Citizens Advisory Board Waste Management Committee Meeting
Salt Disposition Integration at SRS

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Liquid Waste System at SRS

DOE Complex Legacy Materials
Savannah River & other Spent Fuel

H Canyon
- Sludge Prep
  - ARP/MCU
  - SWPF

Salt Processing
- DSS
- Saltstone
- SDUs

F Tank Farm
- Empty Tanks -> Closure

H Tank Farm
- Salt Solution

DWPF – Defense Waste Processing Facility
GWSB – Glass Waste Storage Building
ARP – Actinide Removal Process
MCU – Modular Caustic Side Solvent Extraction Unit
SWPF – Salt Waste Processing Facility
DSS – Decontaminated Salt Solution
SDU – Saltstone Disposal Unit

GWSBs
- Canisters
- Disposal

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ENVIRONMENTAL MANAGEMENT
- Safety
- Performance
- Cleanup
- Closure
Salt Disposition Integration (SDI) Purpose

- The purpose of SDI is to prepare existing liquid waste facilities for the startup and long-term operation of the Salt Waste Processing Facility (SWPF).
  - Prepare feed for SWPF
  - Receive SWPF effluents
SDI Mission

- The SDI mission is to align the existing Liquid Waste Program to support startup and long term operations of the Salt Waste Processing Facility (SWPF). These changes include improvements and upgrades within Liquid Waste facilities while preparing the initial feed required for Liquid Waste Operations.

- Funding through the American Recovery and Reinvestment Act (ARRA) allowed SRR to support infrastructure projects for SWPF.
The Liquid Waste program at SRS recently completed the following activities in support of Salt Disposition Integration:

- Procured four blender pumps to blend salt feed
- Procured four transfer pumps to feed SWPF
- Designed transfer lines to/from SWPF
- Fabricated and installed two 60,000-gallon salt solution receipt tanks at Saltstone Production Facility (SPF)
- Procured and installed a 9,000-gallon nitrogen tank at Defense Waste Processing Facility (DWPF)
- Designed and procured engineered equipment for blend and feed tanks and DWPF modifications
- Designed and built a 30,000-gallon waste concentrate hold tank and cell for the Effluent Treatment Plant (ETP)
Salt Disposition Integration

Blend Tank Mixers

- Salt batches consist of waste from multiple tanks.
- Once wastes are assembled in a blend tank, the contents are blended and the tank is sampled.
- Designed and procured four 35-hp blender pumps for the salt blend tanks, which will blend, adjust, and store salt solutions for feed to SWPF.
SDI Feed Tanks

- Completed design for SWPF feed tank and procured variable frequency drive and four transfer pumps in support of SWPF operations.
- Salt feed is transferred from H Tank Farm to SWPF through 1 mile of underground piping.
SDI Salt Solution Receipt Tanks

- Designed and constructed two 60,000-gallon decontaminated salt solution receipt tanks (SSRTs) at the Saltstone Processing Facility to allow higher throughput receipt (up to 350,000 gallons per week) in support of SWPF operations.
ETP Waste Concentrate Hold Tank

- The Effluent Treatment Plant (ETP) removes low levels of radioactivity and process chemicals from wastewater prior to releasing the discharge to the environment.
- Designed and built a shielded cell, a 30,000-gallon waste concentrate hold tank, and the associated support services for ETP.
- Enables batch transfers of low-level waste directly to the processing and disposal facilities, reducing transfer congestion of the inter-area transfer line (IAL) when SWPF comes online.
- SCDHEC approved the Operating Permit on September 20, 2011.
Nitrogen protects the facility from the accumulation of flammable vapors.

Designed, fabricated, and installed a 9,000-gallon nitrogen tank and designed piping tie-in to support processing of higher activity effluent waste from SWPF (up to 60 curies per gallon).
The SDI project modified the Liquid Waste systems at SRS to seamlessly integrate with SWPF operations.

The SDI project supports:
- SWPF project design, construction startup, and radioactive operations
- Increased throughput related to SWPF processes
- Enables batch transfers of low-level waste from the Effluent Treatment Facility directly to processing and disposal facilities
- Operational closure of waste tanks

Significant work will continue through FY 2014 in preparation of SWPF startup.