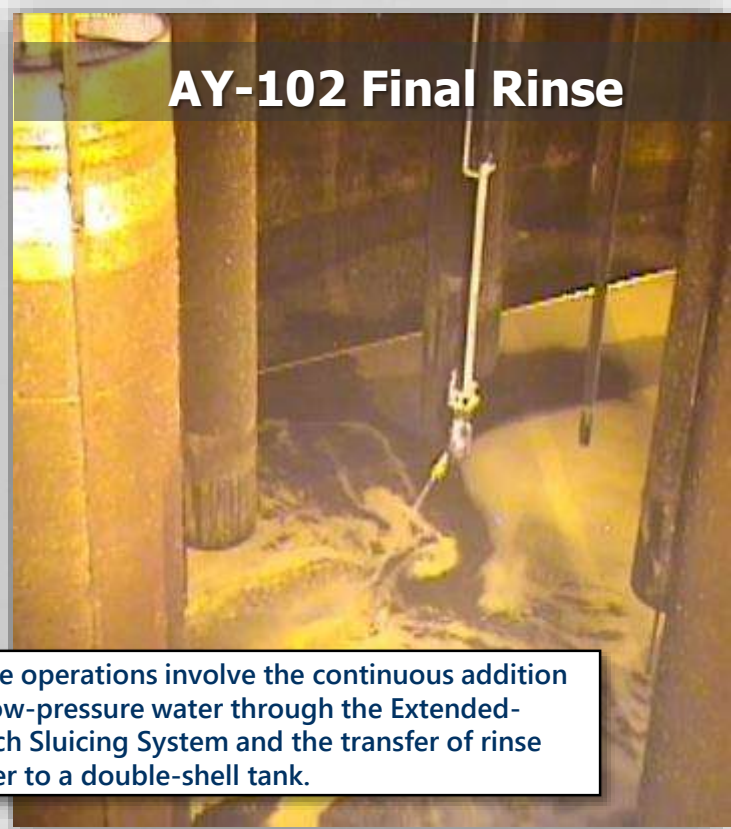


*Deployment of two crawlers in the refractory of AP-107 was the culmination of years of research and collaboration with experts in robotics and nondestructive examination.*

## 222-S Laboratory room and HVAC system renovated



*The remodel of one of the 222-S Laboratory rooms included installation of new walls and floors, vent hoods, gas piping and other equipment. The lab is a 70,000-square-foot full-service analytical facility that handles highly radioactive samples in support of Hanford cleanup.*







A worker wearing a full-face air-purifying respirator makes his rounds in SY Farm.



Strobic Air unit

**Settlement Agreement on vapors litigation reached Sept. 19, 2018**






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PARAMETRIC EVALUATIONS OF THE  
WASTE TREATMENT AND IMMOBILIZATION PLANT

Prepared for:



U.S. Department of Energy

Prepared by:



U.S. Army Corps of Engineers  
FINAL  
July 10, 2018



(\$ in Thousands)

PBS	Project Baseline Summary (PBS) Title	FY 2018 Omnibus	FY 2019 Omnibus
ORP-0014	Radioactive Liquid Tank Waste Stabilization and Disposition	\$719,000	\$771,947
ORP-0014	15-D-409, Low Activity Waste Pretreatment System	\$93,000	\$56,053
<b>Subtotal</b>	<b>Radioactive Liquid Tank Waste Stabilization and Disposition</b>	<b>\$812,000</b>	<b>\$828,000</b>
ORP-0060	WTP-LBL	\$630,000	\$655,000
ORP-0060	High Level Waste Facility	\$75,000	\$60,000
ORP-0060	WTP – Subproject E	\$35,000	\$15,000
<b>Subtotal</b>	<b>Major construction – Waste Treatment and Immobilization Plant (WTP)</b>	<b>\$740,000</b>	<b>\$730,000</b>
ORP-0070	WTP Commissioning	\$8,000	\$15,000
<b>Total – ORP</b>	<b>Office of River Protection Funding</b>	<b>\$1,560,000</b>	<b>\$1,573,000</b>



