

WM2014 Conference Panel Report

PANEL SESSION 95: CHALLENGES IN US DOE HLW TANK MANAGEMENT

Co-Chairs: Ken Picha Jr., *US Department of Energy*

Panel Reporter: Craig West, *US Department of Energy*

Panelists:

1. **Jean Ridley**, *Director, Disposition Programs, Savannah River Operations, US DOE*
2. **Ken Rueter**, *President/ Project Manager, Savannah River Remediation, SRR*
3. **L. David Olson**, *President/Project Manager, Washington River Protection Solutions*
4. **Ken Whitman**, *Assistant Manager Facilities and Disposition, Idaho Cleanup Project*

This panel focused on the successes and challenges of the US DOE HLW Tank Management from the perspective of different field site representatives. Discussion will cover technical, regulatory, human capital and budgetary areas.

The session opened with **Ken Picha** briefly talking about the role of safety in the workplace. He then introduced the four panelists who shared their individual perspectives on challenges in High Level Waste (HLW) tank management for their respective programs. In the interim, Ken Picha, mentioned the renewing of the Tank Waste Corporate Board to look at issues that affect the complex to develop corporate solutions that benefit many sites rather than only resolving site-specific issues. Ken Picha closed the formal part of the session by thanking the panelists and opening the floor to questions.

Summary of Presentations

Jean Ridley began her presentation by discussing the programs three areas of focus: 1) Safely storing 37 million gallons of radioactive liquid waste, 2) Operating major nuclear facilities to support H-Canyon missions and to treat and disposition tank waste, and 3) Emptying, cleaning and closing waste tanks. She described the different waste forms: liquid salt supernate, saltcake, and sludge. She illustrated how the liquid waste program (LWP) is integrated using a slide of interconnecting “gears” representing the various facilities necessary to achieve the program goals.

Next, she focused the presentation on the key operation facilities comprising the LWP. Noting one of the system components is the world’s largest vitrification facility, the Defense Waste Processing Facility, which has processed over HLW 3778 canisters. She went on to speak to the challenges of finding additional storage for the processed HLW canisters beginning in 2018. She also described the roles and functions of the Saltstone Disposal Facility, Interim Salt Processing Facility, the Salt Waste Processing Facility (SWPF), and finally Tank Closure.

Ms. Ridley touched on the current impacts being felt due to delays in SWPF operations and the reduction in program funding. She described the closure of six tanks and the future goal of closing the remaining 24 “old style” tanks – tanks that do not have secondary containment - as agreed by three key organizations: South Carolina Department of Health & Environment Control, Environment Protection Agency, Region 4, and US DOE. She concluded by describing

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potential technologies and process chemistry improvements that can potentially increase operational efficiencies in support of impacted Federal Facility Agreements milestones.

Ken Rueter opened by referencing Ms. Ridley's presentation from an owner's perspective and stated he would focus his presentation from a delivery perspective that will be supplemental information. Ken focused on the three main product lines: 1) High Hazard Operations 2) Waste Treatment and 3) Overall Tank Closure Mission. Ken stated although FY 13 was a bittersweet year with +400 layoffs and a budget sequester, there were many achievements foundational to their business in the form of record performance hours worked safely without days-away injury, and projects being awarded for being below cost and ahead of schedule.

Ken commented on the production rate of various processing LWP facilities. Ken established where things stand now as far as budget, and successfully executing the largest pre-planned integrated +10,000-activity facility's outages in company history to work on aging infrastructure and system reliability. He then began to expand on the SRR Project Enterprise that more robustly focuses on future growth and potential missions. He provided more detail on the Nuclear Services Model component of the Project Enterprise effort and investment worthy activities based on risk reduction as part of a DOE-SRR Partnership. Ken highlights areas potentially addressed – Plus-up Priorities- if additional funding became available.

