Liquid Waste Operations
Fiscal Year 2019 President Budget Request

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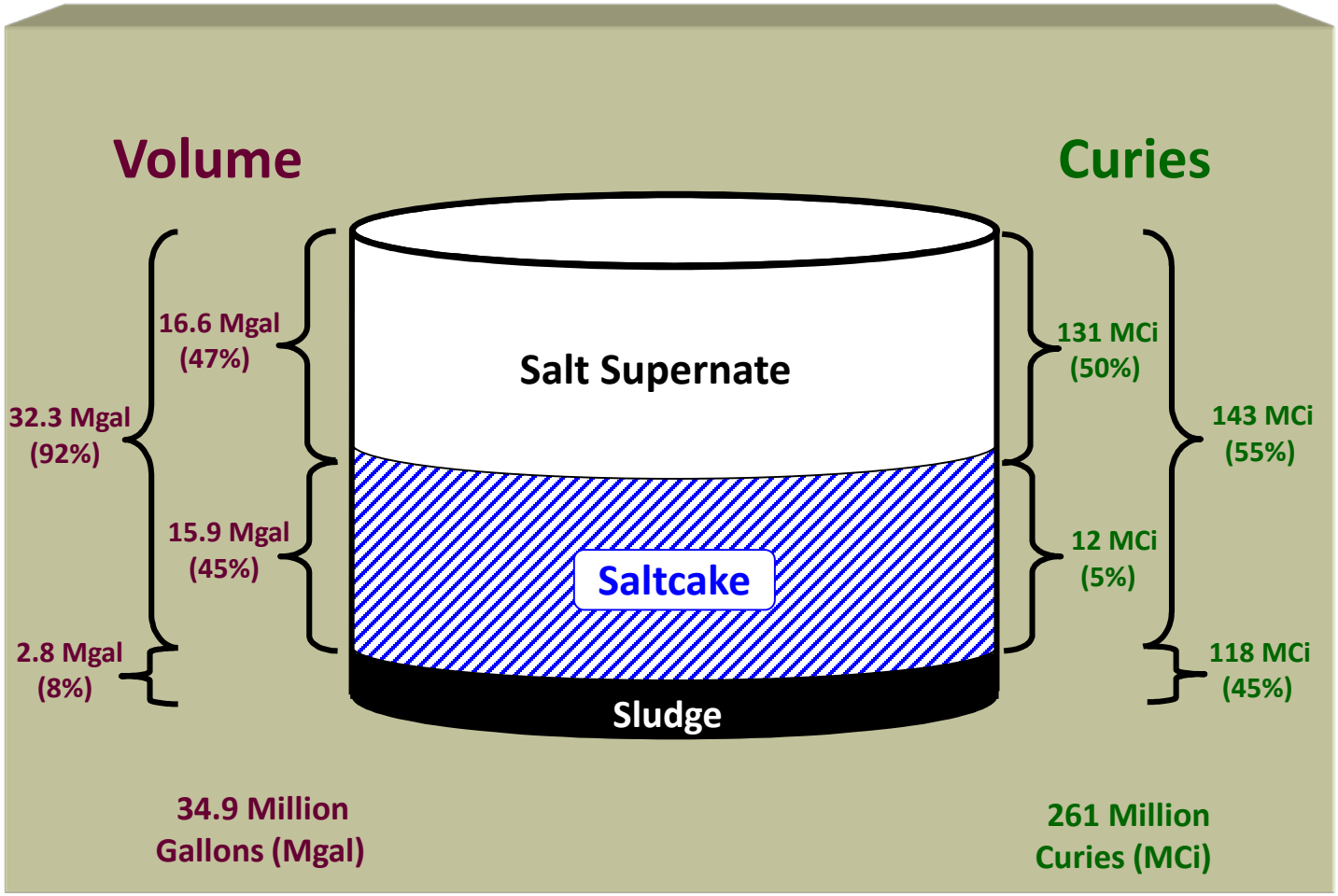
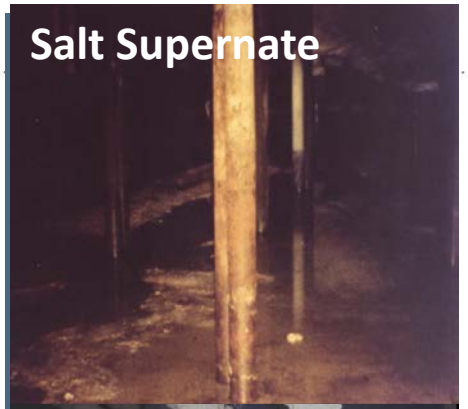
Briefing Purpose and Acronyms

