Defense Waste Processing Facility Update

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Purpose

- 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

H-Canyon Receipts
Currently receive ~150 kg/yr

<1% radionuclides remain in tanks

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

43 tanks
36 Mgal
267 MCI

Salt Waste
9.0 Mgal treated

Recycle
Sludge Waste
4.1 Mgal treated

DWPF
Radionuclides

Glass Waste Storage
4,081 cans poured of projected 8,170 and 59 million curies immobilized in glass

Saltstone Disposal Facility
19.8 Mgal grout dispositioned containing 0.5 million curies

<1% radionuclides to saltstone

ARP
MCU

SWPF
(Construction completed, Undergoing commissioning)
Vitrification Process

Tank Farm

Glass Waste Storage

DWPF Chemical Processing

Chemical Addition

Hg

MFT
SME
SRAT
LPPP Sludge Tank

Canister Cleaning

Glass Melting & Canister Closure

Welding

Transporter
• On schedule to produce desired number of canisters this year
• Canister Production Rate
  • FY16 125 to 150
    • FY17 100 with 5 month SWPF tie-in outage
• Canisters Produced To Date (July 25, 2016) 4,081
• 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
- 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
- Tapered Plug
- Floor Plate Added

Single Stack (Current)

Double Stack (Modified)
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 ID
  - Cross Bar Assembly is 1 ½ inch x 3 inch galvanized carbon steel bars
  - Cross Bar Assembly ~ 18 ft down with 30 inch OD
  - 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
  – 234 crossbars have been removed (July 26, 2016)
  – 150 of 150 positions planned have new plates and new plugs installed (July 26, 2016)

• Shielded Canister Transporter software and hardware modifications complete to support double stacking 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 w/o completely emptying vault
  – Canister Double Stack activities will not alter the Hazard Category
  – DSA change to update configuration change is complete
Questions
And
Comments?
Acronym List

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