

Salt Waste Processing Facility Technical Approach to Start-Up and Commissioning

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Savannah River Site





Liquid Waste System Today

Legend:

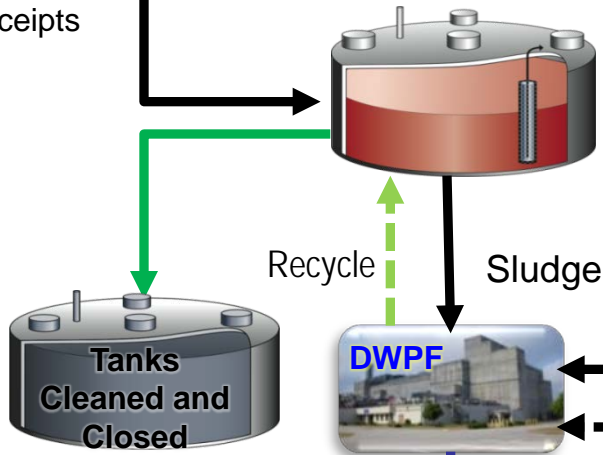
- ARP Actinide Removal Process
- DWPF Defense Waste Processing Facility
- MCU Modular Caustic Side Solvent Extraction Unit
- SWPF Salt Waste Processing Facility

SWPF

- ✓ Designed to Process more than 6 millions gallons per year
- ✓ Cs Decontamination factor > 40,000
- ✓ Technology is very mature
- ✓ No open DNFSB issues



