



OFFICE OF
RIVER PROTECTION
United States Department of Energy

Hanford Single Shell Tank Integrity Program Updates

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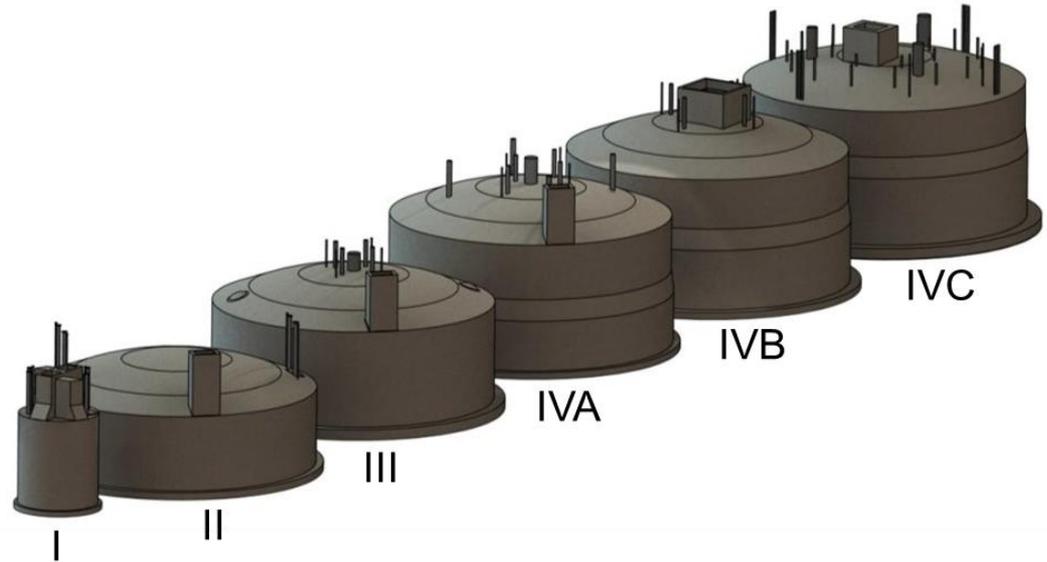
Presented by: Karthik Subramanian, Washington River Protection Solutions