He went on to note the FY 14 goals to include closure of tanks 12 and 16. Ken stated ~75% of SRR's workforce is eligible to retire in 10-15 years and that the company is working to address the potential brain drain. Ken concluded by summarizing the safe operations and the significant preparation necessary to support successful operation of the SWPF, the continuing H-Canyon mission, and tank closure.

L. David Olson opened by briefly describing his transition from the Savannah River Site to the Hanford site and that he successfully defended his dissertation on "Motivating the Aging Retirement Eligible Workforce in Times of Sustained Economic Uncertainty". Dave went on to provide an overview of Washington River Protection Solutions' (WRPS) mission to safely retrieve the tank waste with the ~1500 person workforce at the Hanford site. He also touched on the safety performance of WRPS, the volume of waste as a comparison to Savannah River and Idaho sites waste, and the compositional makeup of the Hanford waste forms.

Dave illustrated that the workforce's average age is 54 years old with 66% of the workforce is 40-59 years old as compared to just 22% at 39 years of age or younger. He stated that the 250 person staff up target for this year will be heavier on younger folks. He shared specifics on the primary site challenges he sees for the mission: 1) Maximize DST storage space, 2) Improve tank farm infrastructure, 3) Complete C Farm retrieval with the suite of retrieval technologies available, 4) Commence next SST retrievals, and 5) Integrate through One System with Waste Treatment Plant. Dave Olson concluded by highlighting the multiple site high level waste integration and collaboration that has occurred and he hopes will continue to aid in completing the mission.

Ken Whitman opened by describing the two major elements of the Idaho National Laboratory's Tank Waste program: 1) Sodium Bearing Waste Treatment (formally known as the Integrated Waste Treatment Unit) and 2) Calcine Treatment. Calcine treatment will figure prominently in

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the upcoming request for proposal. Ken summarized the treatment of +8 Mgal of high level waste into calcine and the foreseen challenges of that will likely arise as a result of the non-standard design of the seven storage bins sets for retrieval. He spoke on the closure of 7 of the 11 tanks and the completed construction of the Integrated Waste Treatment Unit (IWTU) in 2012 that would treat the ~850,000 gallons of waste. Another challenge is the calcine waste form does not currently meet the HLW disposition requirements, the process to dispose of the calcine requires some regulatory approvals, and removal of waste from the 704 canisters stored in the bin sets for reprocessing and disposal.

He discussed the challenges being experienced with the start-up and commissioning the IWTU facility since the June 2012 over pressurization event. Ken stated the contractor operational readiness review (ORR) has been successful and the DOE ORR will begin soon after. He shared information on the scope of the yet to be built Calcine Disposition Project. Ken closed by discussing the schedule retrieval, clean up and closure that has been shared with the state.

Questions & Answers

Q1. How are the initial trial of using the next generation solvent (NGS) in the ARP/MCU working?

A1. The NGS is working very well based on factors like hydraulic, concentration factor and decontamination factor. Hydraulics are stable allowing +80 gallons per minute operation. The concentration factor is ~15, and the decontamination factor is up an order of magnitude resulting in a DF in the thousands, and has processed 120,000 gallons of salt solution.

Q2. FY 15 budget was released. What is funding for SRS in FY 15 is DOE looking to make up cuts seen from last year or will the funding remain about the level as last year?

A2. Budget was rolled out at a site level. The details are to be provided.

Q3. What are the DOE and contractor doing to ensure the 4-year site prep is properly executed to support SWPF operations?

A3. DOE and the contractor are working together to identify and schedule all of the activities that precede the startup: tie-ins, and tank prep. An integrated group has been established and charged with the responsibility to ensure all startup requirements are met. Prior year funding has affected ability to feed in years 1-4 at the requested rate.

14 people integrated to support the effort and support the horizontal integration. Stood up a specific project based organization to focus on the tie-in lines, salt disposition, blend tanks, batch and feed tanks, and transfer line. The Defense Waste Processing Facility will require modifications to accommodate the higher SWPF throughput rates. Production and project schedule +6000 activities.