WASHINGTON STATE'S DANGEROUS WASTE PERMIT FOR HANFORD'S SINGLE-SHELL TANKS

August 7, 2012

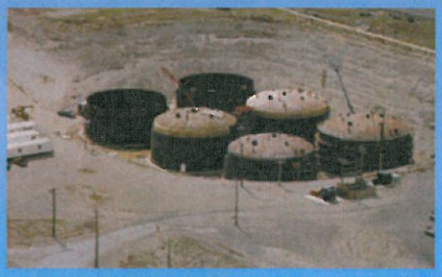
DEPARTMENT OF ECOLOGY
State of Washington

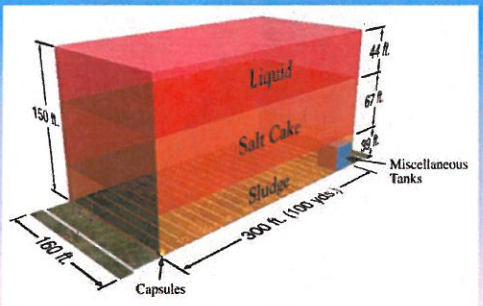
Protecting our air, land and water - today and for the future.

Hanford Tanks Background

Hanford's worst waste is stored in 177 large, underground tanks.

- 28 double-shell tanks (DST) (built 1968-1986)
- 149 single-shell tanks (SST) (built 1944-1964)





- Tanks are clustered together in tank farms.
- Tanks contain more than 56 million gallons of waste – enough to cover an entire football field to a depth of over 150 feet, or the height of a 15-story building.

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Tank-Related Permit Units

New in Revision 9 of the Hanford site permit

- 149 single-shell tanks
- 28 double-shell tanks

Existing

- 242-A Evaporator
- Waste Treatment Plant (WTP)
- Effluent Treatment Facility (ETF)

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Legal Requirements

1. TPA (originally signed in 1989, modified 2010)
   - Close C Farm tanks and associated equipment by 2019.
   - Close all Single Shell Tank Farms 2043.
   - Links to National Priorities List sites (regulated by EPA) for radiological contamination and AEA requirements.
   - "Operable Units" created to divide up the cleanup efforts, creating "stove pipes" within USDOE.

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Status of Waste Retrieval in C Farm Large tanks

Tank #	How much waste is left in tank? (gallons)	Status
C-104	5,000	Underway
C-107	253,000	Underway
C-109	9,000	Underway
C-101	88,000	To start October 2012
C-102	316,000	To start December 2012
C-111	35,000	To re-start August 2013
C-105	132,000	To start August 2013
C-110	17,000	To re-start February 2013
C-112	104,000	Re-start unknown
C-108	7,000	Retrieval halted
C-106	4,117	Retrieval complete but awaiting verification
C-103	2,641	Retrieval complete

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Legal Requirements

3. Single Shell Tank Permit
   - Specify requirements and limitations for closing "unfit-for-use" tanks "in slow motion" (40-50 more years)
   - Assess integrity of degrading tanks and equipment
   - Incorporate TPA milestones
     - Closure compliance schedule
     - Soil cleanup
     - Groundwater monitoring and cleanup
   - Protect human health and the environment through
     - Tank Leak Detection and Response
     - Corrective Action

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Tanks Are Aging

- DSTs are nearing their design life and capacity.
  - Receive waste retrieved from SSTs.
  - Need WTP to continue retrieving.
- SSTs were built from 1943-1964.
  - 40-60 years beyond their design life.
- Potential for SST catastrophic release to the air exists.
  - Potential for dome collapse increases with time.
- Both tank systems have integrity assessment programs.
  - SST System assessment is unique.
  - SSTs have released to the environment.

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Associated Risk

- All 12 single-shell tank farms have impacted groundwater.
- Current plumes are 50 ft to 300 ft. deep which will be technically difficult to remediate.
- Best approach is to retrieve the waste while still in the tanks and immobilize it.
- One million gallons of the tank waste has leaked to the soil, causing extensive soil contamination.