



# Salt Waste Processing Facility Status, Lessons Learned and Path Forward

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*Savannah River Site March 17, 2015*

Savannah River Site





# SWPF Construction Progress



August 2009

### Basemat Installed

- Performance Category 3 (PC-3)
- 8-feet thick
- 32,943 square feet
- 10,032 cubic yards



April 2011

### First Story Under Construction

- Walls to 100 ft. elev. Completed
- Began installation of process piping
- Wall placement to 139 ft. elev. in progress
- Successful installation of contactor modules
- Dark cells fabricated



June 2012

### Vessel Placement

- Successful installation of
- 10 large ASME Vessels
- 150,000 gal. of tank volume in CPA
- PC-1 support structures underway



TODAY

### TODAY - 83% Physical Completion

- Roof completed
- HVAC 92% complete
- Ventilation stack completed
- Fire coatings complete
- Transformers and switchgear in place
- All major process equipment in place
- Waste transfer line installation complete
- 100,000+ LF of piping installed (87% complete)
- 83,000 welds made (93% complete)
- 120,000 LF of conduit installed (85% complete)
- 380,000 LF of wire and cable installed (60% complete)

**Projected Construction Completion Date – May 2016**

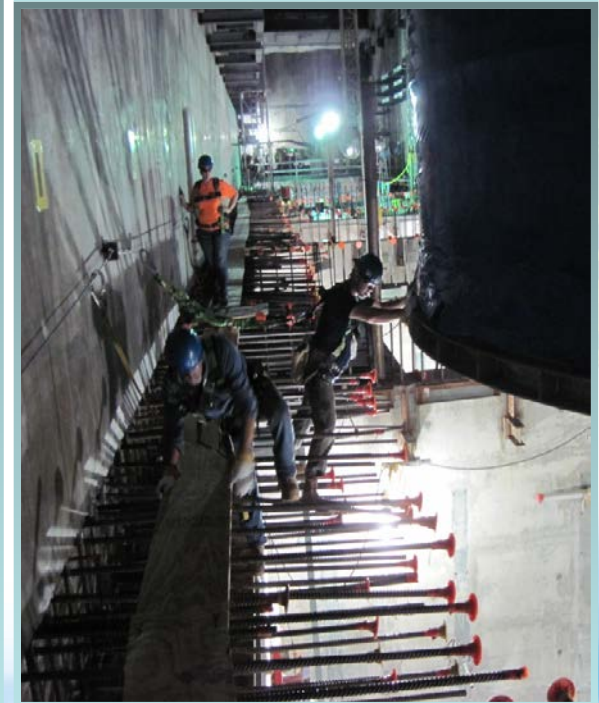


# Cesium Removal Contactors Arrival and Installation (December 2010)





# Large ASME Vessels Delivered (June/July 2012)



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# Alpha Finishing Tanks (December 2013)



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# Waste Transfer Line Installation (April 2014)



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# SWPF Test Program

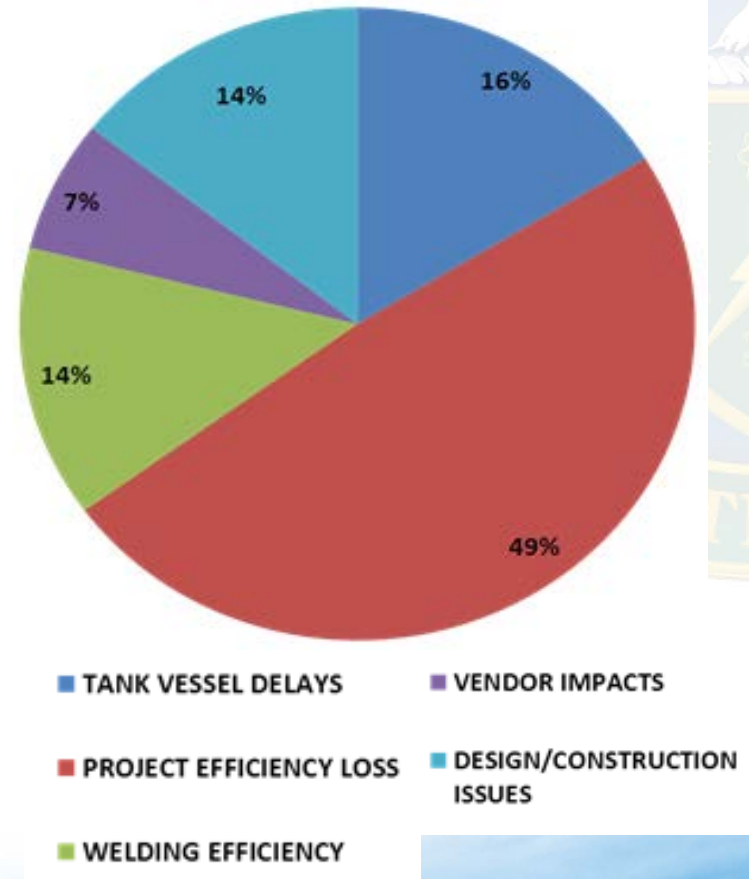
- Extensive Test Program - Demonstrated Alpha Strike Process and Caustic-side Solvent Extraction Process Met or Exceeded 100% Capacity
- Robust Operating Envelope Developed to Provide Flexibility of Operations
- On-going Tests – Reliability/Maintainability – Increase Throughput