H-Canyon Receipts

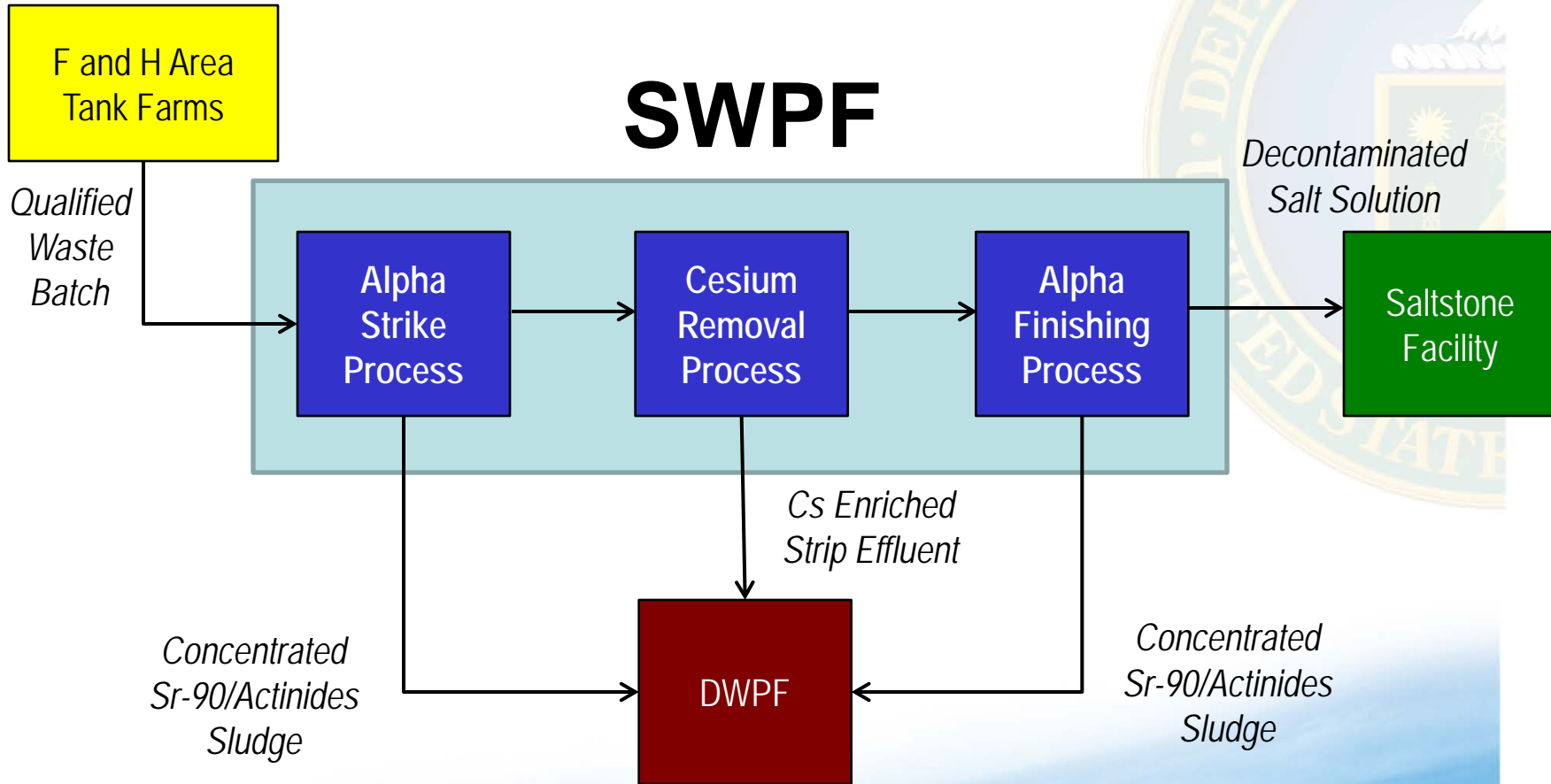


SWPF (under construction)



