



DEPARTMENT OF ENERGY

**Office of River Protection**

HANFORD SITE

September 6, 2012

***Agency Update to  
Hanford Advisory Board***

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Deputy Manager



# HAB Advice in FY 2012

Advice #251 – Hanford Public Involvement Plan

Advice #252 – 2011 Lifecycle Scope, Schedule & Cost Report

Advice #254 – Fiscal Year 2013/2014 Budget Request

Advice #255 – Employee Concerns Program

Advice #256 – Final Tank Closure and Waste Management EIS

Advice #258 – Safety Culture at the Waste Treatment Plant

The Department of Energy appreciates the HAB's continued interest in the cleanup and closure activities at Hanford. Each year you provide us with your values and insight into the many decisions we are facing. You provide input into the development of our budget requests. You understand the complexity of the budget preparation and planning process we go through each year.

*We Thank You for your efforts!*

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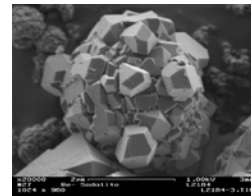
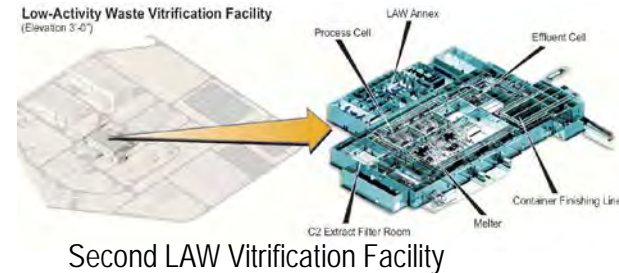
# Draft Tank Closure and Waste Management Environmental Impact Statement

- Expect the final Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS) out in early December 2012
- We plan to select an efficient and cost-effective method for treating the waste that is also protective of human health and the environment
- DOE is committed to working with the regulators and stakeholders to determine the best method for treating all of the Low-Activity Waste (LAW) (a.k.a., supplemental treatment)
- We are committed to meeting obligations under the Tri-Party Agreement (TPA) regarding supplemental LAW treatment
- TC&WM EIS provided alternatives for:
  - Tank Closure
  - Fast Flux Test Facility Decommissioning
  - Waste Management



# Hanford Tank Waste Supplemental Treatment Technologies

- Supplemental Low-Activity Waste (LAW) immobilization is needed
- A one-time report is required to Ecology by October 31, 2014 if a supplemental immobilization technology is proposed other than 2<sup>nd</sup> LAW vitrification facility
- Ecology and DOE to complete a negotiated LAW immobilization technology selection by April 30, 2015



Sodalite Crystal, Granular Product and Monolith Samples  
Fluidized Bed Steam Reforming



Cast Stone



Bulk Vitrification - Joule heated melting in a refractory lined steel box





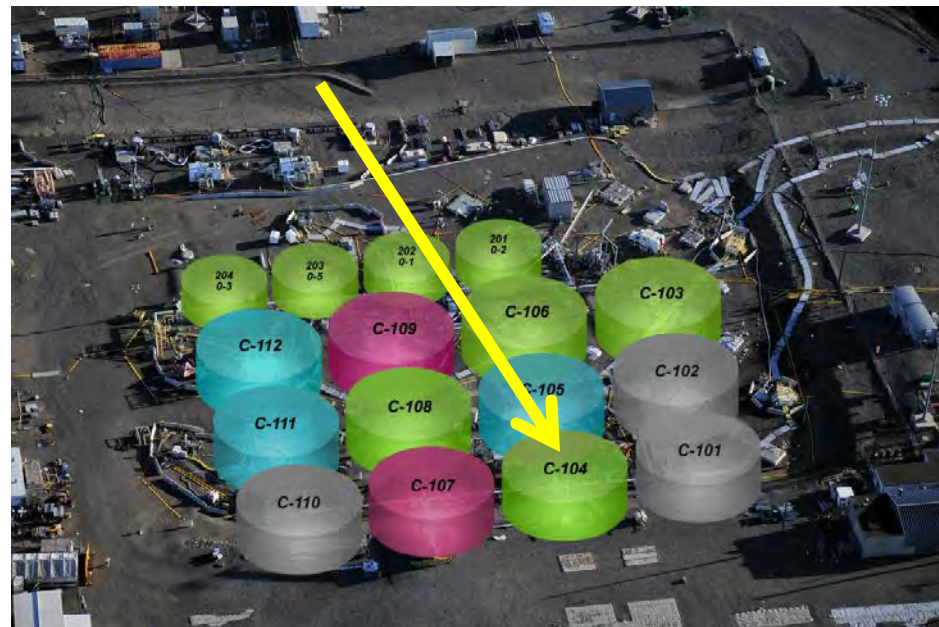
# Tank Farm Accomplishments

## Tank Retrieval Status

Historic achievement – 10 tanks in progress simultaneously

- C-104 hard heel removal – caustic dissolution began in June, completed waste retrieval August 2012\*
- C-108 retrieval efforts complete\*
- C-112 bulk retrieval completed
- C-107 Mobile Arm Retrieval System – bulk retrieval began in October 2011, completed July 2012. Hard heel in progress – completion planned for October 2012
- C-109 hard heel removal began May 2012. Completion planned by end of September 2012
- C-105 preparations are underway for installation of the vacuum version of the MARS. System under development
- C-101 and C-102 infrastructure continues with installation of Enhanced Reach Sluicer Systems. Installation expected in fall 2012 with retrieval beginning November 2012
- C-110 and C-111 hard heel removal for 2013

