



Savannah River Site Update

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South Carolina Governor's Nuclear Advisory Council
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SRS Budget Challenges

- Fiscal cliff = Challenging times
- March 1 mandated sequestration = \$100M or 8% across-the-board cut for SRS
- Presently no flexibility for Site to manage impacts to workforce and work scope
- Request at HQ (formal reprogramming)
- Post March 27 is next decision point (end of current Continuing Resolution)
- If reprogramming or requested funding comes through, gain much needed flexibility to manage cuts and impacts
- **People are our Priority**
- With flexibility, we can:
 - De-obligate funds
 - Defer projects we can
 - Complete critical work we must, and
 - Protect our people



Budget Impacts

Operating on anticipated \$1.213B based on FY2012 adjusted appropriation funding, sequestration impacts to SRS include:

Workforce Impacts

- Reduced work schedules imposed in early April for 2000 contractor employees
 - 20% pay reduction for those affected
- Furloughs
 - 150 employees impacted starting in April w/additional furloughs in May & June (depending on funding)

Work Scope Impacts

(April/May)

- Reduced H Canyon operability limiting ability to:
 - Process used nuclear fuel
 - Receive highly-enriched uranium materials from offsite entities
 - Process plutonium for MOX
 - Receive used nuclear fuel from domestic research reactors
- Slow down in K Area project
- Slowdown in 235-F risk reduction

(June- September)

- Shutdown in H, K and L Areas and SRNL activities
- Limited waste receipts,
- No shipments to WIPP

➤ ***No crystal ball ~ In the interim, continue work at hand and positioning ourselves for future***

Liquid Waste

Salt Waste Processing

- Physical construction 65% complete (March 2013)
- Continuing to work with Parsons (Cost and Schedule)

Waste Disposition

- Defense Waste Processing Facility canister production total to date: 3,587
 - ~ 47% of sludge waste immobilization lifecycle
 - ~6% of salt waste disposition lifecycle
- Taking advantage of developing technologies and improvements made last year in our interim salt waste processing facilities
- At-tank treatment successfully augmenting high level waste processing
- Increasing salt waste treatment capacity with enhanced ARP/MCU throughput
- Planning deployment of supplemental, at-tank Small Column Ion Exchange (SCIX) and micro-rotary filtration treatment capabilities
- Enhanced throughput strategy provides the basis to achieve 3-4 million gallons/year processing rate.
- High-Level Waste Integration between Savannah River and Hanford



Tank Closure

The Tank Closure Program at SRS continues to make progress

- Next tanks in **F-Area Tank Farm** to be closed will be Tanks 5 and 6
 - Public comments on Closure Module being solicited (comment period runs until March 22)
 - Field activities accelerated in preparation to grout tanks this year
 - DOE anticipates SCDHEC, EPA and DOE final decisions by May
 - Goal to complete grouting is November 2013
- Activities toward closure of **H-Area Tank Farm** are also underway
 - In February, DOE initiated consultation with NRC on closure of H Area Tank Farm
 - Public comment period on DOE's Draft Basis for Section 3116 Determination for Closure of H-Tank Farm Document open until May 1, 2013
 - Documents and contacts for submitting comments are available at http://srs.gov/f_htankfarmsdocuments.htm
 - Following NRC consultation, a DOE decision on H-Area Tank Farm closure anticipated in 2014
- Tank specific activities are on schedule to **support closure of two additional tanks**, Tanks 12 and 16, in H Area Tank Farm in 2015
 - Tank 12: chemical cleaning with oxalic acid to facilitate removal of residual heel waste anticipated to be completed this summer
 - Tank 16: discussions between DOE, SCDHEC and EPA on ceasing waste removal underway. Next step: sample and characterize the residual waste to support future preparation of Closure Module for public comment



Nuclear Materials Disposition

- **DNFSB Technical Report -38**, “Storage Conditions of Reactive Metal Fuel in L-Basin at the Savannah River Site” (January 2013) asserts “*Further attention to the disposition of the other vulnerable fuel types remaining in the L-Basin is warranted.*”
- **Program Status and DOE Response:**
 - Potentially vulnerable fuel accounts for approximately 1% of the Used Nuclear Fuel bundles stored in L-Area
 - Sodium Reactor Experiment fuel is being processed in H-Canyon (at a reduced rate due to funding limitations)
 - Other vulnerable fuel types referenced are not able to be processed in H-Canyon due to different cladding types (i.e., Stainless Steel and Zircalloy).
 - Other potentially vulnerable fuel captured under contractor’s Augmented Monitoring and Condition Assessment Program
 - However, these activities have also been impacted by FY13 funding limitations

Response to DNFSB, continued

- Ultrasonic Testing of the oversize isolation cans and water sampling within 10 of the L-Bundles
- No issues identified to indicate fuel was not remaining intact
- DOE-EM initiated exchange program with the UK's Nuclear Decommission Agency (share experience, lessons learned)
- Some UK fuel stored wet has been inspected and repackaged recently with the results that the majority of the fuel remained intact
- Not the same configuration/makeup as L-Basin but information will be useful in our planning
- DOE agrees with the DNFSB report's position that further attention is warranted.
- Challenges to moving forward are funding and timing
- In interim, SRS continues to demonstrate safe storage of these fuels



