Tank Waste Remediation System

Chapter 1

Program Overview

Tank Waste Remediation System

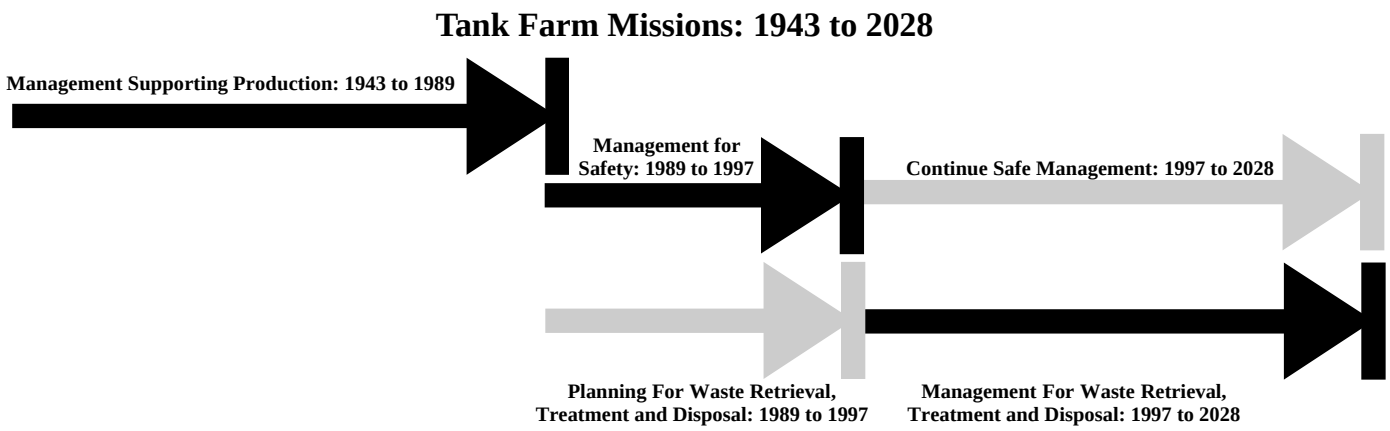
- Mission:

  "*Store, treat, immobilize and dispose of the highly radioactive Hanford Site tank waste* in an environmentally sound, safe, and cost-effective manner*"

  *current and future tank waste and provide for disposition of the cesium and strontium capsules