# SWPF Project Challenges

- Delay in vessel delivery
  - Two (2) year impact to schedule
  - Hotel load to maintain Key Project Personnel
- Construction re-sequenced to maintain progress
  - Resulted in Project Inefficiencies
  - Cost impact to attract/maintain skilled labor in a competitive environment
  - Design iterations to accommodate vessel delay
- Lack of NQA-1 qualified vendors resulted in increased oversight/vendor cost increases (contactors, DCS, tanks, etc)
- Piping and pipe support installation
  - Availability of skilled welders/quality of welds
- Resolution of design/construction issues







# SWPF Performance

- Reinvigorate Risk and overall EAC reviews
- Simplified WBS Structure
- Reduced number of CAMs and FAMs – increased accountability on performance and metrics
- Schedule Performance
  - Target Date for Construction Complete is December 2016
  - Current Projected Completion Date is May 12, 2016
  - SPI = 1.04
- Cost Performance
  - Target Cost for Construction Complete = \$530M
  - Current Projected Cost = \$482.6M
  - CPI = 1.08
- Recently develop a Parsons' PMB – Integrated Baseline Review conducted February 2-13, 2015



# Lessons Learned - Construction

- Establish and use a standing Constructability Review Team
- Construction and Engineering participation
- Establish early in Design and continue through Construction
- Examples of success
  - Embedded drop lines for construction openings
  - Cast-in-place formwork
  - Mesh cover for rebar
- Establish “smart” weld lots
  - Optimization between volume of examinations and progressive sampling exposure
- Screen welders with a rigorous qualification program



# Lessons Learned – Project Management

- Never lose focus on overall cost and schedule impacts
- Set aggressive targets and goals for you Control Account Managers and hold them accountable to deliver
- Never underestimate the baseline or contingency. Things rarely are “best case” in NQA-1 first-of-a-kind projects
- Assess all Risks project wide – identify trends early
  - Mitigate, mitigate, mitigate
- Depending on the contract type – tailor the application of EVMS, Baseline Change Control and reporting



# Lessons Learned - Summary

- Success is possible on complex DOE nuclear capital projects!!!!
  - Good leadership and personnel are the foundation
  - Stable Funding
  - Plan with Realism
  - Work the Plan – Control and Accountability
  - Design with Margin
  - Overlapping of Construction and Testing & Commissioning
  - Inspect with Perspective

Succeed Together as a Team



# Looking to the Future/Path Forward

- High degree of technical confidence
- Maintain safety, cost and schedule performance under the new baseline
- Integrate NGS and High Sodium processing to enhance throughput
- Optimize facility operability
- Maintain integration with the Liquid Waste Program
- Minimize Liquid Waste lifecycle costs – Full Solution to SRS Tank Closure





# Salt Waste Processing Facility

## This essential facility will:



- Reduce radioactive waste volume requiring vitrification
- Utilize the same actinide and cesium removal unit processes as Interim Salt Processing Facilities (ARP/MCU)
- Process over 90% of Tank Farm liquid radioactive waste (97 Mgal. after dissolution)
- Have a nominal capacity of 6 – 9 million gallons per year

## PARSONS

Parsons is the contractor for the SWPF project  
(design, construct, commission and operate for one year)

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