



UNITED STATES DEPARTMENT OF ENERGY

OFFICE OF RIVER PROTECTION

Hanford Tank Farm Challenges

WM 2014 – Panel 95



washingtonriver
protectionsolutions

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President & Project Manager



Tank Operations team

- Washington River Protection Solutions (WRPS) is a prime contractor to DOE's Office of River Protection
- WRPS is a joint venture between URS Corporation and Energy Solutions, with integrated subcontractor AREVA
- ~1,500 employees; just wrapped up fifth year of operations; contract extended through FY-2016; FY-14 budget of \$520 million

Mission Statement

WRPS is committed to the safe and efficient management, retrieval and treatment of radioactive and hazardous tank waste to protect the Columbia River



Safety performance

Achieved 7 million hours without a lost-time accident (thru May 2013)

- Additional 2 million hours (thru Dec. 2013)

Retrieved waste from 3 tanks simultaneously

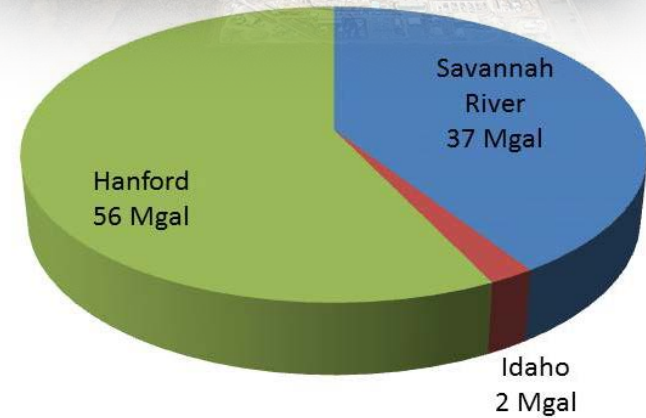
- Maintained strong industrial hygiene and radiological control programs





Tank waste comparison

- Tank farms
 - 177 underground storage tanks
 - 149 single shell tanks (SST)
 - ✓ More than 60 presumed to have leaked
 - 28 double shell tanks (DST)
 - 56 million gallons radioactive and chemical waste
 - 170 million curies radioactivity



