Leaning the Tank Closure Process at the Savannah River Site

**Current State of Tank Closure**

- **Bulk Waste Removal**
- **Heel Removal**
- **Cooling Coil Flushing**
- **Annulus Cleaning**
- **Isolation & Final Sampling**
- **Grout Tank**

**Target State of Tank Closure After Lean**

- **Average Duration**: 8-10 years
- **Average cost/tank**: $50 million

**Attributes**
- Stay the course – eliminate short cuts and stop across the project
- Standard work and designs
- Simplified regulatory deliverables
- Increased parallel work rather than sequential
- Design with the end in mind – meaning design not just for waste retrieval but also consider what is necessary for characterization and grouting the tanks
- Expedite characterization to eliminate need to wait for tank grouting

**4-Pack of Underground Waste Storage Tanks**

**Current State of Tank Closure**

- **Average Duration**: 8-10 years
- **Average cost/tank**: $50 million

**Target State of Tank Closure After Lean**

- **Average Duration**: 4-6 years
- **Average cost/tank**: $<40 million

**Benefits**

- **Engineering Documents Rapid Improvement Event**
  - 58 day (50%) reduction in average cycle time from design input to output
  - 50% reduction in the average number of drawings requiring change
  - Establish storage control for necessary equipment—reduces ~900 person-hours from critical path
  - Grout pumps in-place—saves ~$1M per tank
  - Establish Project Management practices with the end in mind—removes three years from tank closure critical path and saves ~$1.2M per tank
  - Collect samples prior to tank being dried—saves six months schedule or ~$600K per tank

- **Contaminated Pump Removal Rapid Improvement Event**
  - Eliminate coil flushing—saves >$65K per tank and generation of 5,000 gallons of liquid waste that historically goes back to an active waste tank for treatment
  - Eliminate grey water toles (20 per tank)—saves ~$100K per tank
  - Standardize header removal—saves ~2,800 person-hours per tank

- **Grouting of In-Tank Equipment (including cooling coils) Rapid Improvement Event**
  - “Just Stop” ventilation removal
  - “Just Stop” pump removal when it does not make economic sense
  - Engineering develops and approves configuration management template
  - For each tank, define and obtain early DOE buy in to complete entire scope—waste removal through tank closure
  - Develop standard work package
  - Develop standard design for closure tanks

- **It’s All in Our Own Hands—Insights to Lean Events**

  - “Our own paradigms drive our behavior: almost 100% of the time we discovered that we were over interpreting the rules or requirements.”

  - “There is a common misconception that since this is the way “we have always done it,” our stakeholders will not consider accepting anything different. The strength of the Lean process is that key stakeholders are invited to participate in the events. The assembly of affected parties is extremely powerful for team building and educating each other about what drives each organization’s decision making.”

Team consisted of SRR employees and representatives from the South Carolina Department of Health and Environmental Control, Department of Energy, Savannah River National Laboratory, and external industry.

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