- Cost:
  - Fiscal Year 1997-2006: $7 billion
  - Post 2006: $23-$33 billion

Hanford Tanks Evolution

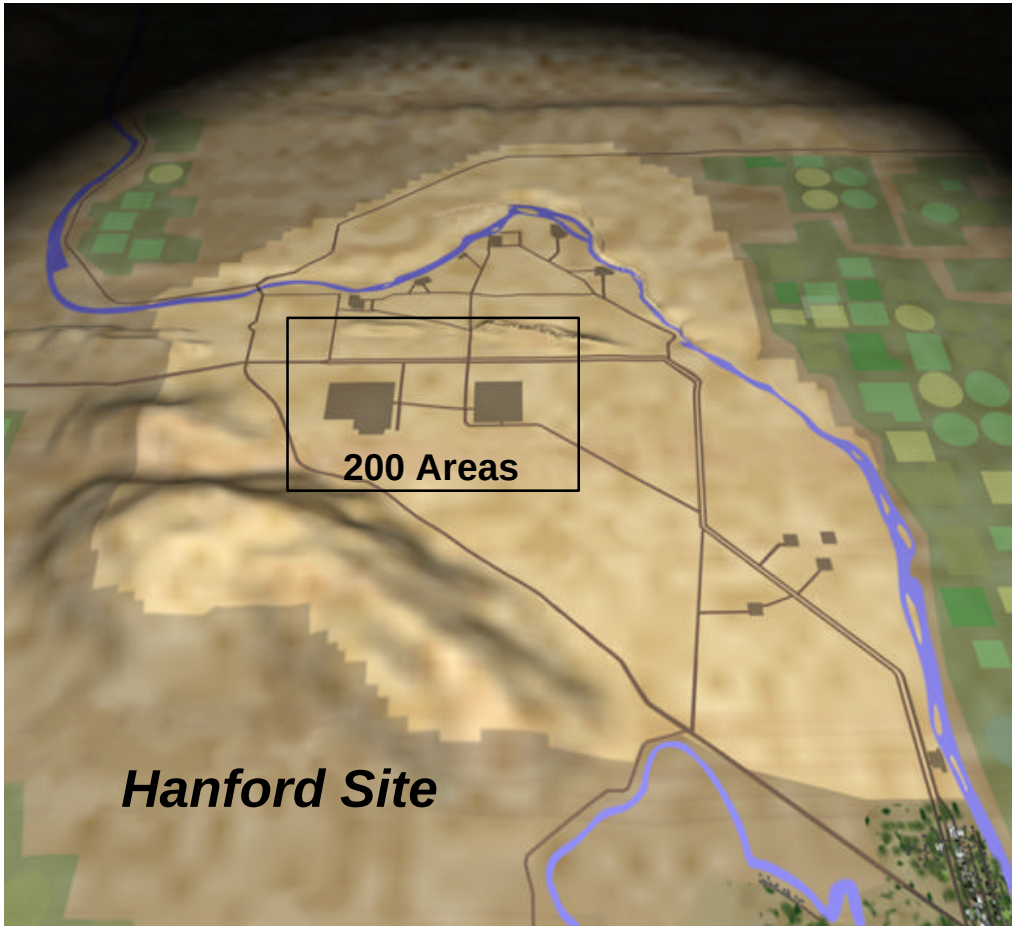


- Pre-1989: tank farms managed for waste storage from the production of plutonium for nuclear weapons
- 1990s: dual path effort involved creating safety basis and planning for disposal of the tank waste
- 1998 and beyond: safety is embedded into projects; emphasis on disposal of waste

