



FACT SHEET: SALT WASTE PROCESSING FACILITY

SWPF Mission:

- Provide a facility that reduces radioactive waste volume requiring vitrification
- Separate low volume/high activity waste from the high volume/low activity waste
- Transfer high activity waste to the Defense Waste Processing Facility
- Transfer low activity waste to the Saltstone Facility

BACKGROUND:

Nuclear material production operations at SRS resulted in the generation of liquid radioactive waste that is being stored, on an interim basis, in 49 underground waste storage tanks in the F- and H-Area Tank Farms.



SWPF construction underway at SRS

DOE built the Defense Waste Processing Facility (DWPF) to vitrify concentrated high-activity tank waste into a stable form and store it for eventual permanent disposal. The Saltstone Facility was constructed to immobilize and dispose of low activity decontaminated salt waste. To effectively utilize these existing facilities for liquid radioactive waste disposition, the DOE Salt Processing Program needed to develop a processing capability for separating and concentrating the high-activity constituents from the salt waste solutions resulting from tank closure operations.

Waste stored in the tanks can be characterized as either “salt” or “sludge”, both containing highly radioactive residues. The sludge waste, which is insoluble and settles to the bottom of a waste tank, generally contains insoluble radioactive elements in the form of hydrated metal oxides. Since 1996, SRS has been removing the sludge waste from tanks, pre-treating it in the Extended Sludge Processing facility, and delivering it to the DWPF for final treatment. The DWPF uses a vitrification process to immobilize the liquid radioactive waste in a glass matrix that is poured into stainless steel containers for permanent disposal.

The salt waste contains soluble metal ions, including most of the soluble radioactive cesium (Cs) and some trace quantities of entrained sludge. The salt waste in the tanks includes a solid saltcake that has crystallized out of solution and a concentrated salt supernate. The supernate contains most of the soluble Cs and limited amounts of entrained sludge and will require treatment at the SWPF. The saltcake in the tanks will be dissolved by adding inhibited water. The resultant salt solution will be treated at SWPF.

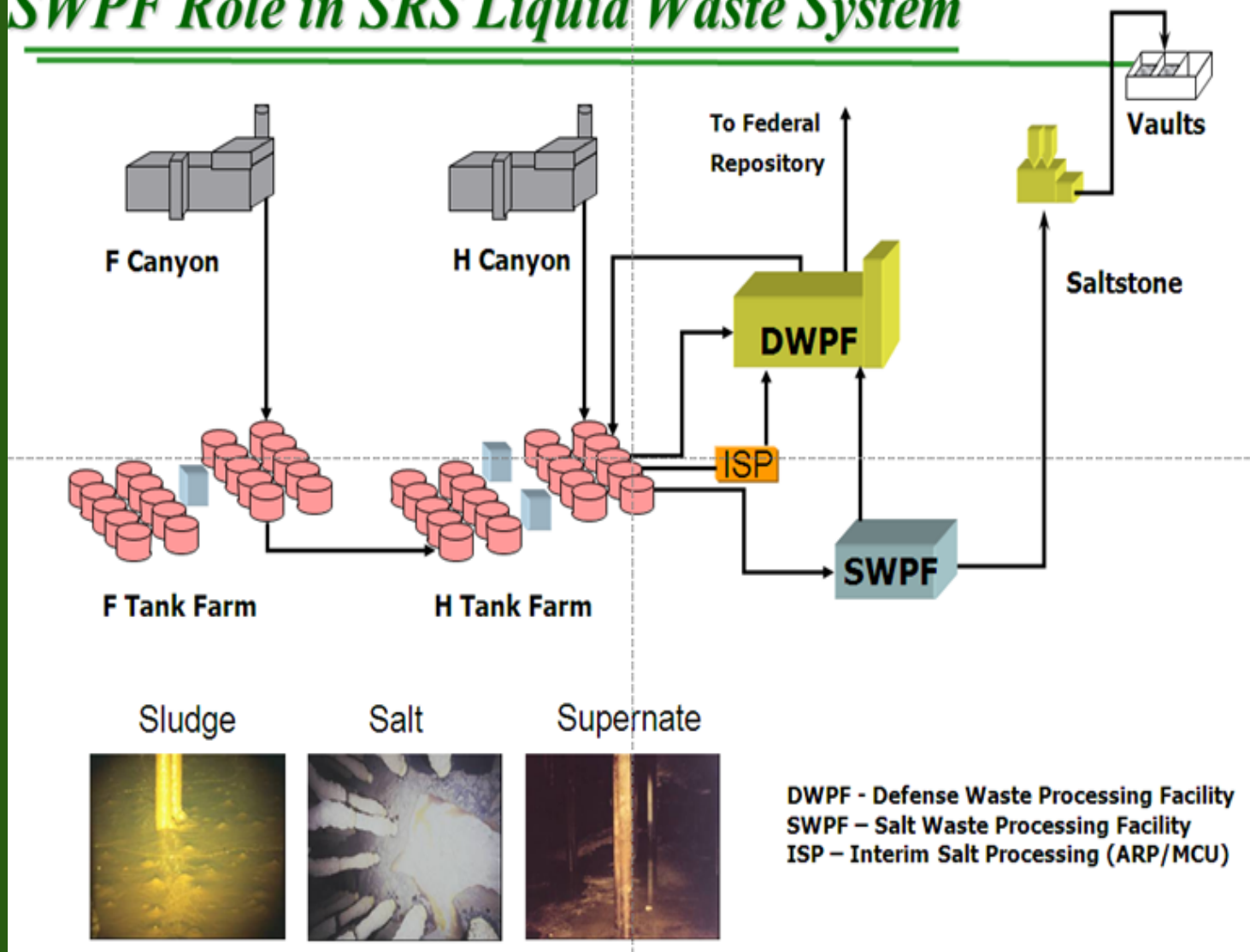


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Proven cleanup technology is critical to EM success

When operational, the SWPF will use the same technologies being piloted at the Interim Salt Processing facilities' Actinide Removal Process and Modular Caustic-Side Solvent Unit (ARP/MCU) to separate the highly radioactive cesium and actinides from the salt solution using caustic-side solvent extraction and monosodium titanate adsorption/filtration, respectively.

SWPF Role in SRS Liquid Waste System



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure