



OFFICE OF
RIVER PROTECTION
United States Department of Energy

Hanford Tank Farms Infrastructure Update

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Presented by: U.S. Department of Energy – Office of River Protection

April 19, 2017



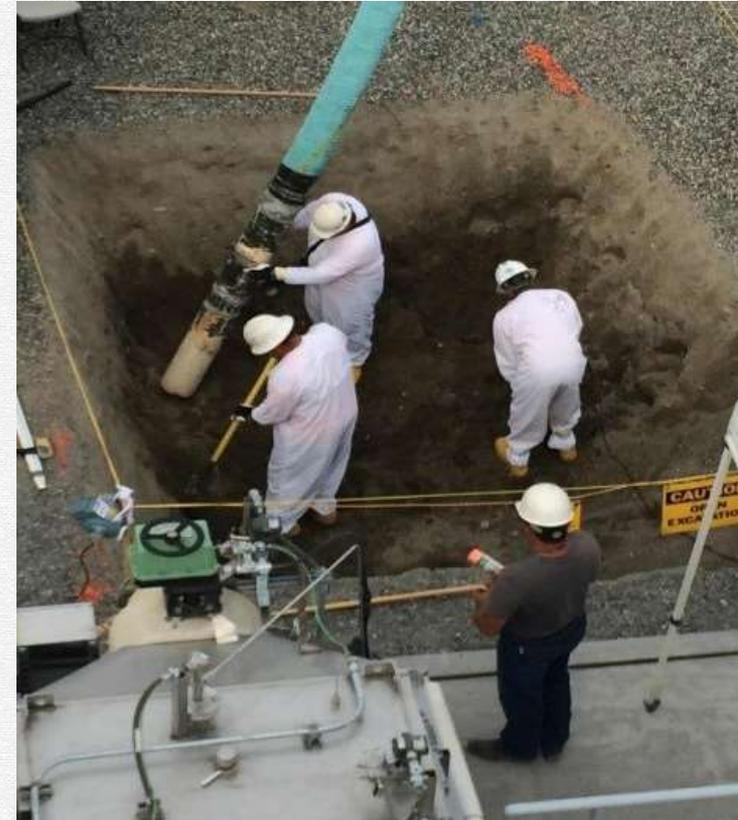
- Ensure safe and compliant operations
- Provide support for managing and retrieving Hanford's tank waste
- Construct the transfer system to the Waste Treatment and Immobilization Plant



The installation of in-pit heaters allows for safe and compliant waste transfers during cold weather.

FY2016 Accomplishments

- Completed installation of new primary ventilation system at AP Farm
- Completed installation and testing of wireless components to support infrastructure upgrades to leak detection sensors and temperature monitoring thermocouples in AY/AZ, AP and AW farms
- Completed installation and testing of ventilation airflow instrumentation in SY Farm
- Designed and fabricated new spare transfer pumps to be used in pump replacement projects during FY 2017 and beyond



WRPS' Tank Farm Projects organization oversees design, construction, testing and turnover of all field project activities with a goal of improving safety and efficiency of day-to-day operations across the tank farms.



Planned FY2017 Activities

- Design, procure and fabricate new SY Farm primary ventilation system
- Replace AP-106 and AW-106 waste transfer pumps
- Install wireless network upgrades in AN and AP Farms
- Install wireless waste transfer leak detectors in the double-shell farms
- Continue installation of ventilation air flow monitoring in DST farms
- Upgrade safety showers



In FY16, WRPS completed design, installation and testing of a new primary ventilation system at AP Farm.





FY2016 Accomplishments

- Fabricated and installed two upgraded condenser drain lines
- Replaced two half-ton crane hoists in the 242-A Evaporator canyon
- Completed upgrades to the control room

Planned FY2017 Activities

- Design a spare reboiler
- Extend the vessel vent stack
- Replace the steam condensate, process condensate and used raw water radiological monitoring systems



A spare reboiler, left, is being designed and built for the 242-A Evaporator, above, as a backup in case the existing reboiler requires replacement.



FY2016 Accomplishments

- Completed special protective coating upgrades at the load-in station, verification berm, catch basins and bulk chemical storage berm, allowing for the facility to process 4 million gallons of waste water

Planned FY2017 Activities

- Replace one of three Liquid Effluent Retention Facility basin covers to allow for processing waste in the basin



Since 1995, the Effluent Treatment Facility has treated water contaminated with low levels of radioactive and chemical waste primarily from the 242-A Evaporator, groundwater treatment systems, waste disposal operations and Hanford's K Basins. In Fiscal Year 2016, the facility processed 4 million gallons of waste water.



FY2016 Accomplishments

- Installed a new replacement diesel motor for emergency fan #4
- Completed an upgrade to the freight elevator
- Installed new analytical instruments, including a new gas chromatograph/mass spectrometer that doubles the capacity for organic vapor analyses.



Planned FY2017 Activities

- Complete design and begin construction for upgraded HVAC system
- Replace five analytical instruments
- Begin design work for renovation of two laboratory rooms



The 222-S lab is the primary on-site facility for analyzing intermediate-to-high level radioactive samples at Hanford.





FY2016 Accomplishments

- Established GPS tracking for portable equipment such as light plants, generators, compressors, aerial lifts and utility vehicles to improve the tracking of portable equipment

Planned FY2017 Activities

- Procure spare transfer pumps and other critical transfer system components needed for safe storage, SST retrievals and DST transfers
- Procure sufficient quantities of safety-significant valves to ensure fabrication of jumpers for new pump installations and valve pit modifications
- Procure spare hose-in-hose transfer line and fittings to support A/AX retrieval and completion of C-Farm



Managing an inventory of engineered and commercial critical spare parts to support day-to-day operations and planned upgrades is essential to the safe and efficient operation of tank farms systems and facilities.

FY2016 Accomplishments

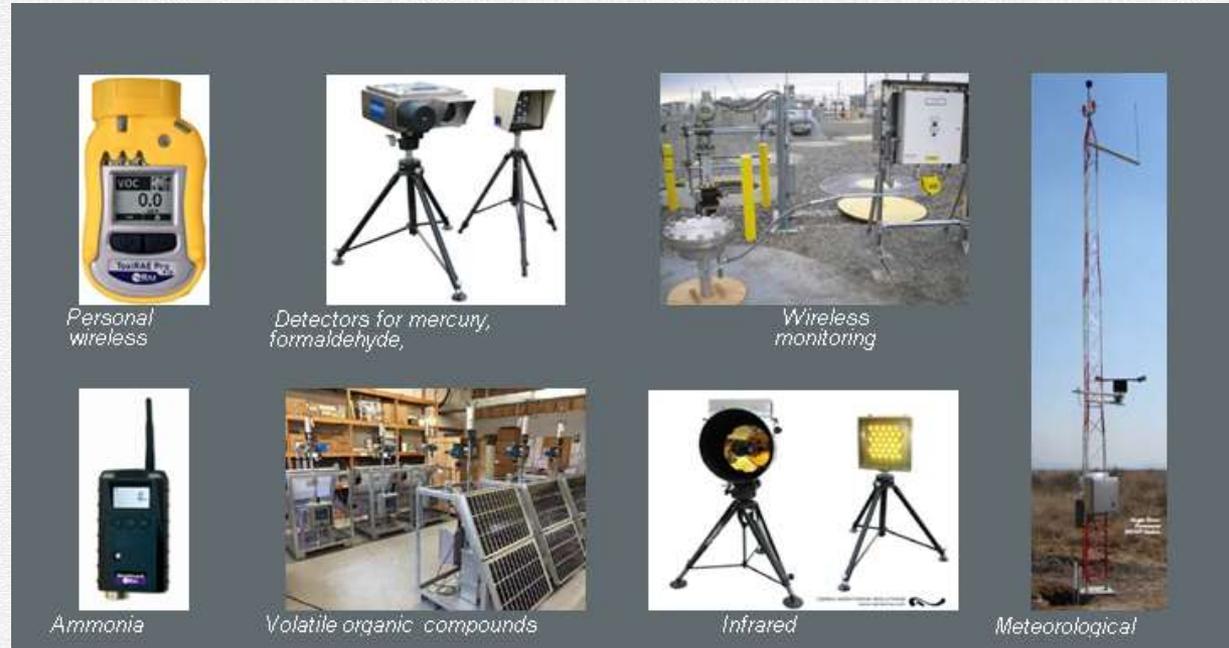
- Completed bench-scale testing of vapor monitoring and detection equipment
- Initiated pilot-scale testing of vapor monitoring and detection equipment in A and AP Farms.
- Deployed a specialized mobile laboratory
- Completed ventilation upgrades in AP Farm; continued ventilation work in AX Farm
- Completed installation and testing of wireless infrastructure upgrades in AY/AZ, AP and AW Farms.
- Deployed and successfully tested a pilot public address system in AP Farm
- Identified and eliminated fugitive vapor emission sites
- Completed central control room for monitoring tanks



A specialized mobile laboratory was deployed last year as part of WRPS' chemical vapors monitoring program.

Planned FY2017 Activities

- Demonstrate and test a new engineered vapors control technology
- Install an enhanced communications system in the 200 East Area
- Install additional pilot-scale test monitoring and detection equipment in additional tank farms
- Continue use of the mobile laboratory



Above: Several vapor monitoring and detection technologies are being testing in AP Farm.

Left: Tank farm operations are monitored remotely from the 272-AW Control Room.



Upgrades to support DFLAW will be made in the AP and AW Tank Farms, with the design/build scope spanning from FY16 through FY21

Upgrades include

- Pump replacements/installations
- Enraf replacements
- Jumper replacements/installations
- Upgrade valve pit for waste routing
- Design/build 4 underground transfer lines (AP Farm)



Example of an installed waste transfer pump and jumper.



A new waste transfer pump.





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Questions?

The Hanford Reach
White Bluffs Overlooking the Columbia River

