



SRS Citizen's Advisory Board

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Waste Management Committee Meeting

Aiken Municipal Conference Center

June 28, 2005

The Savannah River Site (SRS) Citizens Advisory Board (CAB) Waste Management Committee (WMC) met on Tuesday, June 28, 2005, 5:00 PM, at the Aiken Municipal Conference Center, Aiken, SC. The purpose of this meeting was to discuss the Salt Waste Processing Facility (SWPF) status, Waste-on-Wheels (WOW) status, Glass Waste Storage Building II (GWSB) and to hear public comment. Attendance was as follows:

CAB Members

- Joe Ortaldo
- Manuel bettencourt
- Karen Patterson
Leon Chavous
Perry Holcomb
Donna Antonuci

Stakeholders

Bill McDonnell
Lee Poe

*Rick McLeod

Regulators

Jim Barkdale, EPA

DNFSB

John Contardi

- *WM committee members*

**CAB technical advisor*

DOE/Contractors

Charlie Hansen, DOE
Doug Hintze, DOE
Jim McCullough, DOE
de'Lisa Bratcher, DOE
Guy Girard, DOE
Chuck Terhune, Parsons
Jack Kaspter, Parsons
Will Davis, WSRC
James Herbert, WSRC
Toby Hess, WSRC
Joe Carter, WSRC
Elmer Wilhite, WSRC SRNL
Kim Hauer, WSRC
Pen Mayson, BSRI
Rich Smalley, Duratech
Tom Jovanis, Duratech
Jim Moore, WSRC

Note: Cassandra Henry and Bill Willoughby are CAB members of the WMC, but were unable to attend this session.

Welcome and Introduction

Joe Ortaldo, Vice Chair, welcomed everyone to the meeting and asked them to introduce themselves. Joe mentioned that if there were no objections from the committee members by the July CAB meeting, he would recommendation that CAB

recommendations 197 - Yucca Mountain Waste Acceptance Criteria - and 200 - Savannah River National Laboratory (SRNL) Treatability Study Impacts - be moved from Pending to Open since the recommendations had been answered.

Salt Waste Processing Facility (SWPF) Status:

Jim McCullough, DOE, expressed his appreciation for the CAB interest and addressed Recommendation 212. In relation to part number one, DOE is working diligently to develop a path forward with the Defense Nuclear Facility Safety Board (DNFSB). On the second part, estimating the risk of postponing SWPF, DOE is in the process of developing a more detailed risk decision process and will give the CAB more details later. And for part three, open issues will be reviewed at this meeting.

Chuck Terhune, Parsons SWPF Project Manager, reviewed the agenda for the presentation and the mission. The mission of the SWPF is to provide essential pretreatment capability for SRS salt waste to rapidly reduce nuclear waste storage risk and to enable cost-effective final disposal of the treated waste and minimized life-cycle cost.

The volume of waste to be processed by the SWPF has grown. The original mission feed volume was 33 percent of the total salt solution volume. The current mission requires the SWPF to process over 90 percent of the total salt waste volume. The process itself includes an Alpha Strike Process (ASP), a Caustic Side Solvent Extraction (CSSX) process and an Alpha Finishing Process (AFP). Mr. Terhune reviewed the Parsons Team members and roles. The current baseline shows the preliminary design started in June 2004 and was completed in May 2005. The final design was started in June 2005.

Jack Kasper, Parsons SWPF Design/Build Manager, reviewed the details of the process, the facility and the safety basis. The three processes in the SWPF will remove strontium (Sr), actinides, and cesium (Cs) from the waste feed. The Sr/actinide sludge and a concentrated Cs solution will be sent to the Defense Waste Processing Facility (DWPF) and vitrified. The bulk decontaminated salt solution with virtually no curies left will be directed to the Saltstone facility.

For the ASP, a salt solution feed batch of 28,300 gallons will be transferred to the Alpha Sorption Tank (AST) where it is diluted and batch-treated with a slurry of monosodium titanate (MST) to absorb strontium and actinides onto the MST. The dilute MST/sludge slurry in the AST is transferred to the Filter Feed Tank (FFT) and from there to a cross-flow filter unit to remove both MST and sludge solids. The clarified salt solution will be sent to the CSSX. The MST/sludge will be sent to the Sludge Solids Receipt Tank and then to DWPF.

In the CSSX process, cesium contained in the clarified salt solution is removed in the extraction stage contractors by mixing with an organic extractant and then separating the phases. The Cs laden organic phase is then sent to the stripping contractors where the organic is mixed with a dilute low volume nitric acid stream. After separating the phases, the strip effluent containing the Cs is sent to DWPF to be vitrified and the Cs free organic is recovered and returned to the extraction process. The decontaminated salt solution (or aqueous outlet from the extraction stages) is sent to the Saltstone Facility for disposal.

The AFP will be the final operation in which an additional MST strike will be performed to remove strontium and actinides not removed in the ASP. This is where the batch is qualified before it is released to Saltstone.

The SWPF is capable of processing 9.4 million gallons of salt solution per year at 100 percent capacity however; the best performance is expected to be at 80 percent.

The layout of the facility will have the ASP in the center of the facility surrounded by reinforced concrete walls and covers that comprise the Central Process Area (CPA). The CSSX is also contained in the CPA. The AFP, cold chemical and support areas are on the peripheral areas of the Process Building and are steel framed structures.