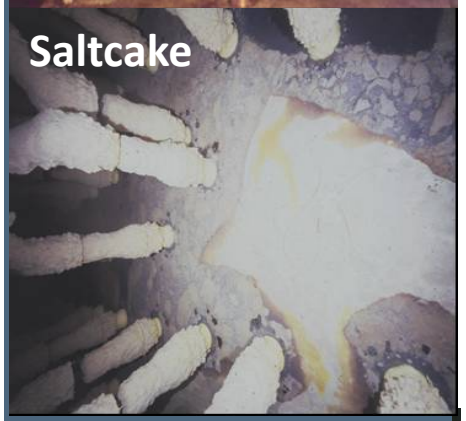
- Meet Work Plan Commitment
- Acronyms
  - ARP Actinide Removal Process
  - BWRE Bulk Waste Removal Efforts
  - DRA Dispute Resolution Agreement
  - DWPF Defense Waste Processing Facility
  - FFA Federal Facilities Agreement
  - MCi million curies
  - MCU Modular Caustic Side Solvent Extraction Unit
  - Mgal million gallons
  - TCCR Tank Closure Cesium Removal
  - SDU Saltstone Disposal Unit
  - SWPF Salt Waste Processing Facility

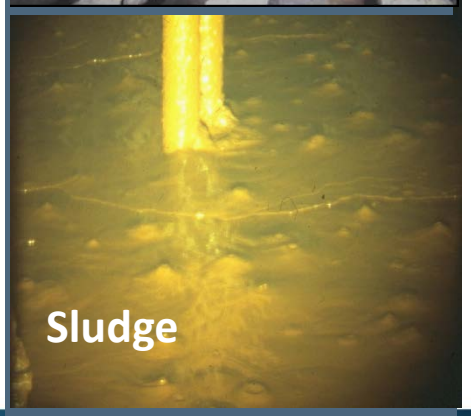
Why Do We Need a Liquid Waste Program?



Inventory values as of 2017-12-31







SRR Liquid Waste Program
(with current status)

Legend:

ARP	Actinide Removal Process
BWRE	Bulk Waste Removal Efforts
DWPF	Defense Waste Processing Facility
MCU	Modular Caustic Side Solvent Extraction Unit
TCCR	Tank Closure Cesium Removal
SWPF	Salt Waste Processing Facility

Legacy Liquid Waste

Operational Goals
- ✓ Radionuclides to glass
- ✓ Chemicals to Saltstone
- ✓ Tanks cleaned and operationally closed

43 tanks
35 Mgal
261 MCi

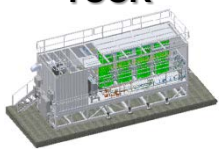
Salt waste
9.7 Mgal treated

← Salt Processing →

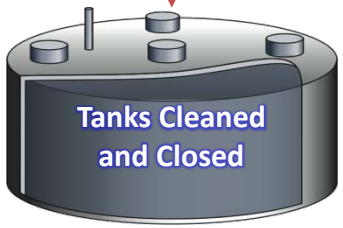
Sludge waste
4.2 Mgal treated

(in Testing & Commissioning)

TCCR



(Installation)



<1% radionuclides remain in tanks

Radionuclides

Spent Columns

Solid (not hazardous) waste

Most radionuclides to glass

<<1% radionuclides to saltstone

(TBD)

