Transition from Construction to Commissioning / Startup and Managing Risks
Salt Waste Processing Facility (SWPF)

Pamela A. Marks
Federal Project Director
Department of Energy – Savannah River Site
Salt Waste Processing Facility and the SRS Liquid Waste System

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

March 2017
2017 DOE Project Management Workshop
SWPF Project Milestones
The Imperatives

• Define completion criteria before you start – then carry through
• Define system boundaries early - no gaps / no overlaps
• Use formalized, documented processes
• Define jurisdictions
• Work as a team
• Involve the right people for the right things
• Shared databases / rigorous database protocols
• Metrics
• Consider turnover as you construct (area vs. system)
• Keep the end game in sight
• Construction installation, checks and tests completed for System Operational Testing (SOT) activities to begin

• Commissioning Planning completed (Rev. 00 SOT, Integrated System Operability Test (ISOT) and Calibration, Grooming & Alignment (CG&A) procedures)

• Turnover Process governed by PP-CM-8103 “SWPF System Turnover from Construction to Commissioning and Testing Organization”

• 71 Systems identified in PP-CM-8103

• Turnover Acceptance Forms (SWPF-436) documented for all 71 systems
• 10 day notification required for all initial and final system turnover walk downs

• No open “A” punchlist items (“A” items = inoperable equipment required for component of system testing; items affecting safe completion of component or system testing)

• Manageable list of “B” punchlist items (“B” items = minor elements of work which do not prevent the utilization of the facility, in part of in whole; items that do not impact system or component operability or safety)
• Final acceptance of the Construction Completion Milestone determined by the Federal Project Director (FPD) and Contracting Officer (CO)
• Contractor declared in writing that construction has been completed per contract requirements
• DOE had 5 days to determine the reasonableness of the declaration
• DOE had 30 days from the determination of reasonableness to formally accept or reject the Contractor’s declaration.
Contractor’s Declaration to DOE

Letter to DOE for Declaration of Construction Completion contained:

• Completed SWPF-436 *Turnover Acceptance* forms

• List of System Turnover Package Submittals

• Summary Table of Open ‘B’ Items by System, including evidence of a manageable list

• Confirmation that open non-conformance reports and Construction Requests for Information evaluated and dispositioned to the appropriate “A” or “B” punchlist

• Confirmation Engineering Open Items either closed or captured on the appropriate punchlist

• Confirmation CG&A procedures prepared, and SOT and ISOT procedures completed to Revision 0

• Parsons’ final cost and schedule values for incentive fee calculations

This declaration excluded:

• Final Waste Transfer Line tie-in

• Administration Building

• Items turned back to construction during the start-up testing phase

• Final closure of Work Packages
PP-CM-8103, “System Turnover from Construction to Commissioning” established the requirements for system turnover.

- Mutual agreement by DOE and Contractor required.

System Turnover Process addressed:

- Roles and Responsibilities
- Turnover Package and Turnover Process
- Transfer of Jurisdictional Control from Construction to Commissioning and Testing
- Guidance for a turn-back process used for construction work such as testing reveals a need for design change or latent defect.
Contractor’s Turnover Process

- Prepare Turnover Package
- Punchlist Item Categorization
- Final Walkdown (10 day notification required, including DOE)
- Initial Walkdown (10 day notification required, including DOE)
- Complete “A” Punchlist Items
- Jurisdictional Control is Transferred
- Work Off “B” Punchlist Items
- Manageable List at Construction Completion

71 Systems Turned Over
DOE System Turnover Oversight

- Trained and Qualified Personnel
- Documentation: Turnover Checklist, Turnover Affirmation
- Turnover Package Review
- Walk downs / Tracking Punch list Items

Turnover Oversight Process governed by SWPF-15-DI-001

All 71 systems went through this process

SWPF Project Office Management

Line Management Review Board (LMRB)
Line Management Review Board (LMRB)

- Forum for DOE management review of selected readiness documents to ensure that integrated readiness oversight activities adequately assess the overall achievement of operational readiness

- The LMRB was established early to utilize the senior management oversight concept for turnover

- Key Members:
  - SWPF Federal Project Director (LMRB Chair)
  - SRS Deputy Site Manager (Executive Advisor)
  - DOE-SR Chief Engineer
  - Assistant Manager for Waste Disposition
  - Assistant Manager for Nuclear Materials Stabilization
  - Assistant Manager for Infrastructure and Environmental Stewardship
  - Director for Office of Safety and Quality Assurance
  - DOE-EM HQ Liaison
  - Ad Hoc Appointees as needed
Readiness to Test – Initial Testing