Comparison of Total Number of Gallons in Waste Tanks at DOE Sites

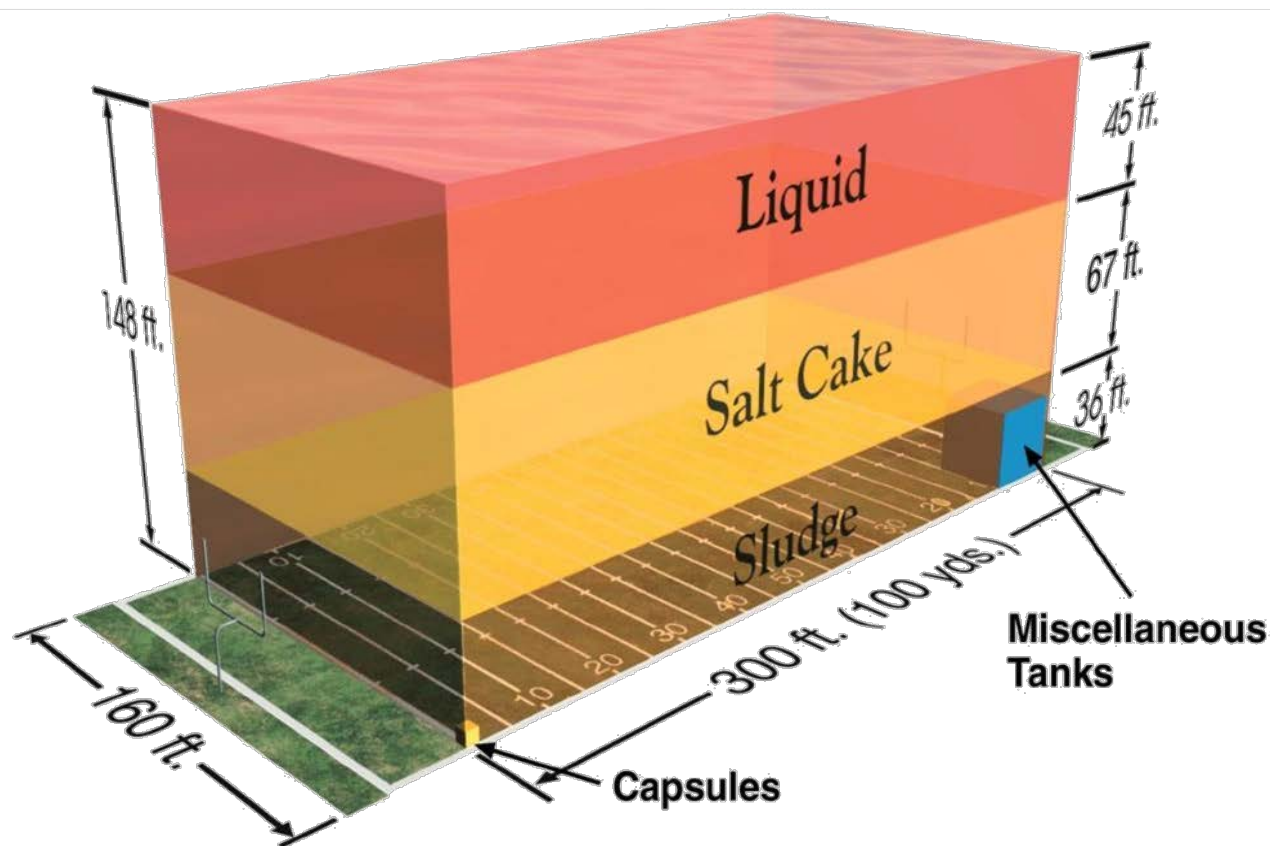




Hanford tank waste volume

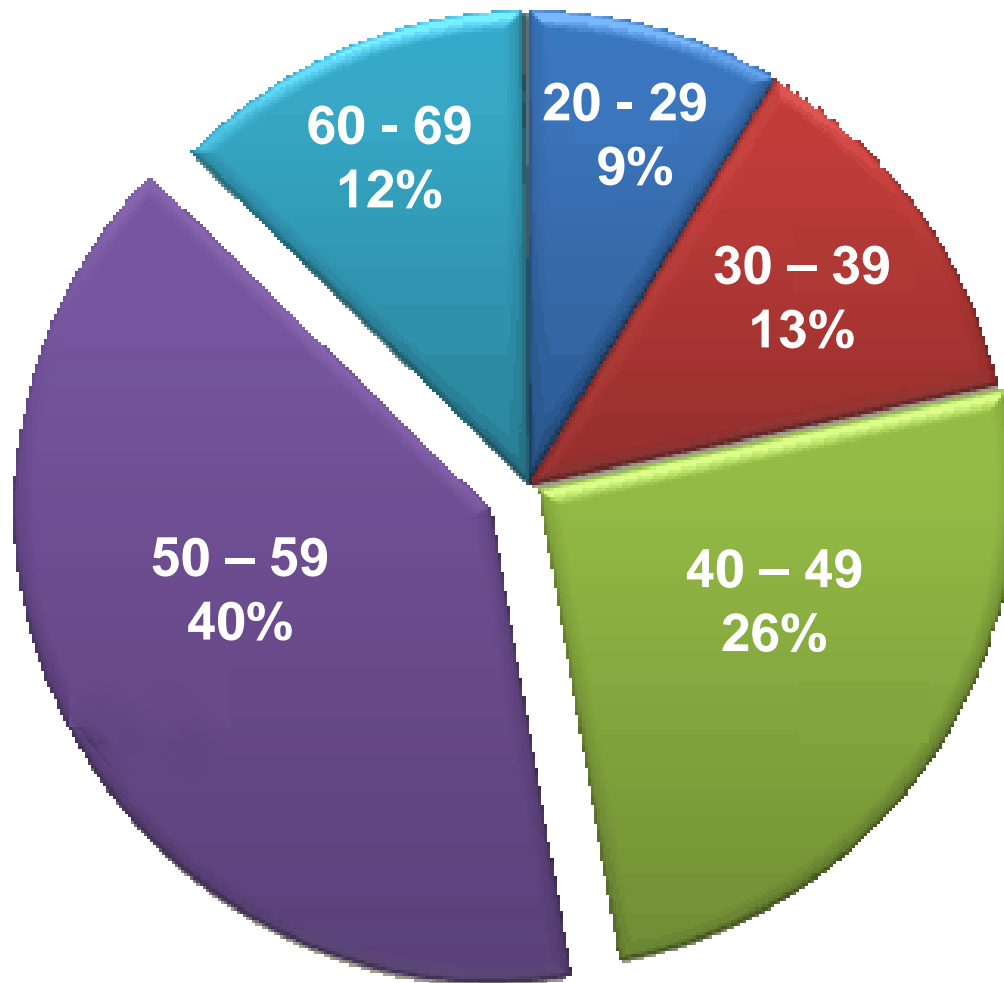
56 million gallons of waste contained in 177 underground storage tanks