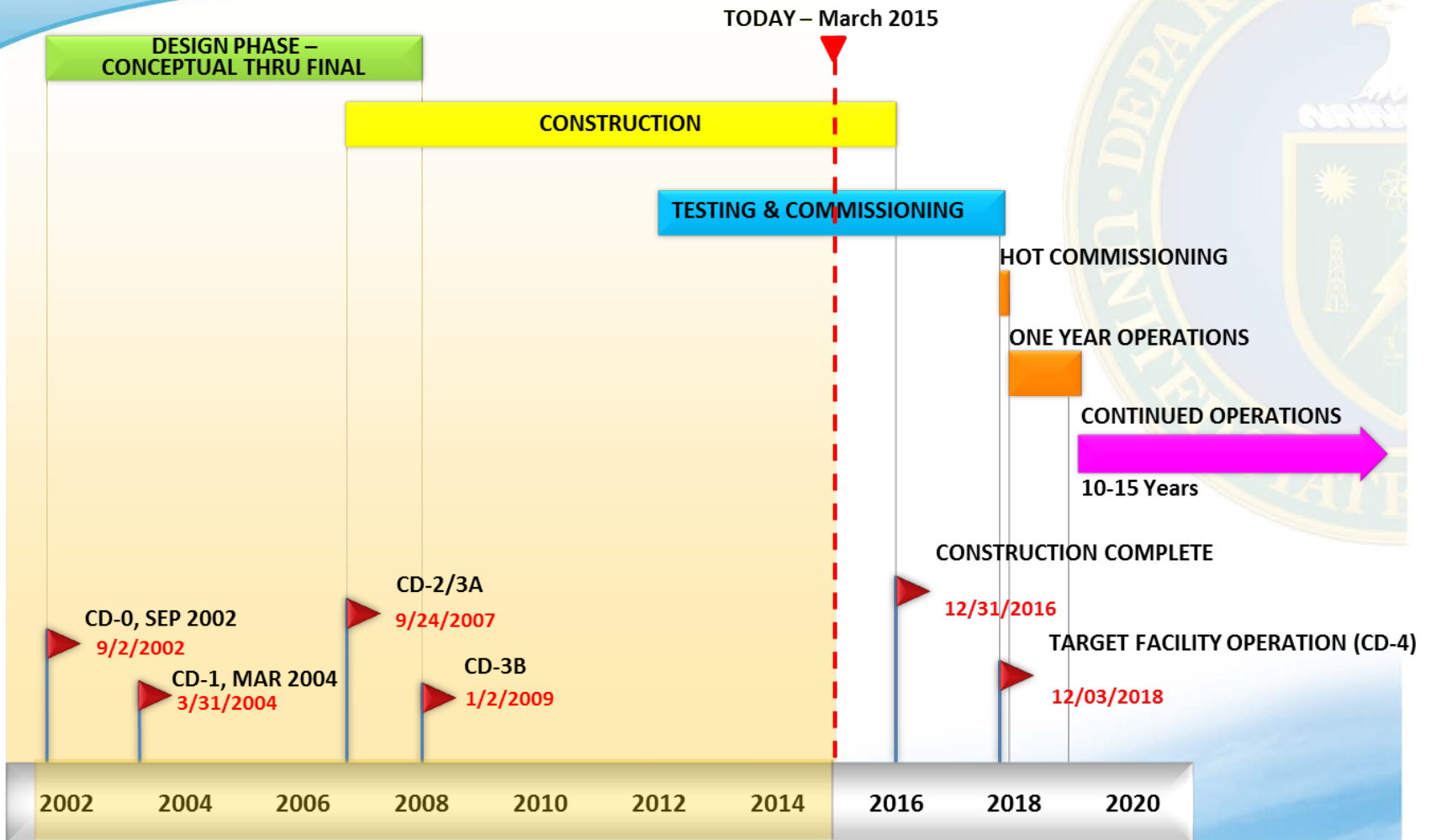


SWPF Process





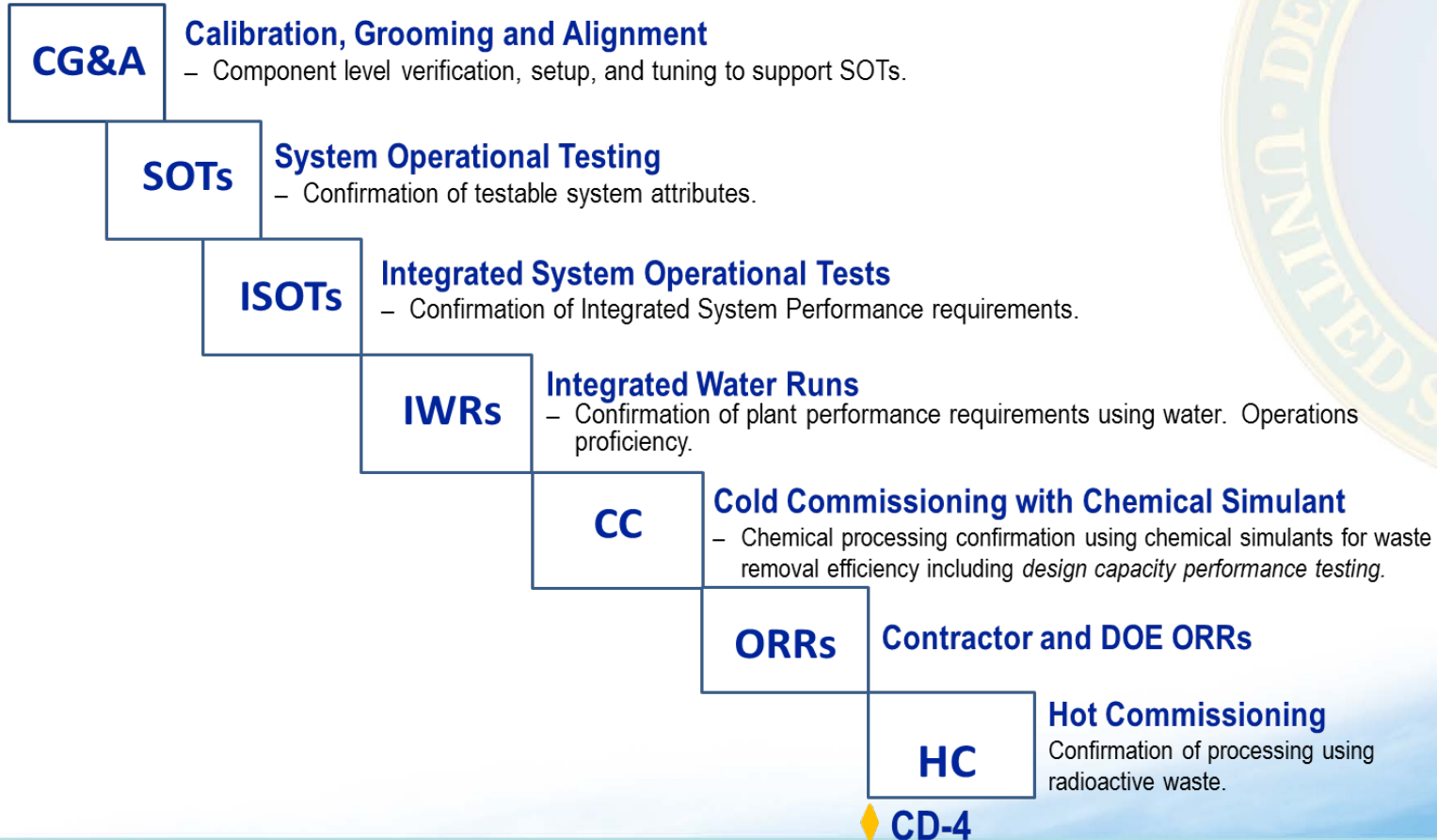
SWPF Project Milestones





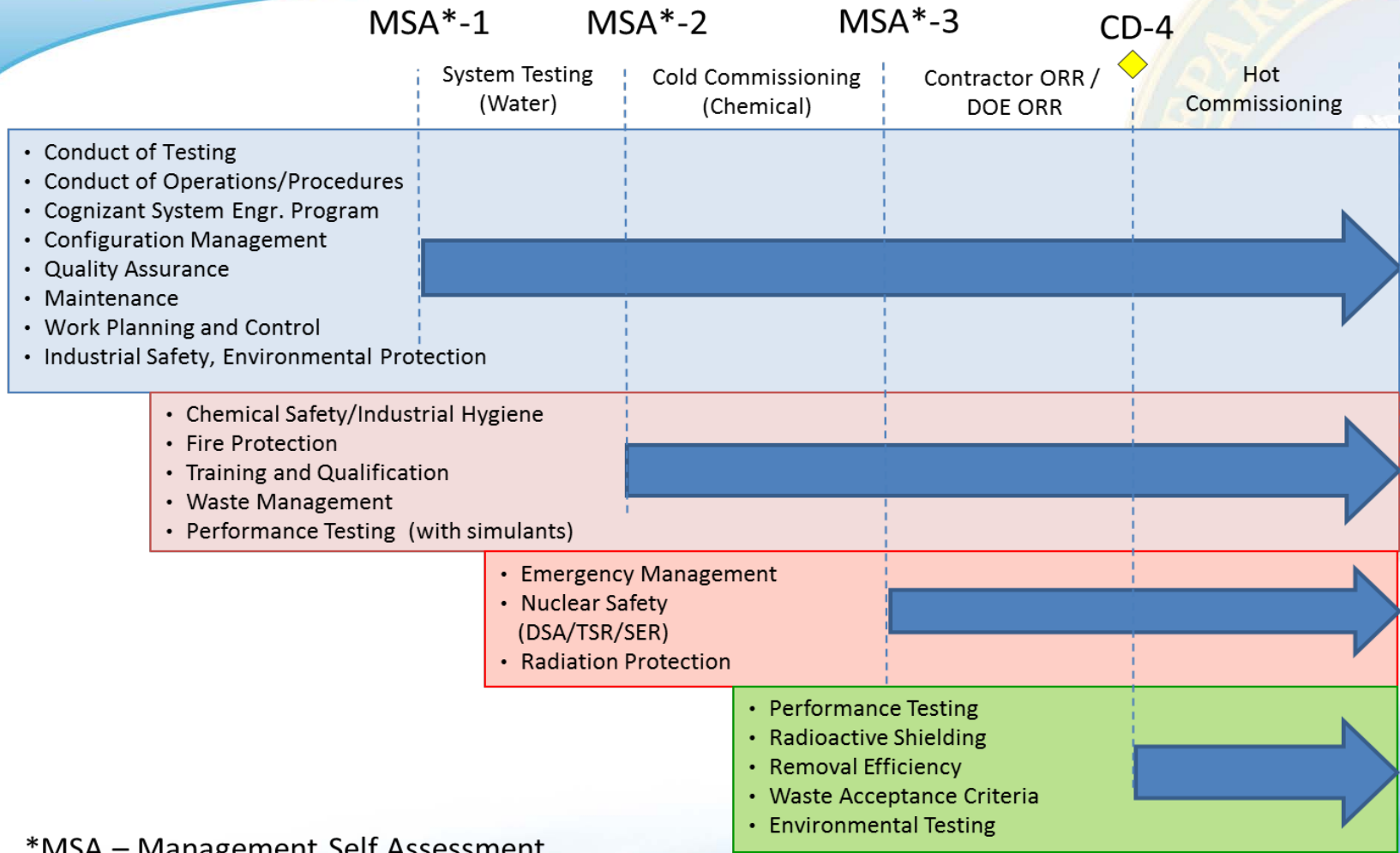
SWPF Testing Activities

◆ System Turnover





Testing & Commissioning Program: Safety Management Programs



*MSA – Management Self Assessment



Design Capacity Performance Test

- Demonstrates a 7-batch (> 7.3 Mgal/year) performance test of Alpha Sorption Process (ASP), Caustic Side Solvent Extraction (CSSX), and Sludge Washing Processes and Alpha Finishing Facility (AFF).
- Demonstrates integrated operability of the Salt Waste Processing Facility (SWPF), plant systems, using non-radioactive waste simulants and process chemicals (including MST and actual solvent).
- Demonstrates that the product streams meet waste acceptance criteria (WAC) with cold Cesium (Cs) and strontium (Sr).
- All normal process operations (including laboratory analysis) will be demonstrated.



Hot Commissioning Performance Test

- Demonstrate SWPF is ready to commence unrestricted hot operations.
- All aspects of integrated facility operation will be demonstrated including radioactive waste feed receipt from the Low Point Pump Pit, and waste product transfer to the Saltstone Production Facility (SPF) and the Defense Waste Processing Facility (DWPF).
