Savannah River Site (SRS)
Liquid Waste Program
ISMS Champions

American Recovery and Reinvestment Act (ARRA) – Working Safely
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• Mark Schmitz is currently the ARRA Program Manager for Savannah River Remediation, the Liquid Waste program contractor at the Savannah River Site (SRS).

• Mark has over 29 years of experience in DOE nuclear operations at SRS and Los Alamos National Laboratory. He has managed complex nuclear facilities including tritium, uranium, plutonium and spent fuel facilities. His experience includes operations management, project management, ES&H, radiological controls, and engineering.
Savannah River Remediation (SRR)

• Who We Are
  – DOE-SR’s Liquid Waste contractor since July 1, 2009
  – Approximately 2,000 full-time employees

• What We Do
  – Operate five high-hazard processing facilities:
    • F Tank Farm
    • H Tank Farm
    • Defense Waste Processing Facility (DWPF)
    • Saltstone Processing Facility (SPF)
    • Effluent Treatment Facility (ETF)

• Our Commitment
  – Close 22 waste tanks in 8 years
American Recovery and Reinvestment Act

Liquid Waste Program Recovery Act

- The Liquid Waste Program for Savannah River Site (SRS) received $200M in Recovery Act funding in September 2009

- Recovery Act scope includes upgrades to infrastructure and facility improvements

- Provides overall risk reduction for Liquid Waste Program by investing in equipment to support tank closure and waste disposition
Liquid Waste Program Recovery Act Scopes of Work

- **Tank Closure Infrastructure**—Equipment installation and infrastructure modifications to support tank closure activities. (10 projects)

- **Waste Treatment**—Design and install components to enhance Defense Waste Processing Facility (DWPF) and Saltstone operations. (10 projects)

- **Salt Disposition Integration**—Install salt processing infrastructure to support Salt Waste Processing Facility (SWPF). (9 projects)

- **Facility Operations**—Design and install modifications to support enhanced salt and sludge waste removal. (4 projects)
American Recovery and Reinvestment Act

Liquid Waste Program Recovery Act and ISMS

- **Equipment Infrastructure**
  - Investing in equipment for overall operational risk reduction

- **Chemical Addition**
  - Design/build 10,000-gallon vessel and unloading station

- **Tank 5 Upgrades**
  - Transfer submersible mixing pump and refurbish ventilation

- **DWPF Melter Bubblers**
  - Design, build, and install four argon “bubblers” in the DWPF Melter

- **Lessons Learned**

ISMS Champions – Savannah River Site Liquid Waste Program – Working Safely
Liquid Waste Recovery Act – Equipment Infrastructure

- Reducing operational risk by purchasing needed equipment

- Tank Closure and Tank Farm
  - 6 new submersible mixer pumps (SMPs)
  - 5 new submersible transfer pumps (STPs)
  - 4 new submersible blender pumps (SBPs)

- Defense Waste Processing Facility
  - Melter components
  - 1 replacement DWPF electro-mechanical manipulator (EMM)
  - 1 new remote cell transfer pump
  - 1 DWPF agitator shaft

- Infrastructure
  - New electrical switchgear/substations
  - 4 new chemical storage tanks
  - 2 new tank agitators
Working Safely – Chemical Addition Project

• Scope of Work
  – Remove abandoned nitrogen tanks and protective shielding
  – Design/build 10,000-gallon vessel and unloading station to support large volume sodium hydroxide (NaOH) additions to SWPF Blend & Feed Tanks located in H Tank Farm

• Benefits
  – Chemical addition site has less traffic congestion than typical tank top unloading area
  – Site provides ability to receive NaOH via truck or rail car
  – Mod provides permanent piping for unloading NaOH versus chemical hose
  – Provides NaOH addition capability for future projects
  – Reduces the number of manual valve manipulations on chemical process piping

Current chemical unloading process – the new unloading station will reduce worker exposure and decrease the potential for spills

Dismantling and removing the nitrogen tanks

Truck access

Chem Add Site

Rail access
Working Safely – Tank 5 Upgrades (Complete)

- **Scope of Work**
  - Transferred a submersible mixer pump from Tank 6 and installed it in Tank 5. Installed mechanical and electrical connections and refurbished ventilation for Tank 5. (First completed SRR RA project.)

- **Results/Lessons Learned**
  - Successful pump movement
  - Used sleevers/de-sleevers
  - Managed dose with remote telemetric Electronic Personal Dosimeters (EPDs)
  - Integrated command and control between Construction, Rigging, Radiological Controls, and Operations
  - Authorization Basis compliant ventilation for sludge bulk waste removal
Working Safely – DWPF Melter Bubblers

- **Scope of Work**
  - Design, build, and install four argon “bubblers” in the Defense Waste Processing Facility Melter

- **Partnerships with the following:**
  - Vitreous State Laboratory (VSL) to develop the flowsheet and design.
  - EnergySolutions (ES) to design the bubblers and coordinate between the fabricator and SRR.
  - Savannah River National Laboratory (SRNL) to design the feed tube, conduct the melter off-gas flammability testing, and develop the flowsheet.
  - Savannah River Nuclear Solutions (SRNS) to fabricate the jumpers and feed tube; mock up the bubblers, jumpers, and feed tube; and conduct dimensional verification.

Preliminary fit up of the jumper for Melter 2 Bubblers

Top view of melter in canyon
Working Safely – DWPF Melter Bubblers (continued)

• ISMS
  – Rigorous testing ensures the safety of the bubbler modifications (for authorization bases flammability controls)
  – Equipment mock-up ensures proper form, fit, and function before radiological work

• Benefits
  – Potential for up to 50% increase in canister production
Lessons Learned

- Train all workers in the principles of ISMS
- Work performed to the same controls as “Base” program
- New workers distributed throughout the organization
- Experienced personnel used for the high hazard activities
- Mentor those with less experience
- Construction forces with strong DOE or nuclear plant background
Recovery Act – Working Safely

• Upgrading infrastructure to accelerate our capabilities to close tanks and disposition waste

• Managing proactively the safety culture of the Recovery Act work force

• Enhancing the overall risk reduction for the SRS Liquid Waste Program

• Supporting the SRR commitment to close 22 waste tanks in 8 years
Questions and Contact Info

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