- Enough to cover a football field 148-feet deep





WRPS workforce age distribution





Challenges

Maximize DST storage space

Improve tank farm infrastructure

Complete C Farm retrieval

Commence next SST retrievals

Integrate through One System with WTP



Challenge: Maximize DST storage space



242-A Evaporator



Challenge: Improve tank farm infrastructure



242-A Evaporator control room



Core Sampling Platform



High Resolution Resistivity system

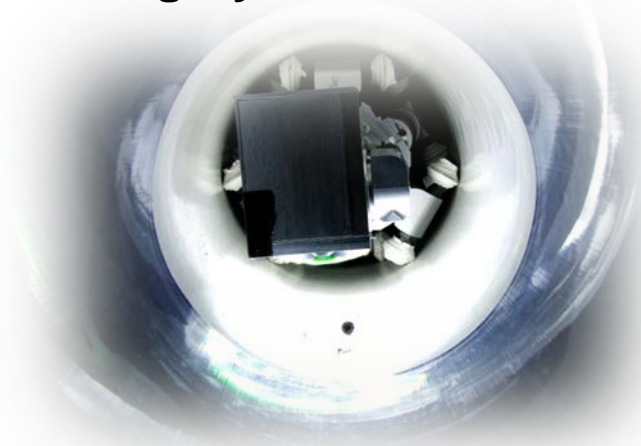


Tank farm infrastructure improvements

DST ventilation



Tank integrity



Weatherization



Control systems





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Challenge: Complete C Farm retrieval