- All products and secondary wastes shall be analyzed to confirmed operation within the WAC of the receiving facility.
- Hot Commissioning Testing will be performed to verify those aspects of plant design that could not be fully verified in cold commissioning (e.g., shielding, actinide removal, and environmental testing).



DOE Oversight of Testing Activities

- Interdisciplinary Review (IDR)
 - DOE review of test documents prior to Revision 0 issuance
- Joint Test Group (JTG)
 - Working level review and approval of test procedures and results
 - Facility Representative/Start-Up engineer is a JTG member
- Commissioning Review Board (CRB)
 - Senior Management final approval authority for test procedures and results
 - Federal Project Director is a CRB member



Third Party Readiness Oversight

Contractor Readiness Certification Review Board (RCAB)

- An Independent Review Board to ensure contractor programs and processes have achieved sufficient readiness to support Hot Operations
- Composed of "greybeards" with extensive nuclear start-up experience
- Independent of line and functional managers; reports directly to Parsons' Project Manager
- Reviews and concurs on the POA, DSA implementation and corrective actions from Pre- and Post-Start Findings
- Adopted as lessons learned from successful Y-12 High Enrichment Uranium Manufacturing Facility (HEUMF) Readiness Program.



Programmatic Oversight

SWPFPO Certification and Verification Plan (CVP):

- Outlines steps for DOE to certify that SWPF is ready for radioactive operations
 - equipment, procedures, and qualification of personnel
- Includes integration with DOE-Savannah River Liquid Waste facilities and programs.
- Summarizes activities to provide adequate DOE oversight
 - assessments, reviews, verifications, etc.
- DOE IPT Leads identified to evaluate 38 areas along with contractor counterparts
- Line Management Review Board (LMRB) will review and approve affidavits for each area attesting to readiness
 - DOE participation in the CRB is via the Federal Project Director
- Directs the development of the ORR Plan of Action (POA)
- SWPFPO IPT will assure that assigned key programs are ready to support radioactive SWPF operations
- DOE Readiness Review Coordinator coordinates the efforts of the Integrated Project Leads (IPT) to assure that each functional area achieves readiness



Lessons Learned

- Invest in Technology
- Operate with the end in mind
 - Imbed a Construction and Operations mind-set early
- Plan with Realism
- Integrate Construction and Testing and Commissioning
- Test with rigor
- Synchronize Planning – Site and Project Level

