SRS Citizen's Advisory Board

Waste Management Committee

North Augusta Community Center, N. Augusta, SC
February 15, 2005

The SRS Citizens Advisory Board (CAB) Waste Management Committee (WMC) met on Tuesday, February 15, 5:00 PM, at the North Augusta Community Center, North Augusta, SC. The purpose of this meeting was to discuss the Status of Worker Safety Issues in the TRU Waste Program, SRS TRU Waste Program Update, Pu238 End State Vision Alternatives, Transportation of TRU Waste - Packaging, Characterization, and Shipping Limitations, and to hear public comment. Attendance was as follows:

CAB Members	Stakeholders	DOE/Contractors
- Bob Meisenheimer	Dan Battleson	DeLisa Bratcher, DOE
- Bill Lawless	W. Lee Poe	Paul Hunt, WSRC
Perry Holcomb	Bill McDonnell	Ed Stevens, WSRC
Jean Sulc	Charles Utley	Tim Coffield, WSRC
Joe Ortaldo		Susan Goodwin, WSRC
Art Domby		Jim Cook, WSRC
Jerry Devitt		Rick Runnels, WSRC
Leon Chavous		Jim Blankenhorn, WSRC
Manuel Bettencourt		Phil Gregory, Washington
Wendell Lyon		---------TRU Solutions/WIPP
Tracy Carroll		Sonny Goldston, WSRC
		Paul Sauerborn, WSRC
*Rick McLeod		Lyddie Broussard, WSRC
-WM Committee members		
*CAB technical advisor		

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

Welcome and Introduction
Bob Meisenheimer, WMC Chair, welcomed the group at 5:00 PM, and requested that each attendee identify themselves and their affiliation. He opened the meeting with a request that all stakeholders join him at the table and then provided an overview of the agenda. He introduced Doug Hintze as the evening's first speaker.

Status of Worker Safety Issues in the TRU Waste Program, Doug Hintze, DOE-SR
Mr. Hintze opened his presentation with a recap of the conditions that led to the identification of potentially unsafe worker conditions when handling drums of transuranic (TRU) waste. He explained there were two separate issues relative to drum safety. The first issue was the

identification of volatile organic compounds (VOCs) in the drums in July 2004. In November 2004, a second, separate issue had been identified concerning the potential for hydrogen generation in the drums. He characterized the issue as one whereby the hydrogen generation had the potential to cause a drum lid to pop off and injure a worker. As a result of the impact of these issues on the facility's safety basis, operations had been suspended. He stated a phased approach would be used to address these issues and resume full operations.

He reminded the audience that at the last Waste Management Committee meeting, he had advised them the Defense Nuclear Facilities Safety Board (DNFSB) had issued a December 14, 2004 letter on the hydrogen issue. The DNFSB was briefed on the status of the TRU Program on January 11, 2005. Mr. Hintze advised the committee that both DOE and the contractor had recently concluded investigations of the matter and were incorporating the results of the investigations into the TRU waste program. He emphasized the issues did not present an environmental concern but were considered a potential danger to the SRS TRU waste worker.

Approved changes in the safety controls have allowed the movement of drums to be resumed on February 5, 2005. This was a key first step since it allowed venting and purging operations to resume. Mr. Hintze stated the safety basis work is now being done to allow the resumption of characterization activities for TRU waste by mid-March. Under the current schedule, full operations are anticipated to resume by early May 2005. In response to a question on schedule impact, Mr. Hintze explained resumption of activities has taken longer than anticipated, but he does not believe it will have a negative impact on the long term schedule to ship TRU waste to the Waste Isolation Pilot Project (WIPP).

According to Mr. Hintze, while safety controls are being put in place to address the hydrogen issue in unvented drums, this does not address the VOC issue. He explained that the VOCs could exist in drums that have already been vented. Additional safety analysis work will be needed to remedy concerns with the VOCs.

Mr. Hintze concluded that the DNFSB's interest in the resolution of the TRU waste issues continues and the next briefing to them will be scheduled in the near future. He fielded numerous stakeholder questions and told the WMC that he would keep them informed on the progress of resolving these issues.

SRS TRU Waste Program Update, Bert Crapse, DOE-SR

Mr. Crapse began his presentation by detailing the TRU Program goals for shipping SRS TRU waste to WIPP. He said the ability to accomplish these goals lies in the successful management of the TRU waste by container-type and to keep the National TRU Waste Program focused on SRS's needs.