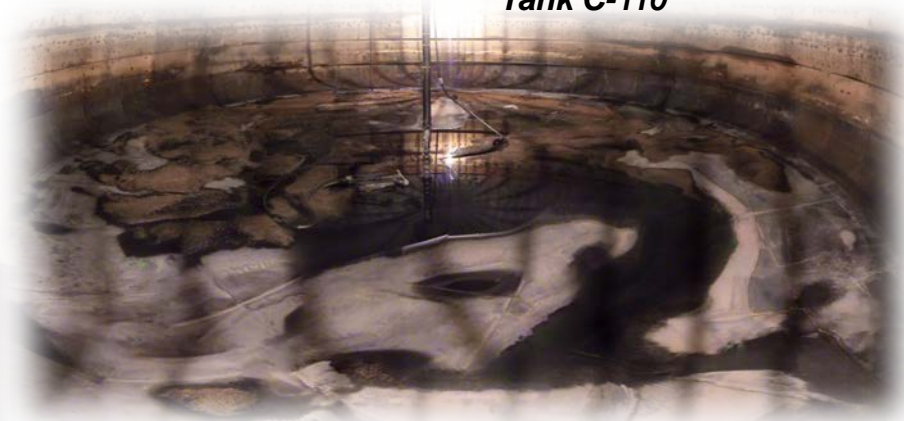
Hanford tank retrieval progress

Tank C-101



C101 R3
118° PAN 25 JUL 13
5 PSI 30° TILT 20:46

Tank C-110



Tank C-112



Tank C-107

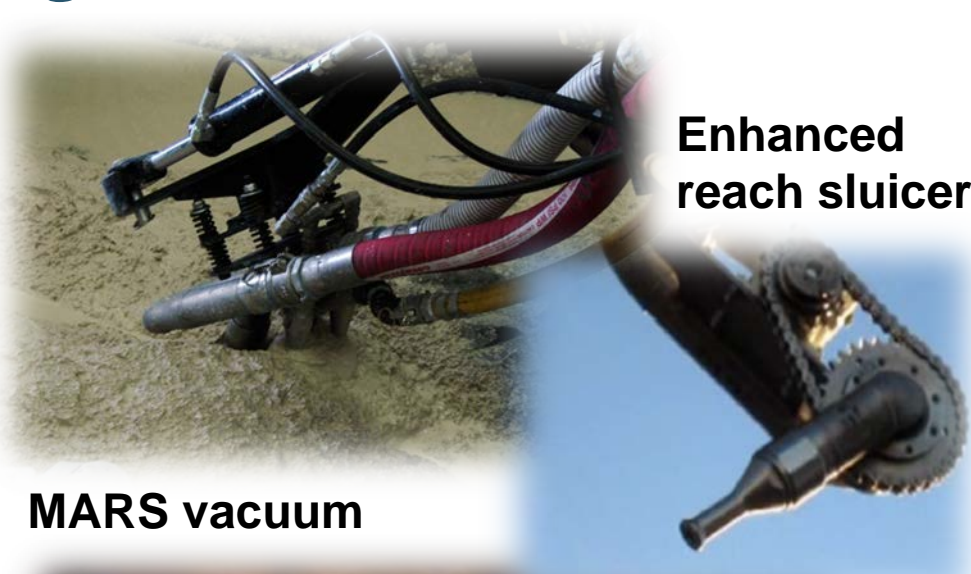




Waste retrieval technologies



C-105 dome cut



MARS vacuum

Enhanced reach sluicer



MARS install



Fold Track

32° PAN 20 MAR 13

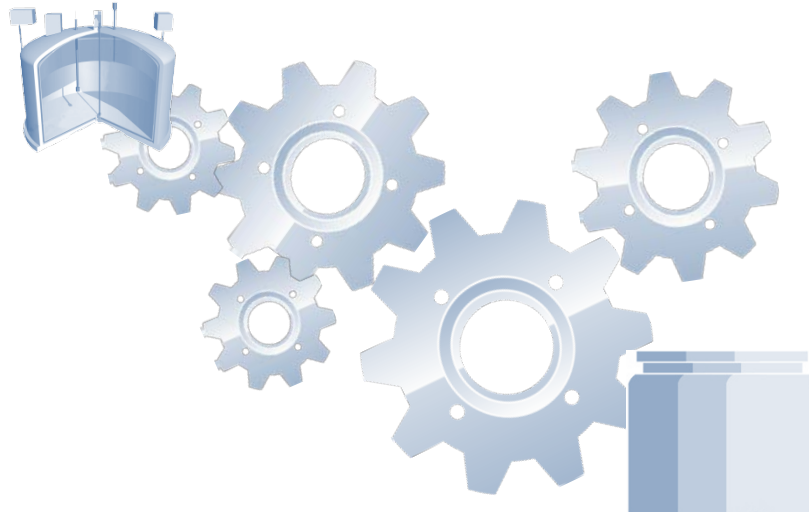


Challenge: Commence next SST retrievals





Challenge: Integrate through One System with WTP



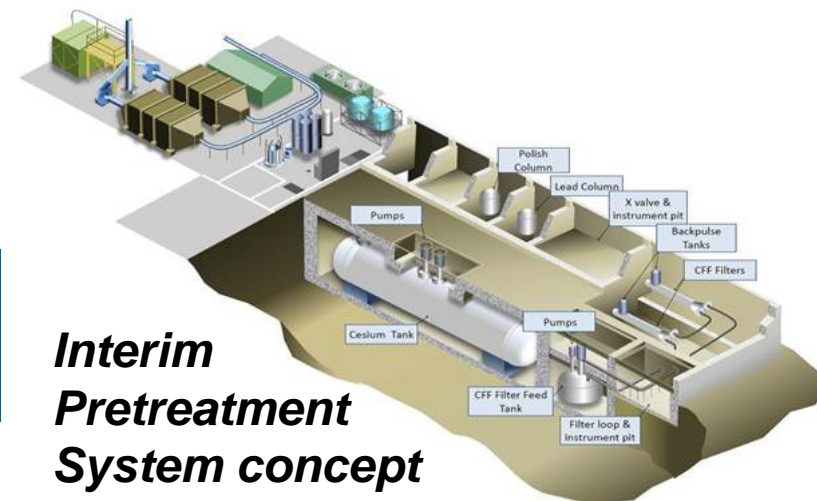
Flow sheet management



Waste mixing demo



National lab outreach



Interim Pretreatment System concept



Multi-site HLW integration

Reviewed Hanford Tank Mixing Program by SRR to help address tank waste mixing and sampling risks

Held problem-solving workshop with SRR on waste retrieval from DST AY-102

Exchanged SST retrieval technology and lessons learned. Hanford Sand Mantis deployed at SRS on Tanks 18/19

Collaborated on ion exchange and filtration technology

Conducted DSA comparative analysis on nuclear safety

Collaborating on plant operations software between SRR, WRPS, and WTP



Tank waste mixing demo



Sand Mantis



Summary

- Improving tank farm stewardship
- Maintaining focus on retrievals
- Increasing outreach to national laboratories
- Transitioning to potential line item project management
- Expanding integration with the Waste Treatment Plant



Potential gas release event testing