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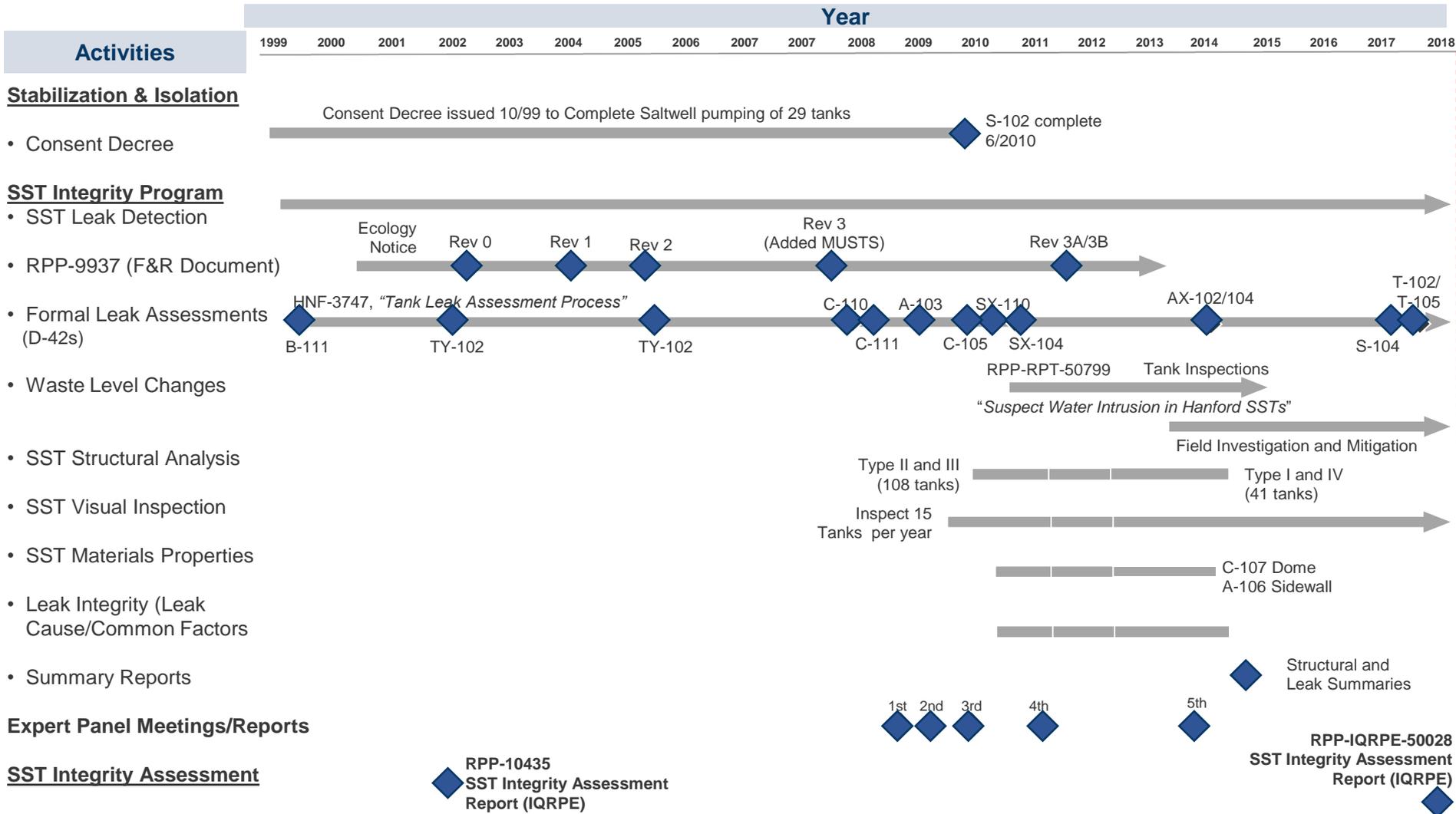
- Single-Shell Tank (SST) Integrity Program Evolution
- Waste Tank Summary Report (HNF-EP-0182) Updates

- 12 SST Farms were built between 1943 and 1964
- 149 total single-shell tanks
- Various capacities:
 - Type I 55 kgal
 - Type II 530 kgal
 - Type III 760 kgal
 - Type IV 1 million gal



Tank Series	I	II	III	IVA	IVB	IVC
Farms	241-B 241-C 241-T 241-U	241-B 241-BX 241-C 241-T 241-U	241-BY 241-S 241-TX 241-TY	241-SX	241-A	241-AX
Total Tanks	16 Tanks	60 Tanks	48 Tanks	15 Tanks	6 Tanks	4 Tanks