According to Mr. Crapse, the schedule for TRU waste is set by the type of waste and the type of container. In addition to drums, some TRU waste is packaged into other types of containers such as large boxes. He explained that while low activity drummed waste is scheduled for completion by November 2006, the non-drummed and high activity waste are not on the same schedule. Mr. Crapse stated that while significant progress in the disposition and shipment of the non-drummed

and high activity waste by 2008 is anticipated, he does not expect to complete the shipments until 2009 or 2010.

He said there were several keys to meeting this schedule, but most were tied to meeting shipping criteria. He discussed the need for Revision 21 to the Safety Analysis Report for Packaging of the TRUPACT II shipping container that is expected to be approved by the Nuclear Regulatory Commission (NRC) in the near future. He also cited the need for the NRC to issue a license for the TRUPACT III to address the shipping needs of non-drummed and high activity waste. He said such a license is not expected before 2008.

Mr. Crapse characterized the success to date of the TRU Waste Program as significant. He detailed the steps in the TRU Waste handling operations and explained that over 450 shipments to WIPP have been completed to date. He stated that one third of the legacy TRU waste had been dispositioned. Additionally, large container repackaging efforts have been successfully initiated.

He detailed the steps in TRU waste handling and stated that much of the earlier efforts had been focused on waste that had been relatively easy to handle, but the next phase of handling drummed waste will be more difficult and requires special facilities. He pointed out that the Modular Repackaging Facility (MRF) was an important and cost effective use of resources to support the removal of non-compliant items. A method SRS uses to identify drums that contain non-compliant items is X-raying the drum prior to the drum entering the WIPP characterization process. All non-compliant drums are removed from the process and are not characterized until they are repackaged. Mr. Crapse said of the almost 12,000 drums of low activity waste left at SRS, about 5000 will require repackaging and approximately 3000 require venting. He reminded them that as Doug Hintze had explained in the prior presentation, full resolution of the hydrogen generation issue is critical to meeting the 2006 date.

According to Mr. Crapse, the non-drummed waste will also require a prescreen x-ray and the removal of prohibited items. He said depending on the size and the issue relative to the waste; a special technology or building may be needed to repackage and remove prohibited items in the large boxes. For this reason, a plan is needed for repackaging and characterizing this waste as well as appropriate WIPP approved shipping containers. Mr. Crapse concluded his presentation by saying that the success of dispositioning the non-drummed waste at SRS was dependent on the resolution of the following issues:

- WIPP Certifiable Characterization System for large boxes
- Repackaging and Prohibited Items Removal Facilities
- Licensing of the TRUPACT III

Pu238 End State Vision Alternative, Sonny Goldston, WSRC
Mr. Goldston reminded the WMC the baseline end state vision for TRU waste is to ship all waste to WIPP. He recapped the many steps in dispositioning TRU waste in order to ship it to WIPP and said it was a labor-intensive process under the best conditions and posed a risk to SRS workers.

Mr. Goldston stated almost 50 percent of the total TRU Waste inventory is waste contaminated with high concentrations of Plutonium (Pu) 238 (about half of the legacy TRU waste is contaminated with Pu-238, but only a relative small amount has high concentrations). He explained that due to prior SRS missions where Pu238 was processed as a material suitable for conversion into a power source for deep spaceprobes, SRS has a relatively large amount of Pu238 contaminated waste. While this waste is considered TRU waste, it poses some unique problems when handling for proper disposition.

According to Mr. Goldston, contamination control is far more difficult when handling Pu238 as opposed to some other forms of TRU Waste (such as Pu-239). Additionally the thermal heat and radiation generation is much higher. Due to the difficulty in containing Pu238, worker exposure and contamination incidents have been substantially higher than when handling other forms of Pu such as Pu239. Mr. Goldston said the Pu238, which is in an oxide form, clearly presents a higher risk to SRS workers.

The concern with dispostioning Pu238 waste is associated with the need to open containers of this waste form for any characterization or inner packaging efforts. Mr. Goldston explained this high concentration Pu-238 waste is presently stored in drums and boxes, with some of it in concrete culverts. Some of older high concentration waste in culverts is also covered with dirt on E-Area Pad 1. As with other TRU waste forms, SRS expects some repackaging of the Pu238 contaminated waste to meet the Waste Acceptance Criteria of WIPP will be needed. The existing facilities at the site may not handle all of the identified Pu238 waste and very specific controls will be needed to ensure worker protection in the existing facilities for the waste population that can be handled. He said special equipment would need to be developed to safely characterize this waste to ensure the WIPP WAC will be met prior to shipment.