- Safe operations
- Direct Feed Low-Activity Waste (DFLAW)
  - Low Activity Waste (LAW) Facility, Effluent Management Facility (EMF), Balance of Facilities (BOF), Analytical Laboratory (Lab) – referred to collectively as LBL
  - Tank Farms upgrades to support DFLAW
  - LAW pretreatment
    - Tank Side Cesium Removal (TSCR) design & equipment
- Continued progress on tank waste retrieval and closure

Current Contracts		Future (FY 2019-2029)
<p><b>Occupational Medical Services (OccMed)</b></p> <ul style="list-style-type: none"> <li>Provides Medical Monitoring</li> <li>Qualification Exams</li> <li>Occupational Health related Diagnosis and First Aid</li> </ul> <p><b>Expires: 12/31/2018</b></p>	<i>Similar Scope</i>	<p><b>Occupational Medical Services (OccMed)</b></p> <ul style="list-style-type: none"> <li>Firm Fixed Price, Cost Reimbursement, Indefinite Delivery/Indefinite Quantity (IDIQ)</li> <li>7 year contract (3+2+2)</li> </ul>
<p><b>Mission Support Contract (MSC)</b></p> <ul style="list-style-type: none"> <li>Cost-effective Infrastructure and Site Services to support the Cleanup Mission</li> </ul> <p><b>Expires: 5/25/2019</b></p>	<i>Additional Opportunities for Small Business</i>	<p><b>Hanford Mission Essential Services Contract (HMESC)</b></p> <ul style="list-style-type: none"> <li>Cost Plus Award Fee, Cost Reimbursement, IDIQ</li> <li>10 year contract (5+3+2)</li> </ul>
<p><b>Plateau Remediation Contract (PRC)</b></p> <ul style="list-style-type: none"> <li>Facility and Waste Site Cleanup</li> <li>Groundwater Remediation</li> <li>Waste Management</li> </ul> <p><b>Expires: 9/30/2019</b></p>	<i>Transferred Scope</i>	<p><b>Central Plateau Cleanup Contract (CPCC)</b></p> <ul style="list-style-type: none"> <li>Cost Plus Incentive Fee, Cost Reimbursement, IDIQ</li> <li>10 year contract (5+5)</li> </ul>
<p><b>222-S Analytical Laboratory Services (222-S)</b></p> <ul style="list-style-type: none"> <li>Provides Analytical Services Production functions of Receiving, Handling,</li> <li>Analysis, and Storing of Samples</li> <li>Reporting the results of Analysis to Contractors of DOE</li> </ul> <p><b>Expires: 9/20/2020</b></p>	<i>Includes New Scope</i>	<p><b>222-S Laboratory (222-S Lab)</b></p> <ul style="list-style-type: none"> <li>Cost Plus Award Fee, Cost Reimbursement</li> <li>7 year contract (3+2+2)</li> </ul>
<p><b>Tank Operations Contract (TOC)</b></p> <ul style="list-style-type: none"> <li>Store, Retrieve, and Treat Tank Waste</li> <li>Store and Dispose of Treated Waste</li> <li>Close the Tank Farm Waste Management Areas</li> </ul> <p><b>Expires: 9/30/2019</b></p>	<i>Includes New Scope</i>	<p><b>Tank Waste Cleanup Contract (TWCC)</b></p> <ul style="list-style-type: none"> <li>TBD</li> <li>10 year contract</li> </ul>

**Note:** Bechtel National, Inc. provides engineering, procurement, construction, and commissioning of the Waste Treatment and Immobilization Plant and is not part of these acquisitions.

- Focusing on safe and efficient mission execution
- Preparing for DFLAW operations
- Collaborating with Washington Department of Ecology and all key stakeholders for successful project delivery





# ***"Protecting our workers, the public, and the environment"***

The Hanford Reach  
White Bluffs Overlooking the Columbia River