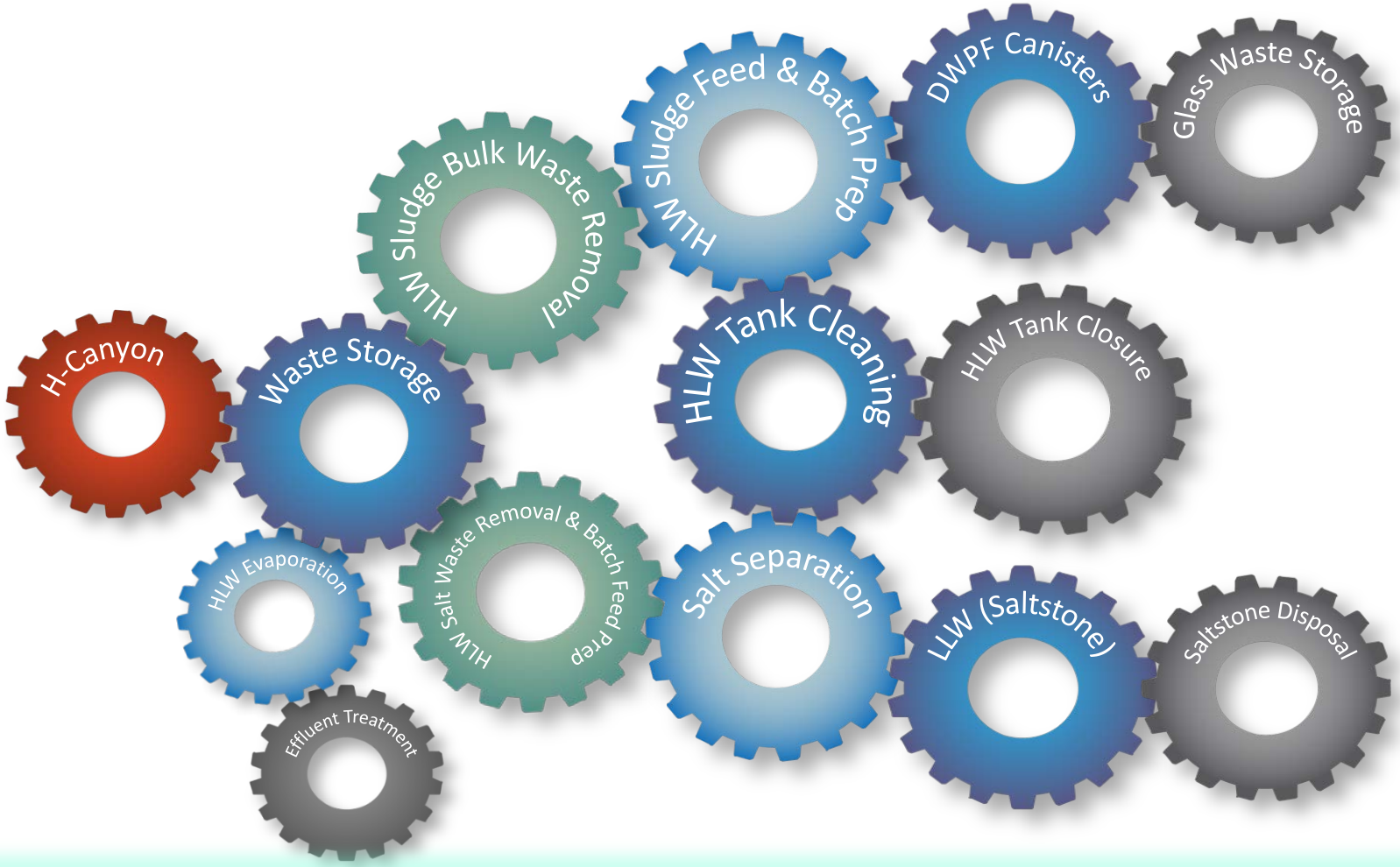
51 Tanks
- 8 grouted & operationally closed
- 1.2 millions curies immobilized in grout
- 5 BWRE complete
- 69% empty or grouted (old style)
- 21% empty (new style)

Poured 4,159 cans of projected 8,170
60.9 million curies immobilized in glass

21.3 Mgal grout dispositioned containing 469 kCi

2017-12-31

Liquid Waste Program Integration



Safe storage, treatment, and disposition of SRS liquid waste requires synchronization of several highly interdependent nuclear facilities and chemical operations