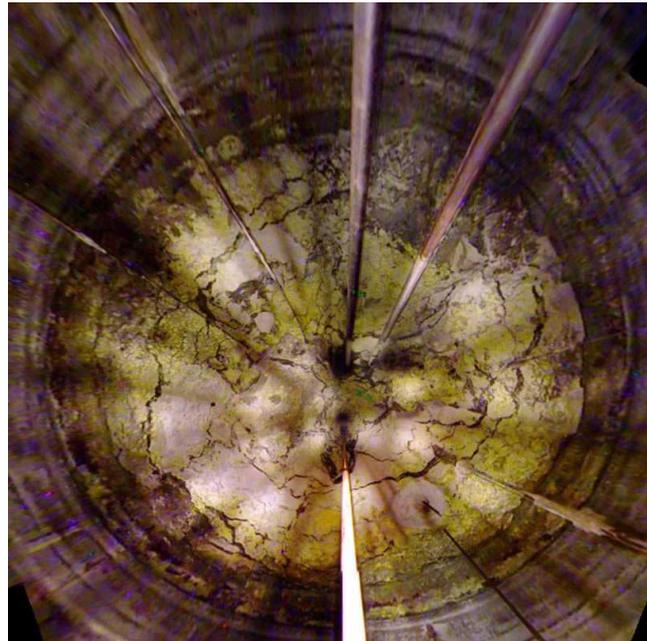
SST Integrity Program Evolution



Examples from Recent SST Visual Inspections



Tank B-104 Composite View from Dome to Waste Surface



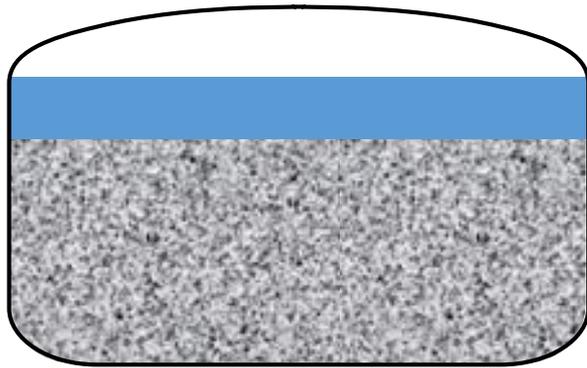
Tank SX-105 Composite View of Waste Surface

FY 19	Complete
B-102	✓
B-103	✓
B-110	✓
B-111	✓
B-112	✓
BX-104	✓
SX-114	✓
T-108	
T-202	
TX-101	
TX-104	
TX-110	
TY-106	
U-101	
U-106	

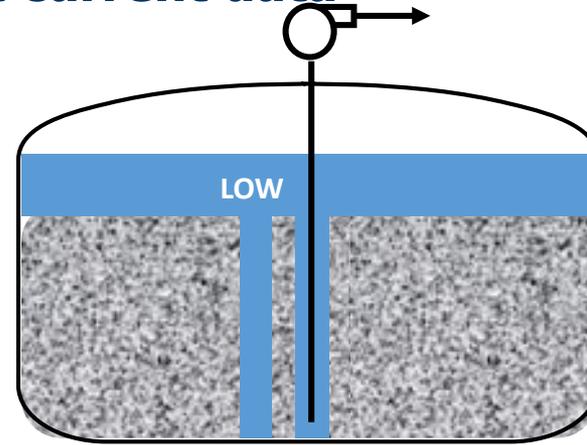
Images from RPP-RPT-60565, FY18 SST Visual Inspection Report

- Drainable Interstitial Liquids (DIL)
- Leak Volumes
- Water Intrusion

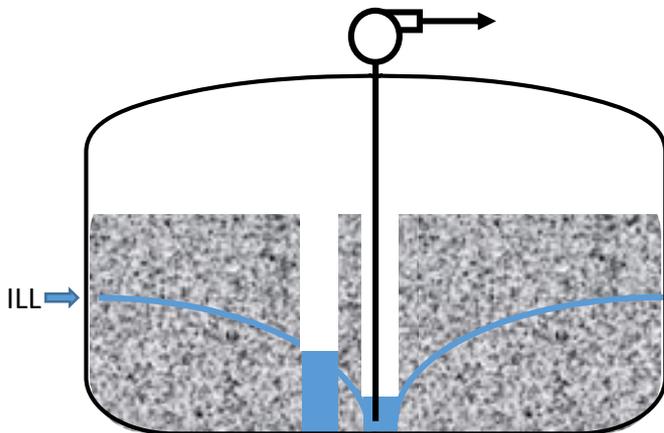
Data in Table 4-1 in HNF-EP-0182, "Waste Tank Summary Reports" will be updated to reflect current data



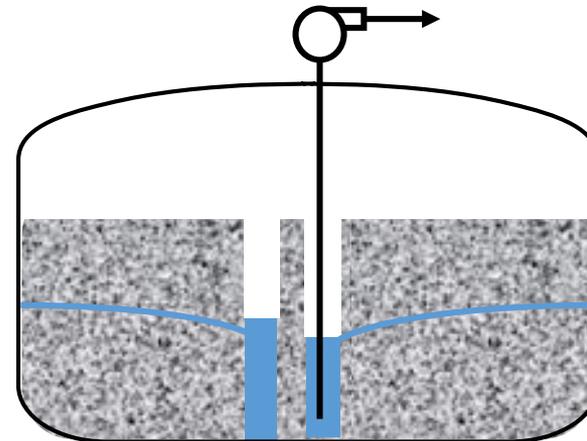
Tank with saltcake and supernate layer



Salt well and supernate pump with Liquid Observation Well (LOW)

