



## **SRS Citizens Advisory Board**

### **Waste Management Committee**

#### **Meeting Summary**

January 6, 2003

Aiken Federal Building, Aiken, SC

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**The SRS Citizens Advisory Board (CAB) Waste Management Committee (WMC) met on Monday, January 06, 2003, at the Federal Building in Aiken, SC. The purposes of the meeting were to hear presentations on the Am/Cm Cold Run, the Canyon AB Am/Cm strategy, the HLW Am/Cm strategy; and to hear public comment. Attendance was as follows:**

#### **CAB Members**

Bill Willoughby  
Jerry Devitt  
Perry Holcomb  
Murray Riley  
Meryl Alaloff  
Judy Barnett  
William Lawrence

#### **Stakeholders**

Lee Poe  
Bill McDonell  
Russ Messick  
Karen Patterson  
Bill Lawless  
Rick McLeod\*

#### **Regulators**

Tom Burns, DNFSB  
\*CAB Technical Advisor

#### **DOE/Contractors**

Charlie Anderson, DOE-SR  
George Mishra, DOE-SR  
Michael Mikolanis, DOE-SR  
Tom Gutmann, DOE-SR  
Michael Chandler, WSRC  
Teresa Haas, WSRC  
Kelly Way, WSRC  
Sonny Goldston, BNFL-SW  
Ken Parkinson, DOE-SR  
Troy Donahue, WSRC  
Lyddie Broussard, WSRC  
Phil Breidenbach, WSRC  
Steve Howell, WSRC  
Bill Brasel, DOE-SR  
Sachiko McAlhaney, DOE-SR  
Jerry Taylor, WSRC  
Bill Condon, WSRC  
John Dickenson., WSRC  
Mike Johnson, WSRC  
Ron Campbell, WSRC

\*Denotes members of the WMC

Bill Willoughby welcomed those in attendance, asked for introductions, and updated the group on several issues. He stated that Mr. McLeod has written a recommendation on the GWSB #2 based on the WM Committee's concerns about the acquisition process, funding, and project schedule. He outlined the recommendation high points which are as follows: streamline the acquisition strategy process, define clearly the areas of responsibility, and brief the CAB before

March 25, 2003. The group agreed with the recommendation. Mr. Willoughby will present it to the full CAB at the January 14 meeting.

### **Americium Curium (AmCm) Disposition-Troy Donahue**

Mr. Donahue provided an update on the status of the AmCm Simulant runs. He outlined the goals which are primarily to reduce risk and immobilize Am/Cm material in DWPF. This will be done by safely transferring Am/Cm material from F-Canyon to Tank 51 in H-area for early immobilization. He outlined the project from the canyon side and from the HLW side. The cold run in early December was very successful. All interfaces are complete with the AmCm transfer scheduled for January 20, 2003 which is one month ahead of the DOE commitment date.

Mr. Donahue outlined the studies that have been done and the teams that have followed the AmCm process. The documents include Hazard Analyses, Disposition Studies, Safety Strategies, Risk Assessments, AB Changes, Simulant Runs, Lessons Learned, Safety Analysis Reports (SAR), and Safety Evaluation Reports (SER). Teams that have reviewed the process include the Tiger Team and the Defense Board.

The cold run results were positive. A 2000 gallon batch transfer was completed on 11/8/02, and an 11,500 gallon inter area transfer was completed on 12/10/02. The average transfer rate goal was exceeded and the "Water flush Contingency" was successfully demonstrated. The F-Canyon Neutralization RA and Transfer RA's are complete. There were seven findings that have been resolved and added to the schedule.

The path forward includes incorporating lesson learned into the transfer procedure, updating the engineering documents, and finally transferring AmCm from F-canyon to Tank 51. When asked about criticality and flammability risks, Mr. Donahue assured the group there were no issues. There has been good cost and schedule performance.

### **Safety Basis for Neutralization and Transfer of Americium/Curium (Am/Cm) Solution to the High Level Waste System.-Steve Howell**

Steve Howell, F-Canyon Engineering Manager, outlined the F-Canyon AmCm Hazards Assessment. Included in the F-Canyon activities are transfers within F-canyon, Chemical adjustments, interim storage in F-Canyon, and eventual transfer to High Level Waste. All possible facility hazards were analyzed in the Safety Analysis Report (SAR). The subject matter experts (SME) studied these hazards to determine the best way to complete the transfer goals with no risks.

After questions and confusion about the various documents, Ms. McAlhany described the different safety, risk, and hazard documents. She explained when and how they are written and used; and which are project versus facility specific. The group was then able to determine the documents they would like to read.

Mr. Howell continued with discussion of possible events requiring new AB controls. The SME's brainstormed these events and the actions to be taken if the event actually occurred. Several events that were analyzed included tank cooling coil failure, solvent fire hydrogen explosion,

transfer error to outside facilities, and/or gang valve suck back. The SME's took each of these events and established controls for every situation. Mr. Howell described each of these scenarios and explained each control, monitor, or deterrent that had been put into place. The DOE has reviewed and approved each control.