FY 18 Liquid Waste Progress

- FY18 Omnibus Appropriations: $817.605M vs President Budget $787.8M (+$29.8M)
- Salt Waste Processing Facility (SWPF) Project: $150M
- Saltstone Disposal Unit (SDU) 7, 8/9: $30.5M (SRR)
- Liquid Waste Program: $637.1M
  - Produce 50 canisters in the Defense Waste Processing Facility
  - Process 500,000 gallons of salt solution through ARP/MCU
  - Initiate Demonstration of Tank Closure Cesium Removal (TCCR) Technology in Fall 2018
  - Meet Tank 10 FFA BWRE commitment – dependent on TCCR demonstration
  - Complete SONAR demonstration - Complete
  - Meet Tank 15 FFA BWRE commitment – Complete
  - Great progress is being achieved by the Liquid Waste Program in FY18 to support the first year of Salt Waste Processing operations
    - *SWPF initial tie-ins complete*
    - *Integration activities in Liquid Waste facilities*
    - *Waste removal activities to prepare feed for SWPF*

FY19 Liquid Waste Progress

FY19 President Budget Request : $949.4M

- Salt Waste Processing Facility Project: $65M
- Salt Waste Processing Facility Operations: $65M
- Saltstone Disposal Unit (SDU) 7, 8/9: $78.7M (SRR)
- Liquid Waste Program: $740.7M

Significant ramp-up in the Liquid Waste Program is expected starting in FY19 to support Salt Processing at planned rates as soon as possible

- Supports Salt Processing DRA commitment of 4.2 million gallons contingent upon SWPF startup
  - *Operate ARP/MCU Operations until SWPF ready for hot tie-ins*
  - *Complete Demonstration of TCCR Technology and feasibility study by the end of FY19*
  - *Complete Tank 10 FFA BWRE commitment – dependent on completion of TCCR demonstration*
- Supports SWPF startup and first year of operation
  - *Work on eleven tanks for waste removal to support SWPF and DWPF feed preparation*
  - *Make significant progress on DWPF modifications and complete implementation of Saltstone second shift*
  - *Support acceleration of SDU construction*

FY19 Liquid Waste Progress

Scope of Work	FY19 Mission Need
Tank Farm Operations	Process up to 1.25 Mgal of salt solution through MCU before Hot tie-in with SWPF. Continue processing Sludge Batch 9. Complete processing of Salt Batch 10. Initiate processing of Salt Batch 11. Complete fabrication of spare 3H evaporator vessel and procure disposal box. Continue upgrade of underground utilities.
DWPF/SS Operations	Produce 47 Canisters of Vitrified High Level Waste. Process 1.0 Mgal of decontaminated salt solution (DSS) into grout. Both canisters and DSS into grout will be aligned to actual MCU/SWPF production. Continue Melter 4 assembly. Continue canister double stacking operations.
SWPF Support Projects	Complete SWPF hot tie-ins. Continue work on dry feeds for Saltstone Facility, Lab Waste Handling, and DWPF Modifications. Install Tank 41 Blend Modifications. Complete Saltstone Production Facility staffing increase for 24/7 operations and training for two-shift operation.
Tank Closures	Develop flowsheet, replace pump and hose-in-hose transfer line on Tank 15. Develop 1F Evaporator closure strategy.
Bulk Waste Removal	Continue Tank 3 Salt Dissolution. Initiate waste removal preparation activities on Tank 2, Tank 14, and Tank 31. Initiate field work of Salt Dissolution Modifications on Tank 9, Tank 27 and Tank 44. Complete preparation of Tank 26 and initiate sludge removal to support Sludge Batch 10 in FY20. Initiate preparation of Tanks 34 and 35 for Sludge Batches.
Supplemental Salt Initiatives	Complete Tank Closure Cesium Removal (TCCR) demonstration at Tank 10 for cesium removal and complete Tank 10 Bulk Waste Removal Efforts. Complete TCCR feasibility study.
Saltstone Disposal Unit 7 and 8/9	Continue construction of SDU7 cell. Complete design and initiate construction of SDU 8/9.