The hazards/accident analyses for the facility were performed in accordance with current DOE directives and standards. The unmitigated radiological consequence analysis assumptions were reviewed. The unmitigated radiological exposures due to a worst case seismic event were .05 rem to the public and 35 rem to the co-located worker (i.e., worker within 100 meters of building exterior). Based on the conservatisms used in the SWPF accident analysis, CPA interior piping and vessels and the exterior structure were classified as safety-significant (SS) and designated Performance Category 2 (PC-2) for Natural Phenomena Hazard (NPH) protection.

Parsons and DOE's position on the SWPF confinement design are:

- SWPF hazard/accident analysis meets and exceeds DOE directive requirements
- ASP and CSSX primary and secondary confinement is designated as safety significant (SS) and PC-2 for worker protection
- Accident analysis results do not warrant safety class (SC) controls or a more robust seismic design
- Ventilation confinement design is robust and provides additional defense-in-depth to primary and secondary confinement boundaries.

DNFSB had issues with the confinement design. They felt that:

- WPF should be designated PC-3 to ensure adequate confinement for natural phenomena hazard events
- A safety-related active ventilation system should be provided

DOE chartered an independent review team (IRT) in May 2005 to review the SWPF confinement design. The IRT concluded that:

- SWPF design had fulfilled DOE requirements
- PC-2 requirements do not ensure "needed functional capability of the SWPF confinement design regarding natural phenomena hazards"
- Recommended PC-3 design for primary confinement (vessels and piping)

The DOE path forward in resolving the DNFSB issues are as follows:

- Continue to work with DNFSB to review DOE Orders, Standards, and Guides regarding confinement
- Based on expected changes in DOE requirements and in Site-Specific Response Spectra, DOE proposes to:
 - Increase seismic demand (i.e., response spectra) by 20 percent for SWPF design
 - Complete SWPF structural analysis for secondary confinement barrier Analyze primary confinement barriers (vessels and piping) per PC-3 requirements
 - Analyze primary confinement barriers (vessels and piping) per PC-3 requirements
 - Designate active ventilation confinement systems as Safety Significant for normal operation and abnormal events (not natural phenomena hazards).

DOE and Parsons are continuing to meet with the DNFSB to resolve the differences. Until the differences are resolved, the schedule remains in limbo.

Waste-on-Wheels (WOW) Status:

Will Davis, WSRC, up-dated the committee on the current status of the accelerated sludge removal program WOW. WOW is a new approach to performing bulk storage removal from SRS waste tanks as part of the tank closure program. The portable, reusable control room and motor control center can be moved from tank to tank. Significant changes in the program since the last presentation include the use of submersible short shaft mixer pumps with higher capacity. This will allow only two pumps to be used instead of four. In addition, the life of the pumps will be extended due to better life of the bearings. Mr. Davis reviewed the process and showed videos of the pumps in use during testing.

The WOW program is designed to remove the bulk of the waste from the tank, down to at least 10,000 gallons or lower if possible. Another technology would be developed to remove the last 10,000 gallons.

Some key milestones include:

- Two submersible mixer pumps installed in Tank 5 in August 05
- Bulk waste removal complete in Tank 5 in September 05
- Two submersible mixer pumps installed in Tank 4 in September 05
- Bulk waste removal in Tank 4 in April 06
- Two submersible mixer pumps installed in Tank 6 in December 05
- Bulk waste removal complete in Tank 6 in January 06

Glass Waste Storage Building (GWSB) II:

Doug Hintze, DOE Director of Waste Disposition Programs, reviewed the status of some of the CAB recommendations related to canister storage that remain open. Recommendation 183 is concerned about contingency space if GWSB II doesn't open on time. That issue is resolved as will be discussed. On recommendation 197, item five asks for an update to the CAB by November 30, 2005. This presentation satisfies that request and DOE completed item six by sending CAB representatives to Yucca Mountain as requested.

DWPF continues to produce canisters at an average of 230 canisters per year. From 2004 to 2008, they expect to produce 250 canisters per year. The Canister Shipping Facility (CSF) for transferring canisters into radioactive waste shipping casks will be available to begin shipments in 2012. The final shipment of DWPF canisters will occur by 2020. This makes the shipping rate at 563 canisters per year.

To-date, 120 previously unusable canister spaces in GWSB I have been recovered. An additional 100 spaces are expected to be recovered. With these recovered spaces, the facility will be able to continue to store canisters until approximately December 2006, well after the start of GWSB #2 operations in June 2006.

Guy Girard, DOE GWSB II Federal Project Director, reviewed the GWSB II project scope and status along with an excellent pictorial view of the progress. The construction crew had only lost seven days due to bad weather. The safety record was 180,000 hours with no recordable injuries. He reviewed the remaining activities with some key dates as follows:

- Complete steel erection on October 6, 2005
- Complete installation of siding and roofing by October 26, 2005
- Construction turnover by November 28, 2005
- Complete integrated testing by December 20, 2005
- Turnover to operations by February 9, 2006

Public Comment:

Perry Holcomb complemented all the speakers for good informative presentations with a very easy level of understanding.

Adjourn:

Joe Ortaldo adjourned the meeting.

Follow-Up Actions:

- It was suggested that a follow up presentation on methods used for hazard analysis might be in order. - Bob Meisenheimer/Jim Moore
- Parsons/DOE would return at some future date to give a status update. - Jim McCullough/Jim Moore