Ultrasonic & Visual Examination



Water Sampling within L-Bundle



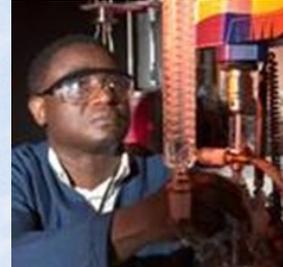
Placing Sample in 250ml Bottle

SRS Nuclear Knowledge for the Nation – Positioning for the Future

- *Never waste a good crisis.*
- Offer one-of-a-kind assets and technologies to:
 - ✓ manage nuclear materials and waste
 - ✓ restore clean environments
 - ✓ deploy clean energy technologies
 - ✓ strengthen national security
- Key to our Nation's nuclear materials management strategy
 - ✓ operate Nation's only full-scale nuclear materials management complex
- SRNL technical expertise and innovative technologies applications deployed throughout the world
 - Nuclear Materials and Waste Management
 - Radiochemical Processing
 - Environmental Risk Reduction
 - Tritium/Hydrogen Technology
 - National Security Threat Reduction



SRNL



E.SRS Alive and Well

- Nuclear weapons program
 - Expanded tritium role
- Nuclear non-proliferation
 - “Global threat” receipts & disposition
- Surplus weapons material disposition
 - Pu storage and disposition, isotope extraction
- Nuclear energy
 - Used fuel management, recycle
- Nuclear waste clean-up
 - International remediation solutions
- Homeland security
 - Nuclear surveillance systems



- Pu oxide production in H-Canyon
- Canadian Used Nuclear Fuel
- Return of Swedish Pu
- Advising on cleanup after Fukushima
- Regional nuclear medicine industry
- Detecting rad materials in shipping containers
- Training police to detect rad sources
- Resource sharing at Livermore
- National Center of Radioecology
- Natural gas storage grant



*Think outside the box.
Solid Investments for a Sustainable Future*

Asset Revitalization Realized at SRS: In Progress

- **Isotopes provided to government and industry, taking advantage of SRS unique expertise and facilities**

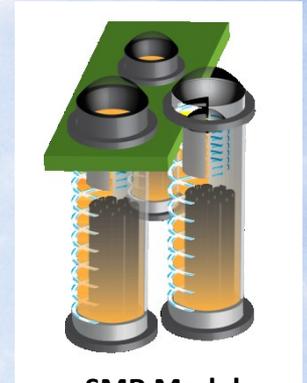
- Americium-241 purified in H-Canyon (2-3 kgs annually) and provided to industry
- Nation's supply of Helium-3 provided through industry partnership
- Plutonium-238 for space exploration is purified and packaged for NASA at SRS



Helium-3 Extraction

- **SRS has key role in advancing Small Modular Reactors (SMRs)**

- Capturing entire tritium mission of NNSA-SRS
- NQA-1 manufacturing for SMR components regionally located and provides support to commercial power industry
- HEU used fuel processed in H-Canyon and blended down (20%) to be the first charge in an advanced SMR



SMR Model

- **Regional nuclear medicine industry grown from partnership between SRS and local medical universities**

- Initial production of cyclotron and SMRs forthcoming; isotope processing at SRS and patient studies at university hospitals

Planning Ahead: Doing Business *Better* and *Smarter*

- **Continue joint industry/government collaborations to advance DOE projects and accomplish goals**

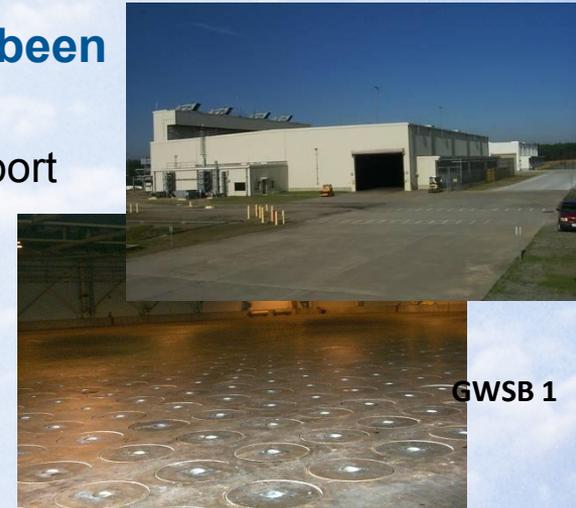
- At-tank treatment successfully augmenting HLW processing at interim salt processing facilities
- Increased throughput of ARP/MCU using next generation solvent and at-tank processing achieving 7Mgal annually
- SWPF now processing tank waste using next generation solvent to meet 2028 cleanup commitments
- SRS liquid waste program achieves steady rate of 10 – 12Mgal tank waste processed annually



ARP/MCU

- **Glass waste storage buildings (GWSB) 1 and 2 have been emptied**

- Approximately 4000 glass waste canisters readied for transport to pilot storage facility scheduled to receive HLW and used fuel in 2021
- Lighter-weight shipping cask design licensed by NRC for more efficient transport of lower activity canisters



GWSB 1

SRS Poised for Success



- ✓ Manage budget impacts to get best bang for the buck.
- ✓ Become recognized solutions provider.
- ✓ Measurable progress.
- ✓ Involved employees and stakeholders.

- ✓ Future leadership cultivated.
- ✓ New missions secured.
- ✓ Enduring future sustained.