Location of Hanford's 200 Areas

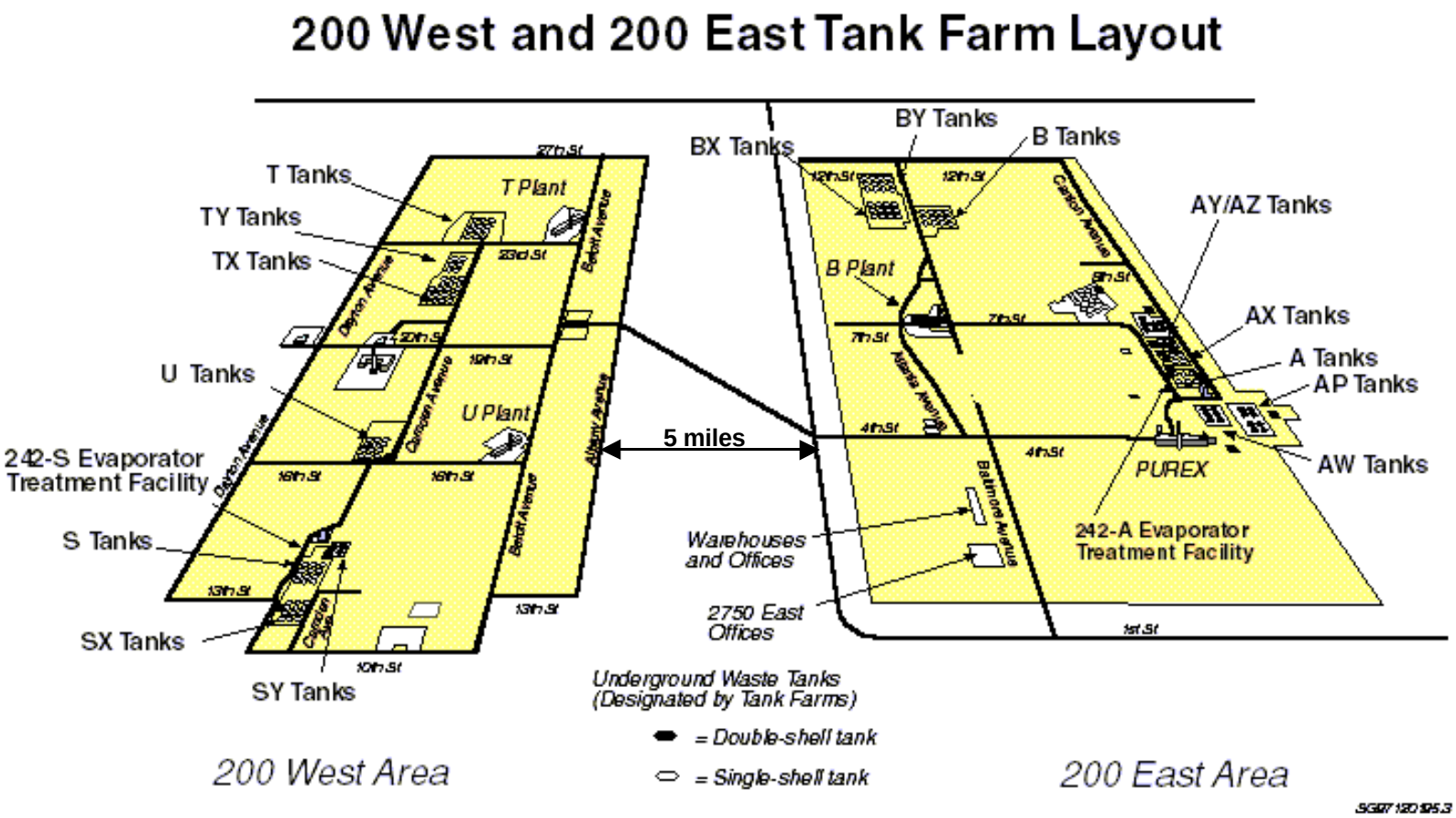
N

7 miles south of the Columbia River

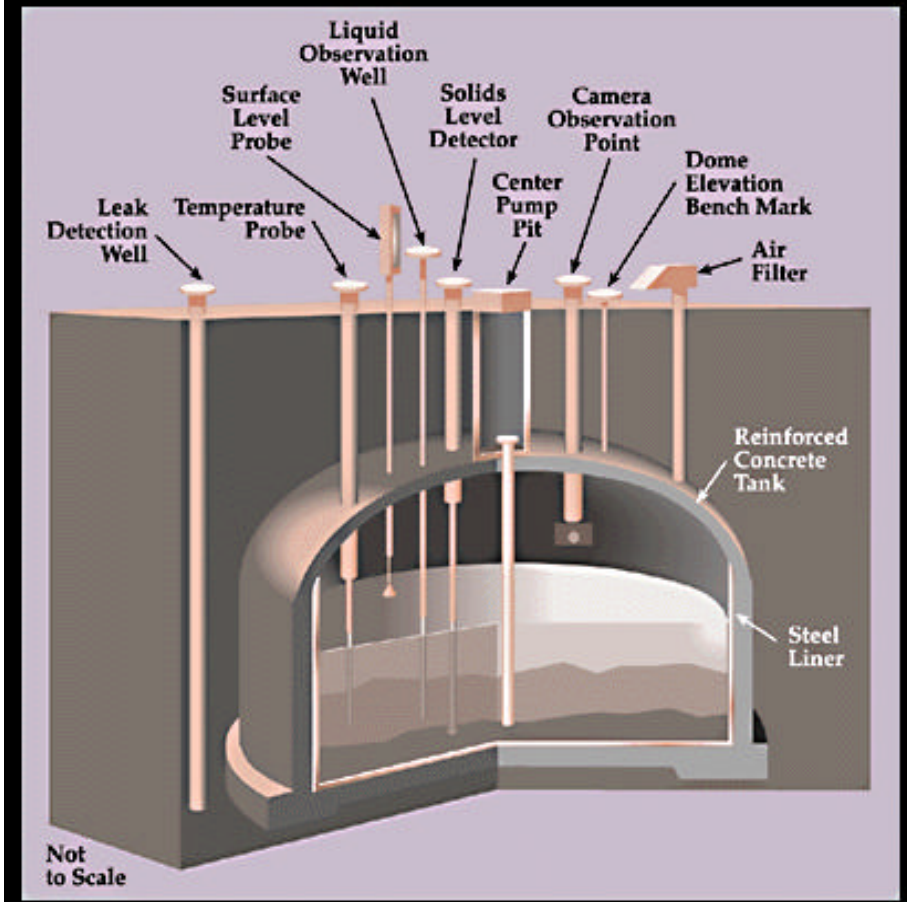


10 miles west of the Columbia River

Location of Hanford's Tank Farms