While no decision has been made, the end state vision alternative for Pu238 was included in the Performance Management Plan as a means of exploring reasonable alternatives. The goal is to reduce risk to our workers by minimizing the need to repackage and size reduce the waste. On the positive side of this waste form, since Pu238 has a much shorter half-life (88 years) as opposed to Pu239 (24,000 years), the disposition performance assessment analysis is very different. One possibility is that it may not be shipped to WIPP, but much more data is needed before reasonable alternatives can be identified. While no immediate efforts are underway, studies will be needed to make the case that this waste can be safely dispositioned.

Mr. Goldston fielded numerous questions about this issue. When challenged by stakeholders that little had been done since the last report, he said that his presentation is a progress report but the timing was not right to divert resources for a formal Performance Assessment. He said the important task at hand is to continue with the current shipping program but to analyze the disposition options of the Pu238 before a final decision is made to resolve this issue.

Transportation of TRU Waste - Packaging, Characterization, and Shipping Limitations, Phil Gregory, Washington TRU Solutions

Mr. Gregory thanked the committee for the opportunity to travel from WIPP to bring them up to date on the transportation issues associated with TRU waste. He identified the Department of Transportation (DOT) packaging requirements for shipping radioactive waste are included in

10CFR71, which is part of the federal code of regulations. He explained that the DOT regulation specifies that if the waste meets the "A2" quantity limit, regardless of the specific transuranic component of the waste, the NRC must certify the packaging.

He detailed the various types of approved shipping packages and described the requirements each package had to meet to be certified. According to Mr. Gregory, these extremely robust packages have been over engineered and designed to ensure the protection of the workers and the general public. He said that any changes in these packaging containers would require a formal exemption.

He further explained the specific characterization requirements for TRU waste shipments, which provided additional constraints that must be met before a shipment could be made. The characterization requirements address what a waste generator must know to be able to ship the waste and include:

- Container and Physical Properties
- Nuclear Properties
- Chemical Properties
- Gas Generation
- Payload Assembly Requirements
- Quality Assurance Requirements

Dr. Gregory described the various methods employed to ensure compliance with the characterization requirements. He explained that it is estimated that 72% of the TRU waste could be shipped by today's requirements. In many cases, the remaining waste that can't be shipped simply needs to be size reduced. There is some waste that can' be shipped using the current criteria, which is Pu238 or Pu239 contaminated waste. According to Mr. Gregory, the solution for the remaining waste requires multiple solutions. This may include techniques to address hydrogen reduction and the use of inert gases to address oxygen buildup in waste. Changes in shipping times or exemption to allow the use of an ARROW-PAK container may also assist in shipping some of the waste unsuitable by today's standards.

He acknowledge the challenge presented by the large boxes of TRU waste but said approximately 95% of these large containers are less than 5 feet x 5 feet x 8 feet. These large containers could be shipped in the TRUPACT III, if it is certified for use in this country. Mr. Gregory said the TRUPACT III shipping containers are being used in Europe for alpha or Pu contaminated waste. While the application to use the TRUPACT III is not currently under review by the NRC, work is underway to prepare for its submittal. Mr. Gregory said that he is hopeful that a certificate for the TRUPACT III may be issued by March 2007.

Mr. Gregory concluded his presentation by reviewing the issues associated with prohibited items and criticality concerns. As one potential remedy to address the strict prohibited item criteria, Mr. Gregory explained that analysis is underway to demonstrate that a certain number of sealed containers can be safely left inside a waste container. He also said additional work is needed to revise the criticality approach with TRU waste shipments.

Pulic Comment
During the public comment period, Lee Poe challenged the TRU Waste Program to determine what would happen to the Pu238 contaminated waste if it was not shipped to WIPP but left onsite in safe storage. Mr. Poe strongly recommended that SRS begin now to perform the risk analysis to determine the consequences of leaving it at the site under several starting conditions. These conditions might include storage in a concrete vault, storage in exiting concrete culverts and covered with soil, etc. He said if the risk is shown to be insignificant, he would like the site to take the steps to permanently store it at SRS. He said this is wiser rather than investing the significant monies that are being planned for shipment of this material to WIPP. He does not support the worker exposure that will be necessary to repackage the waste so it can be shipped safely if it can be shown to be safely stored onsite.

Mr. Meisenheimer asked for any other public comment and with none, he then adjourned the meeting at 8:30 PM.

For additional information or meeting handouts, call 1-800-249-8155.

Follow-Up Actions
1. Provide investigation reports on the inadequacy of the safety controls for unvented TRU waste drums (Responsible Parties: Doug Hintze and Sonny Goldston)

2. Provide Lee Poe the technical basis for the statement "Pu238 incidents have occurred 100 times more frequently when compared to processing the same amount of Pu239 (Responsible Party: Sonny Goldston)