\*pending Ecology agreement





# C-104 Single-Shell Tank Retrieval





# Waste Treatment Plant Accomplishments

## Status

### Low Activity Waste

- Installed three six-ton exhausters
- Preparing melter for refractory installation
- Continued instrument tubing, partition walls, piping and conduit installations
- Confirmed completion of LAW secondary off-gas system design

### Balance of Facilities

- Began erecting structural steel for Anhydrous Ammonia Facility

### Analytical Laboratory

- LAB Construction substantially complete
- Completed installation of Crane #13 at the south end of the hotcell
- Began installing shower/eyewash stations throughout facility
- Began testing of the Chill Water system

## Low Activity Waste Facility



- 85% design complete
- 88% procurement complete
- 72% construction complete

## Analytical Laboratory



### Analytical Laboratory

- 81% design complete
- 78% procurement complete
- 87% construction complete

## Balance of Facilities

### Balance of Facilities

- 74% design complete
- 50% procurement complete
- 65% construction complete





# Waste Treatment Plant Accomplishments

## Status

### Pretreatment Facility

- Completed action plan for resolution of corrosion/erosion issues
- Completed small-scale entrainment tests for the vessel vent process system
- Updated system descriptions – Construction Project Review commitment

### High Level Waste

- Received 102 ton-shield door
- Completed Melter #2 wall placement
- Received plant wash vessel
- Dampers fully welded out in the filter cave
- Applying special coatings, installing Heating, Ventilation, and Air Conditioning, fire protection piping, and liner plate installations
- Completed Construction of Structural Steel to Elevation 37'

Pretreatment  
Facility



- 81% design complete\*
- 53% procurement complete\*
- 42% construction complete\*

High Level  
Waste Facility



- 87% design complete
- 77% procurement complete
- 42% construction complete

*\*Percent complete data is being re-evaluated due to replanning and rebaselining efforts and resolution of technical issues*





- In April 2012 ORP issued the "Safety Culture Improvement Plan" created to initiate needed improvements in safety culture
- Good progress is being made on improvement initiatives





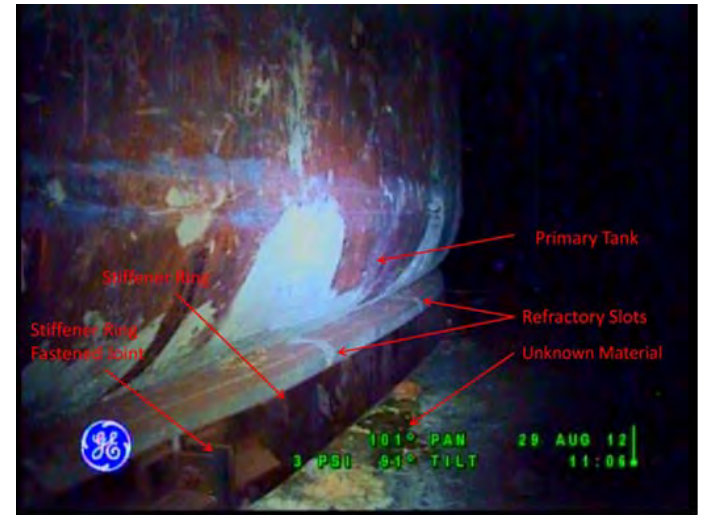
### Tank Inspections

- Discovered a small amount of dried material in double-shell tank (DST) AY-102 annulus
- Suspect water intrusion in Hanford single-shell tanks (SSTs)