• SOT/ISOT Approval
  - Test procedures reviewed by Contractor and DOE concurrently
  - Review comments dispositioned through the Joint Test Group (JTG)
    • DOE is a member of the JTG
  - Test procedures sent to Commissioning Review Board (CRB) for approval.
    • FPD is a voting member of the CRB
• Approval of all test procedures was a condition of Declaration of Construction Completion
Pathway to Readiness Success

• Integrated Baseline Review (IBR) ensured realistic and achievable baseline to achieve CD-4 – (SWPF-First of a Kind review in DOE)
• Chemical Simulants used during Cold Commissioning
• ARP/MCU and Parsons' Technology Center testing continues until SWPF start-up
• Hired DOE Readiness Review Coordinator early in the Project (SWPF-4 years prior to scheduled CD-4)
• Developed a Plan of Action (POA) early in the Project (SWPF-18 months ahead of schedule)
  - Incorporated Lessons Learned from other projects
  - Shared readiness expectations and lessons learned early with Contractor
  - POA Scoping meetings with Contractor
Pathway to Readiness Success (cont’d)

- Developed Certification and Verification Plan early in the Project
  - Implemented oversight CVP during construction phase of the Project
  - Developed 8-hour CVP Training course for Integrated Project Team members
    (Contractor participated in CVP Training)
  - CVP process based on Affirmations of readiness acceptability for assigned areas. (All Core Requirements, Safety Management Programs, Functional Areas, etc.)

- Implemented resource-loaded project schedule of DOE Readiness activities which is tied to the Contractor Project schedule

- Cognizant System Engineers in place and provisionally qualified prior to Constructions Completion
Pathway to Readiness Success (cont’d)

• Initiated LMRB early in the Project
  - Independent Board comprised of senior DOE managers responsible for reviewing readiness deliverables (e.g., Turnover Packages, Readiness Affirmations, Program Documents for DOE approval, etc.)

• SWPFPO personnel regularly attend Contractor Planning, Scheduling, and Project Status meetings
  - Establish a continuous presence in the field
  - Focus on working closely with Contractor to resolve issues as they are identified

• Sharing of lessons learned
• Contractor to perform 3 MSAs
  - Readiness to Test (MSA-1);
  - Ready for Cold Commissioning (MSA-2);
  - Ready to proceed into the Contractor Operational Readiness Review (CORR) (MSA-3)
  - DOE provides oversight for all MSAs
• Startup Notification Report (SNR) developed early for submittal to DOE HQ
• DOE will conduct independent Integrated Safety Management System (ISMS) Assessments
Transition from Construction to Testing

• Take a pause
  - Make sure your new house is in order
  - Begin journey to establishing a nuclear operational culture
  - Changes to Conduct of Operations
  - Processes and procedures updated from Construction-based to Testing-based
  - New people on the team and in the facility
  - Transition to new roles
  - Transition to new responsibilities
  - Training – is it effective?
  - Changes in facility conditions
Transition from Construction to Testing (cont’d)

• Implement Supervisory Watches
  - New people in new environments
  - Training effectiveness
  - Mentoring

• Jurisdictional Control
  - Testing or Operations?
  - Work Authorization
Transition from Construction to Testing (cont’d)

• Vendor support and spare parts
  - Ensure vendor support is in place
  - Have a plan to transition knowledge from vendors to project staff
  - Have a rigorous inventory of spare parts and replacement commodities on hand prior to testing

• Utilities and Life Safety Systems
  - Test rigorously as part of construction completion

• Closure of Construction Work Packages
  - Before or after construction completion?
Transition from Construction to Testing (con’t)

• Plan for a slow start to Testing
  - Staff is new in their roles
  - All things are not as they seem
  - A new nuclear operational culture is being established
  - Attention to details
  - Plan for the unknown
Summary

• A disciplined approach to Construction Turnover significantly reduces risks in Testing and Commissioning
  - Well defined and disciplined processes makes Turnover a success
• Proactive early planning for Testing during Construction phase
• Detailed interface planning between the Project and other site stakeholders (emergency preparedness, nuclear safety, site services, etc.) is essential
• Plan with the end game in sight
• Teamwork and partnership lead to success!