• Provide update on the Defense Waste Processing Facility
  • 20 years of Production
  • FY16 Production
• Status on the Interim Canister Storage Double-Stack project.
SRS Liquid Waste Program

Legend:
ARP  Actinide Removal Process
DWPF  Defense Waste Processing Facility
MCU  Modular Caustic Side Solvent Extraction Unit
SWPF  Salt Waste Processing Facility

Successfully Meeting Operational Goals
✓ Radionuclides to glass
✓ Chemicals to Saltstone
✓ Tanks operationally closed

51 Tanks
- 8 operationally closed
- 4 bulk waste removed
- old style – 37% of space used
- new style – 76% of space used

<1% radionuclides remain in tanks

H-Canyon Receipts Currently receive ~150 kgal/yr

Tanks Cleaned and Closed

<1% radionuclides to saltstone

43 tanks
36 Mgal
267 MCi

Salt Waste
9.0 Mgal treated

Recycle

Sludge Waste
4.1 Mgal treated

ARP

DWPF

MCU

Glass Waste Storage

Saltstone Disposal Facility

Radionuclides

>98% radionuclides to glass

4,106 cans poured of projected 8,170 and 59 million curies immobilized in glass

19.8 Mgal grout dispositioned containing 0.5 million curies

Inert chemicals

Saltstone Disposal Facility

SWPF

(Construction completed, Undergoing commissioning)

Recycle

H-Canyon Receipts Currently receive ~150 kgal/yr

<1% radionuclides to saltstone

4,106 cans poured of projected 8,170 and 59 million curies immobilized in glass

19.8 Mgal grout dispositioned containing 0.5 million curies

Inert chemicals

Saltstone Disposal Facility

SWPF

(Construction completed, Undergoing commissioning)
An Integrated System
Vitrification Process

Tank Farm

Glass Waste Storage

Transporter

DWPF Chemical Processing

Chemical Addition

Hg

MFT
SME
SRAT
LPPP Sludge Tank

Canister Cleaning

Welding

Glass Melting & Canister Closure
DWPF Production

- Canister Production Rate
  - FY16 125 to 150, (135 completed today)
  - FY17 100 with 5 month SWPF tie-in outage
- Canisters Produced To Date (September, 2016) 4,106
- Estimated Total Canister Production 8,170
- Canisters Produced (% of Total) 50%
4000th DWPF Canister being moved to the Glass Waste Storage Building 2

EM-1 Monica Regalbuto’s Ride on the SCT
May 12, 2016
• **No 3rd Glass Waste Storage Building (GWSB)**
  – Large upfront cost & future D&D cost
  – Line Item 12-D-403 (~ $130 million) has been cancelled
  – SRS Liquid Waste System Plan, revision 20, approved on March 21, 2016, determined that additional storage of space of vitrified canisters is not needed until 2029 due to GWSB #1 double stacking initiative.

• **Interim Canister Storage – Double Stack**
  – GWSB#1 Capacity Increased from 2,262 to 4,524
  – GWSBs Capacity Increased to 6,864 providing space through FY 29
  – Still need space for approximately 1,306 more canisters
Interim Canister Storage – Double Stack Concept for GWSB1

- Two canisters per location (vs. one can per location)
- Lower canister on support on vault floor (vs. cross bar support 3’ off floor)
- Upper canister placed directly on top of lower canister
- Upper canister extends into operating deck floor, but remains below grade
- Shield plug redesigned for equivalent radiological protection
Proposed Modifications

- **Plug Replaced**
- **Crossbar Removed**

**Single Stack (Current)**

**Double Stack (Modified)**

- **Tapered Plug**
- **Floor Plate Added**
Glass Waste Storage Building 1 Vault

• Inside vault looking across rows of canister supports

• Inside canister storage location
  • Minimum Opening in floor is 27 inch Inside Diameter
  • Cross Bar Assembly is 1 ½ inch x 3 inch galvanized carbon steel bars
  • Cross Bar Assembly~ 18 ft down with 30 inch Outside Diameter
  • 2 sets of guides (3 tabs each) to guide canisters
  • Bottom guides sit 5 inches above cross bar assembly
SRR Developed Remote Cutting Tool

1. Tool capable of removing 1 ½ inch x 3 inch galvanized steel
2. Control amount of water and carbon steel particles
3. Minimum efficiency of 2 storage locations per shift
Double Stack Progress

• Progress in FY 16
  – 262 crossbars have been removed (September, 2016)
  – 150 of 150 positions planned have new plates and new plugs installed
  – Shielded Canister Transporter software and hardware modifications were completed

• First two canisters were double stacked in August

• Other progress:
  – Heat Model supports canisters produced to date and future sludge batch forecast
  – Seismic/Structural calculations support adequate margin for static and seismic performance category and canister integrity
  – Radiological calculations and field surveys confirm dose rates during modification
  – Canister Double Stack activities will not alter the Hazard Category
  – Documented Safety Analysis (DSA) change to update configuration change was completed and implemented
Questions And Comments?
DWPF: Defense Waste Processing Facility
SWPF: Salt Waste Processing Facility
ARP: Actinide Removal Process
MCU: Modular Caustic Side Solvent Extraction Unit
BWRE: Bulk Waste Removal Efforts
GWSB: Glass Waste Storage Building
LPPP: Low Point Pump Pit
SRAT: Sludge Receipt and Adjustment Tank
MCi: Million Curies
SME: Slurry Mix Evaporator
MFT: Melter Feed Tank
SCT: Shielded Canister Transporter
GWSP: Glass Waste Storage Project
FY: Fiscal Year
HLW: High Level Wastes
DSA: Documented Safety Analysis
OD: Outside Diameter
ID: Inside Diameter