White material on top of refractory and along edge of curb

## Tank Farm Challenges



Overview of region viewed from riser, August 29, 2012



Overview of region viewed from riser, in 2006



## Suspect Water Intrusion in Hanford Single-Shell Tanks

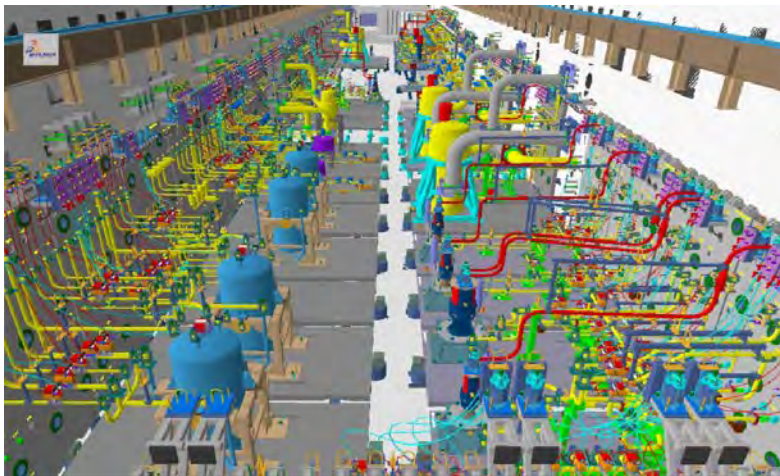
- Released Washington River Protection Solution report in May 2012 – evaluated long-term surface level changes in all 149 SSTs. Detailed results provided for 21 tanks with suspect intrusion
- Evaluated and adjusted monitoring frequency
- Routine meetings held with Ecology staff to further analyze available data
- Identified twenty tanks as best candidates for visual inspections (based on likelihood of gaining useful information)
- Approximately 12-14 tanks to be visually inspected during FY 2013 for intrusion and structural integrity. Findings of initial inspections will dictate subsequent actions



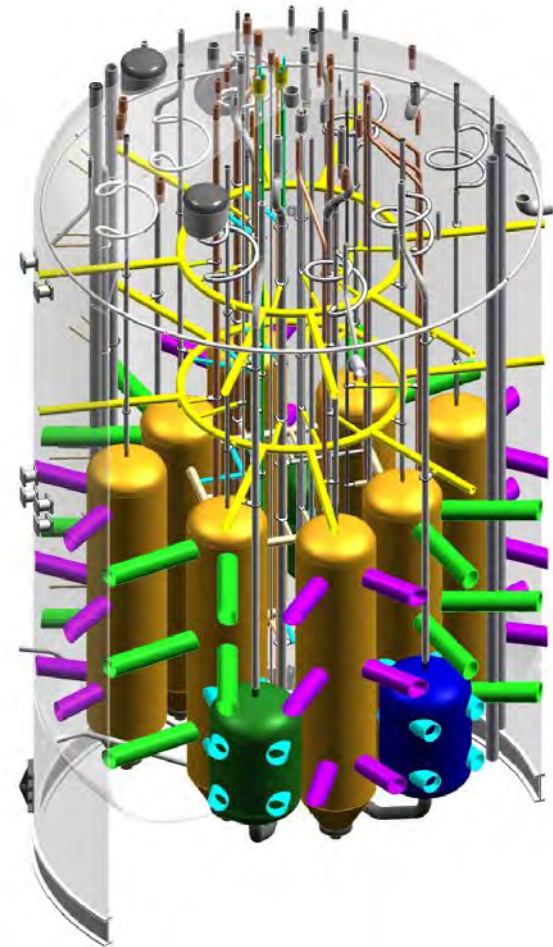


# Waste Treatment Plant Challenges

- Pulse Jet Mixers
- Black Cells
- Erosion/Corrosion
- Safety Basis Alignment



Pretreatment Facility hot cell



Pretreatment Facility pulse jet mixer



# ORP Budget Profile

\*\*\* \$ in 000's throughout presentation \*\*\*

<b>PBS</b>	<b>PBS Title</b>	<b>FY 2012 Appropriation</b>	<b>FY 2013 President's Budget</b>
ORP-0014	Radioactive Liquid Tank Waste Stablization and Dispostion	\$441,800	\$482,113
<b>Subtotal</b>	<b>Radioactive Liquid Tank Waste Stablization and Dispostion</b>	<b>\$441,800</b>	<b>\$482,113</b>
ORP-0060	Major construction - Waste Treatment Plant	\$740,000	\$690,000
<b>Subtotal</b>	<b>Major construction - Waste Treatment Plant</b>	<b>\$740,000</b>	<b>\$690,000</b>
<b>Total - ORP</b>	<b>Office of River Protection Funding Summary</b>	<b>\$1,181,800</b>	<b>\$1,172,113</b>



## Office of River Protection FY 2013 Priorities

- Base Operations
- Resolution of Technical Issues
- Interim Measures
- Low-Activity Waste, Analytical Laboratory, and Balance of Facilities
- Tank Retrievals
- High-Level Waste and Pretreatment Facilities
- Projects





# HAB Priorities for 2013

## Budget

The DOE Richland Operations Office and Office of River Protection will continue to identify compliance funding levels to meet regulatory requirements and TPA schedules in its budget requests to DOE HQ. Provide HAB values and priorities for cleanup work to allow scope prioritization in the event of a constrained Fiscal Year 2013 budget

## Tank Farms and Waste Treatment and Immobilization Plant

- Provide input on the Hanford Tank Farm cleanup mission to aid the TPA agencies in cost-effective, risk-based decision-making during the preparation of the retrieval, treatment, and disposition of tank waste.
- Provide policy-level advice that considers a balanced approach to cost, schedule, and the safe implementation of the tank waste mission in the areas of:
  - Tank Farm and WTP system integration
  - Tank waste retrieval
  - One-time Hanford tank waste supplemental treatment technologies report development
  - Plans and schedule for waste feed delivery



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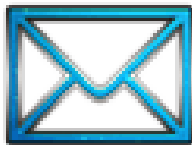
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