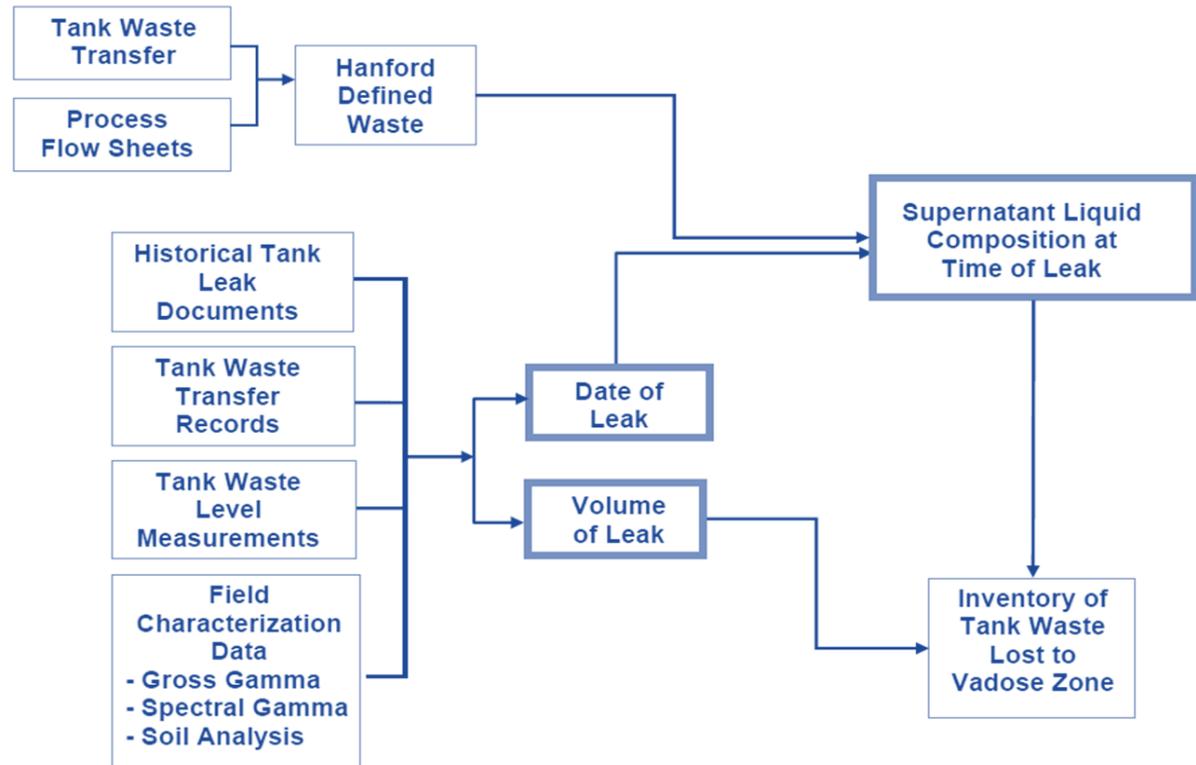


Pumpable supernate removed, Interstitial Liquid Level (ILL) not yet stabilized but used for previous DIL calculations



Over time, ILL profile flattens and LOW level increases

- **Data in Table 4-2 in HNF-EP-0182, "Waste Tank Summary Reports" will be updated to reflect current data**
- **Current data are based upon RPP-32681, "Process to Assess Tank Farm Leaks in Support of Retrieval and Closure Planning"**
 - Assessments completed between 2007-2016



- Data in Table 4-4 and Table 4-5 in HNF-EP-0182, "Waste Tank Summary Reports" will be updated to reflect current data
- Continue visual inspection of SSTs to identify potential for water intrusion
 - Tank added to visual inspection list based off trending of the LOW or ENRAF readings
 - Data analyzed and notifications made if necessary

B-112 Visual Inspection



- SST integrity program continues to be an important program
- Continuously improving the program with new data, calculation methods, and visual inspections
- Updates of this information are provided through the Waste Tank Summary Report (HNF-EP-0182)