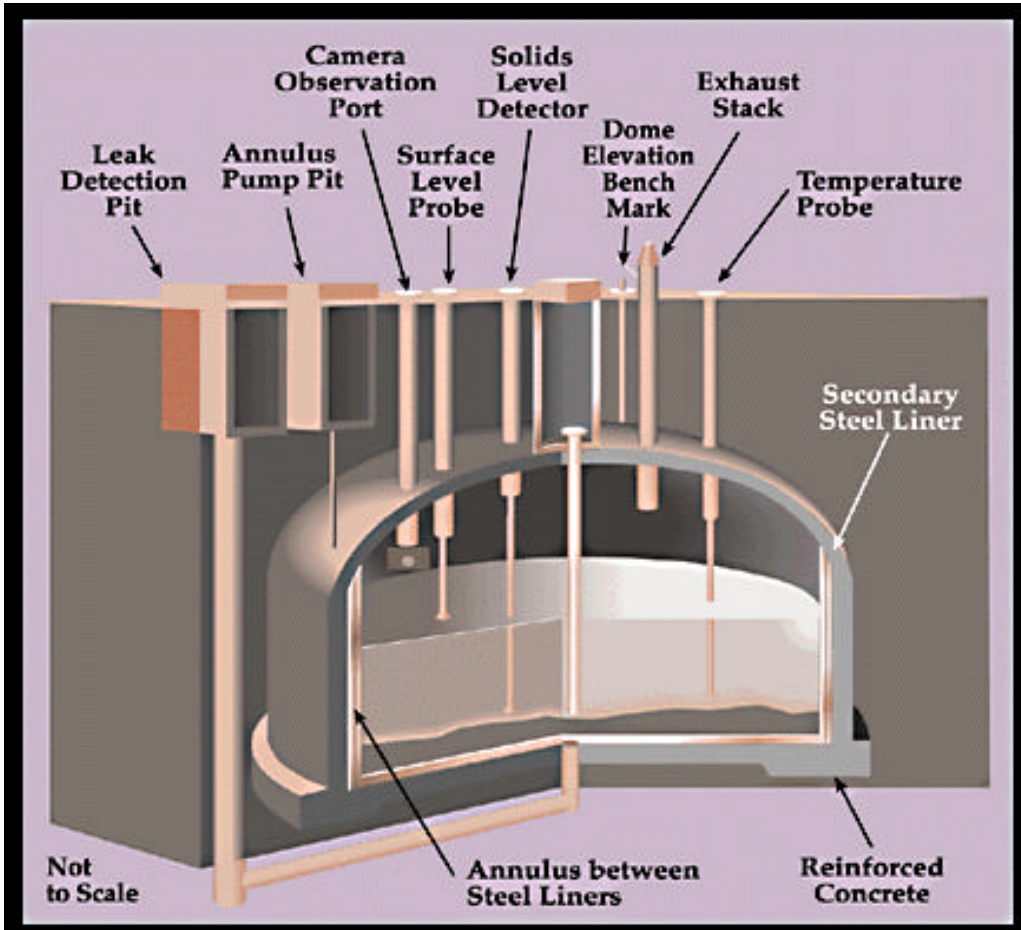
Single-Shell Tank



Typical Single-shell Tank

- 149 SSTs
- Built from 1943 to 1964
- Capacity ranges from 55,000-1 million gallons
- SSTs generally contain:
- saltcakes
- sludges
- some liquids