When asked the Defense Nuclear Facility Safety Board (DNFSB) perspective, Dr. Burns responded that the DNFSB had no current open issues. They have determined that the AB is appropriate. When asked about the hydrogen generation in Tank 7, Dr. Burns responded that the Board had determined that there were appropriate controls and adequate levels of safety in place. Mr. Howell reiterated the following: the AmCm evolution can be safely performed with the prescribed AB changes, the DOE has approved AB changes via the SER, the DNFSB performed an outside review, WSRC has implemented the changes in the operating procedures, and the new AB requirements were successfully used during the December cold run.

### **Safety Basis for Neutralization and Transfer of Americium/Curium (Am/Cm) Solution through the High Level Waste System-Bill Brasel**

Mr. Brasel explained that WSRC assessed the following activities in relation to the Am/Cm transfer: Receipt into pump tanks, transfer to waste tanks, material retention, solubility, and the Waste Acceptance Criteria (WAC) requirements. Deflagration, transfer errors, siphons, spills, leaks, high radiation exposure to worker, criticality, and chemical reactions were reviewed; and no new hazards were identified.

When reviewing the WAC, it was determined that two of the exceeded criteria required AB changes, and four did not require AB changes. The H-tank farm diversion box 8 (HDB-8) hydrogen generation rate on the way to Tank 51 was evaluated. Mr. Brasel explained the hydrogen build-up conditions that would cause flammability and the measures taken to prevent flammable conditions. As long as the ventilation is not blocked, the flammability level can not be reached, even with the AmCm material. If the passage does become blocked, transfer is terminated. Passive vessel ventilation is relied upon to prevent flammable conditions. Even if the forced ventilation were lost, the passive ventilation would not be lost. As soon as the forced ventilation shuts down, passive ventilation would be in place. Administrative controls are also in place to stop the transfer in the event of a loss of forced ventilation.

The Waste Pretreatment (WPT) source term was also evaluated and adjusted. WPT in H-area has lower source term piping. The WPT SAR addendum has a lower source term limit than the tank farms. The limit will be met once Am/Cm is in Tank 51. It will be diluted with existing contents. The WPT piping design criteria is identical to the Tank Farm piping design criteria, which allows the higher source term. Therefore, DOE determined the Am/Cm material could be safely transferred to WPT.

The first of the four criteria that did not require DOE approval, but did require WAC deviations was safe poison to fissile ratio. The evaluation showed that criticality was not possible unless Americium is separated from the Curium, and this separation isn't possible in the tank farm. Three of the DWPF-based criteria were exceeded-canister heat production, alpha source term, and alpha solids concentration. These criteria would be met when the Am/Cm material was

mixed with other sludge batch material, prior to transfer to DWPF. These three required WAC deviations, but no DOE approval.

WSRC submitted the following AB changes to DOE: F and H-Tank Farm Technical Safety Requirements (TSR), WPT Operational Safety Requirements, WPT Safety Analysis Report (SAR) Addendum; and the Tank Farm SAR. All were covered in one SER. The DOE approved the AB changes and allowed the WAC deviations to be granted. DOE issued the Safety Evaluation Report (SER) in response to the Safety Analysis Report (SAR) change proposal.

In addition to these changes, there is another class of change to prevent transfer interruptions. WSRC looked to eliminate some things that may cause interruptions. WSRC set up Area Radiation Monitors (ARMs) alternate monitoring. This involves manual radiation detection. Tank 51 had some requirements to prevent flammability. Manual ventilation and flammability monitoring was to be put into place should the automatic equipment malfunction. The transfer would be terminated if the equipment failed or alarmed. There are 9 days until the lower flammability limit (LFL) would be reached should ventilation fail, and there is monitoring every 4 hours.

Mr. Poe asked if adequate communication exists between the two organizations. Mr. Brasel is comfortable that there is more than adequate communication. Mr. Poe is concerned because the tank farm has never processed this material side of the process, and he believes that the site is pushing the limit with the AmCm transfer.

Mr. Willoughby asked the committee if the presentations were adequate to satisfy the questions the committee had. Mr. Willoughby was satisfied, as was the rest of the committee. Ms. Allaloff commented that procedure and safety controls appear to be in place. Mr. Lawless expressed appreciation to the DNFSB for their presence. Mr. Holcomb stated that the presentations had been enlightening and extended a personal thanks to WSRC and DOE for their availability for discussions and presentations. He added that the presentations had shown that all safety precautions have been taken. Mr. Willoughby commented on the number and levels of people that attended this meeting from DOE, WSRC, and the DNFSB.

## **Actions**

Have someone at the CAB meeting to give a brief presentation on the GWSB #2 before the recommendation is introduced.

Provide members with copies of the SER's for the canyons and HLW.

Provide a tour/presentation of the tank farms

Technical documentation that justifies the 1.6 x 10 to the 9th rem per gallon.

Mr. Willoughby adjourned the meeting at 8:30 p.m.

Meeting handouts may be obtained by calling 1-800-249-8155.