Savannah River Site
Citizens Advisory Board

Recommendation 231

Integrated Management Approach

Background

DOE will now process the salt waste using a two-phase, three-part process. The first phase (herein referred to as Interim Salt Processing) will involve two parts to treat some of the lower activity salt waste: (1) Beginning in 2006, processing of a minimal amount of the lowest activity salt waste through a process involving deliquification, dissolution, and adjustment (DDA) of the waste; and (2) beginning in 2007, processing a minimal amount of additional salt waste with slightly higher activity levels using an Actinide Removal Process (ARP) and a Modular CSSX Unit (MCU), following deliquification, dissolution, and adjustment of saltcake. The second and longer term phase, referred to as High Capacity Salt Processing, involves operation of the Salt Waste Processing Facility (SWPF) which will use CSSX technology (augmented as necessary by ARP) and will, beginning in 2011, separate and process the remaining (and by far the majority) of the salt waste. The second phase will begin as soon as SWPF is constructed, permitted by the State of South Carolina, and becomes operational. The first, interim processing phase will cease at that time (except that ARP could be used as necessary to augment SWPF).

The start date for SWPF operations has been delayed (from 2009 to 2011) to allow for modification of the SWPF preliminary design to incorporate a higher degree of performance category (PC) in the confinement barriers necessary for worker protection during natural phenomena hazard events (e.g. earthquakes). The Defense Nuclear Facilities Safety Board initially identified concerns related to the PC designations of the SWPF in August, 2004. DOE agreed in November, 2005, to modify the SWPF design, resulting in an approximate two-year delay in the planned startup of SWPF. DOE anticipates that it will continue to explore possible ways to improve the schedule for design and construction of the SWPF.

However, SWPF technology development (testing) had been ongoing and continues to demonstrate and validate the design, reduce the technical risks, and reduce the time for facility commissioning and startup. To date, four Phase I tests (Monosodium Titanate Alternative, High-Shear Rotary Filtering, Multi-Stage Contactors, and Solvent Extraction) have been closed and two (Performance of Air Pulse Agitators and Solvent Characterization and Carryover) of the four Phase II tests are complete and two (Caustic-side Solvent Extraction and Cross Flow Filter) are ongoing. Five future tests have been designated for potential evaluation (Ref. 1).

Prior to the design of each separate facility, a Hazard and Accident Analysis process is conducted. The process begins with the identification of potential hazards associated with each design (potential acid release from tank piping). Then the significance of each hazard is analyzed through quantitative and qualitative techniques (e.g. events leading to release are identified, the event likelihood is estimated, and the consequence of the event is estimated). Ultimately, design controls (i.e. secondary containment) are implemented and tailored to remove the hazards (Ref. 2).

Parsons is the primary contractor in charge of the SWPF design and construction. ARP and MCU, both in the construction phase, are to be built by the WSRC team. Each facility, project, and process has its own management team and organization, with its own fiscal responsibility and performance accountability.

Comment

The Savannah River Site (SRS) Citizens Advisory Board (CAB) is concerned that two different contractors are essentially developing the same process and due to contracting constraints may have limited interactions to share valuable information about the processes. The SRS CAB believes there is a need for an integrated management approach to salt waste processing, especially due to the severe schedule and cost concerns of the project. For example, it is important that lessons learned from operations of MCU and ARP be passed on to the Salt Waste Process Facility (SWPF) contractor and that testing for SWPF be passed on to the MCU and ARP contractor. The SRS CAB stresses that contracting issues should not impede risk reduction activities and wants to know how this information has been or will be disseminated between the two contractors.

This integrated approach also needs to extend into the hazard analysis process. DOE needs a process that looks at the entire system in addition to each separate facility design. In previous recommendations, the SRS CAB identified this as a systems approach, which evaluated risks and cost-benefit analyses across an entire operating system like the HLW system. The SRS CAB wants to know how DOE evaluates the hazards between existing and new facilities within the same general area. The SRS CAB considers this a very serious issue and is interested in an expedited implementation.

Recommendation

The SRS CAB recommends that by July 2006, DOE-SR:

1. Provide the SRS CAB with the method DOE uses to ensure that all pertinent testing and design information/data (in addition to appropriate lessons learned from operational experience) are shared between the two contractors and that existing contracting constraints do not interfere with the interactions and dissemination of information between the two contractors.
2. Explain to the SRS CAB how the hazard analysis process is being used to evaluate the hazards between existing and new facilities within the same general area and how the hazard analysis process can be implemented across a more integrated system wide basis. The SRS CAB wants to know the schedule for implementation and who at DOE-HQ is responsible to ensure that the more integrated management approach is utilized.

References

1. Technology Development (Testing) Update, presentation to the Waste Management Committee by Rick Wilkinson - Parsons, April 11, 2006.
2. DOE Hazard and Accident Analysis Process, presentation to the Waste Management Committee by Michael Mikolanis – DOE-SR, April 11, 2006.

Agency Responses
Department of Energy-SR