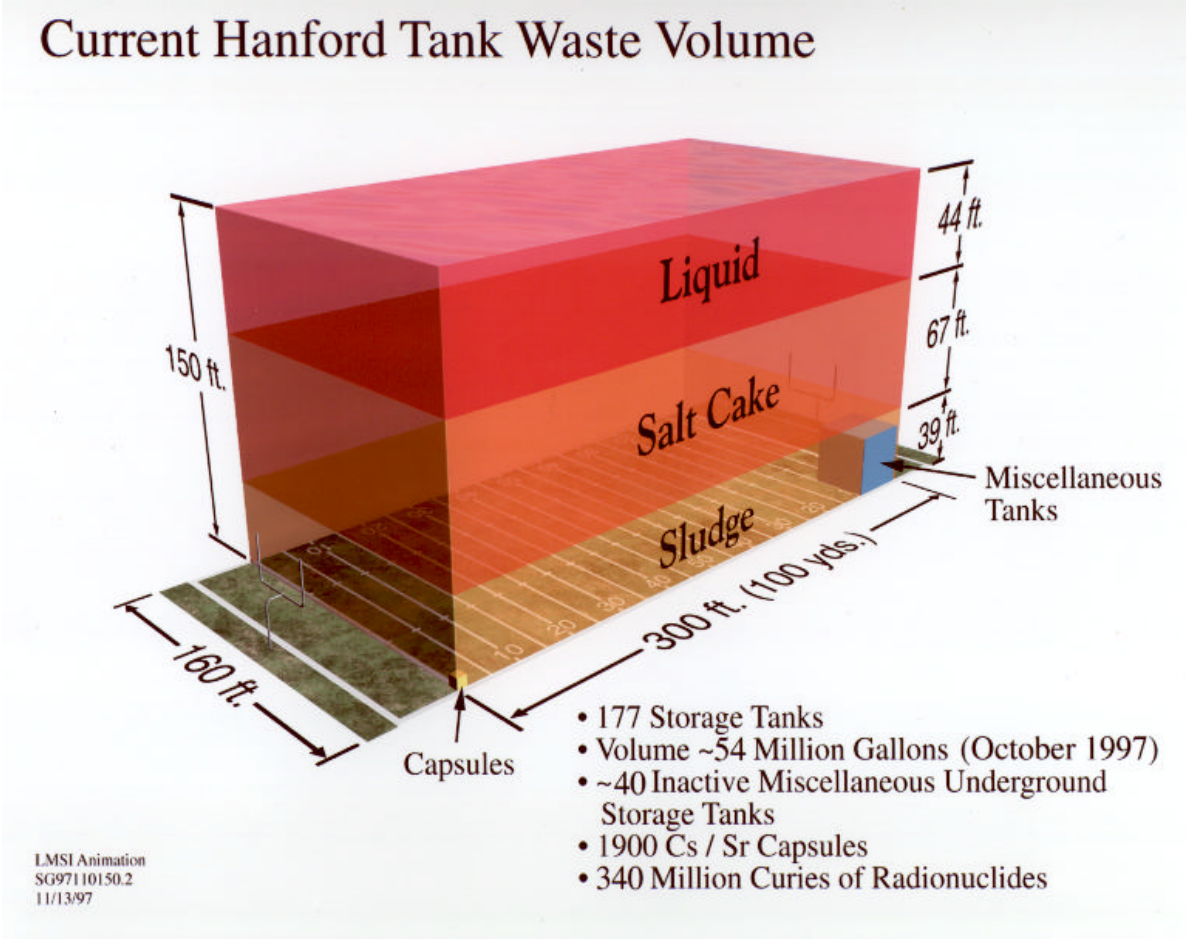
Double-Shell Tank



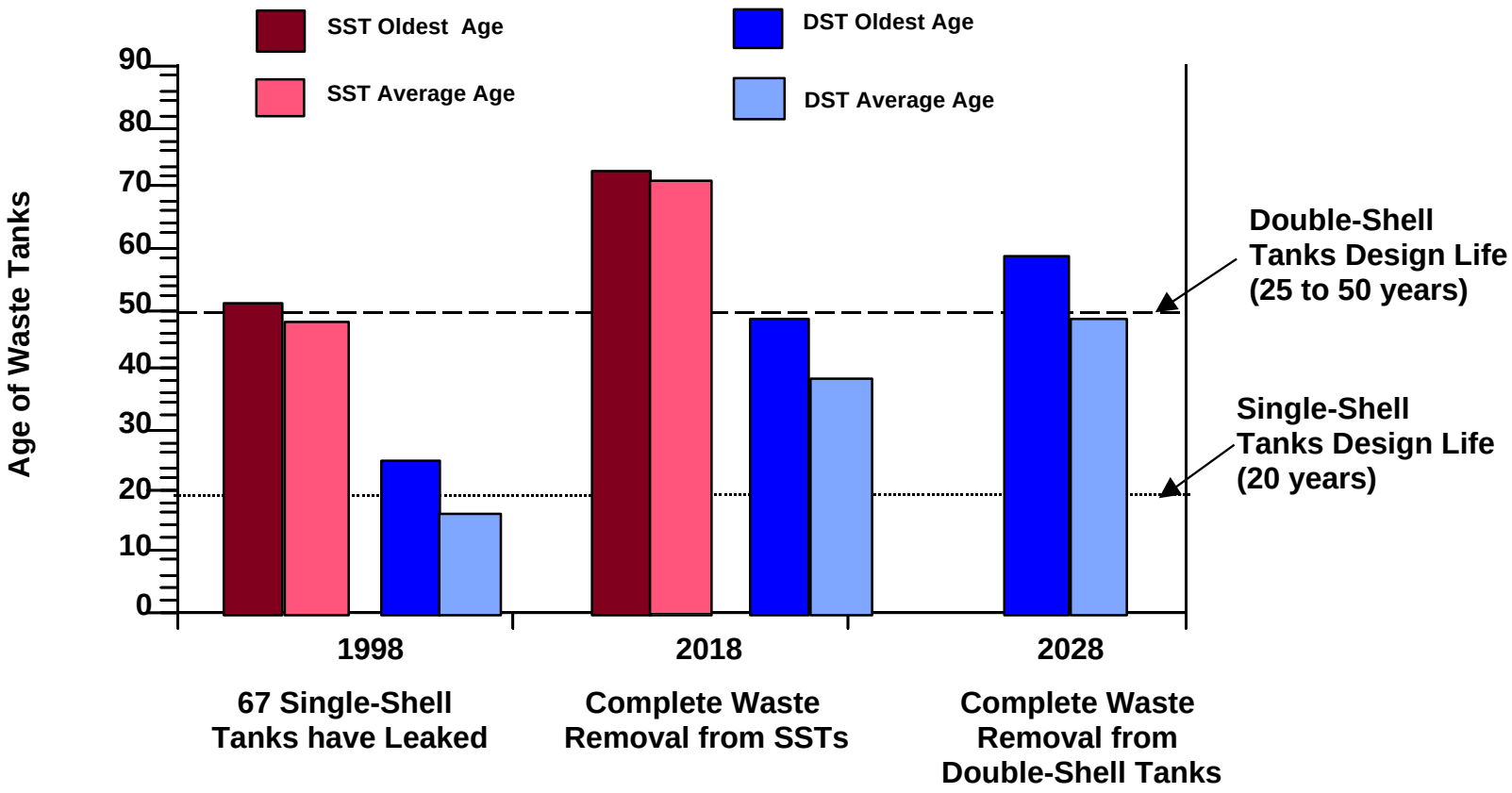
Typical Double-shell Tank

- 28 DSTs
- Built from 1968 to 1986
- Capacity ranges from 1- 1.16 million gallons
- DSTs generally contain:
- liquids
- thicker slurries
- some sludges

Tank Waste Volume



Age of Hanford's Waste Tanks



Hanford Compared to Other DOE Sites

	West Valley	Idaho	Savannah River	Hanford
Total Tanks	4	11	51	177
Waste Gallons in Storage	0.5 million	3 million	34 million	54 million
Total Curies in Tanks	22 million	48 million	493 million	190 million
Total Curies in Capsules	0	0	0	143 million
Number of Waste Types	2	2	1	5
Number of Tanks That Have Leaked	0	0	9	67

NOTES: 1/3 of Idaho's waste volume is in the form of calcine.

Most of West Valley's waste has now been vitrified, so it is no longer classified as "gallons."

Data are from the latest issued integrated database: DOE/RW-0006, Rev.13, December 1997.

Major Accomplishments From 1989 to Date

- Mitigated Tank 101-SY hydrogen buildup
- Resolved ferrocyanide safety problem
- Pumped removable liquids from 21 single-shell tanks
- Completed Safe Interim Storage Environmental Impact Statement and Record of Decision
- Completed TWRS Environmental Impact Statement and Record of Decision
- Decontaminated 7.5 million square feet out of 8.8 million square feet of tank farm surface area
- Completed surface decontamination of 8 tank farms - no anti-contamination clothing required for entry
- Condensed 9.6 million gallons of waste

Major Accomplishments From 1989 to Date (cont'd)

- Completed construction of the Cross-Site Transfer Line in FY 1997; will operate in Summer 1998
- Completed construction of AY/AZ Tank Farm Ventilation System; declared operational in March 1998
- Sampled 131 tanks - State of Washington Department of Ecology has accepted 112 tank characterization reports
- Privatized TWRS treatment and immobilization
- Issued and implemented first comprehensive safety basis for tanks farms

Tank Waste Treatment and Disposal Will Benefit from Prior Accomplishments

- Double-shell tank mixer pumps installed in Tank 101-AZ will be replicated and used to supply feed for treatment of tank waste
- Canister Storage Building vaults will be used to temporarily store immobilized high level waste canisters
- Unused grout vaults will be used for interim storage/disposal of immobilized low-activity waste glass boxes

TWRS Overview - Points of Contact

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