



SRS Citizens Advisory Board

Nuclear Materials Committee

Meeting Summary

March 16, 2000
North Augusta Community Center
North Augusta, SC

The Savannah River Site Citizens Advisory Board (SRS CAB) Nuclear Materials (NM) Committee held a meeting on Monday, March 16, to hear a presentation by the Defense Nuclear Facilities Safety Board (DNFSB) on Recommendation 2000-1 and 94-1 to the Department of Energy (DOE).

CAB Members

Tom Costikyan
Ken Goad

Brendolyn Jenkins*
Lane Parker*
Charlene Townsend*

Stakeholders

Carl Mazzola
Lee Poe
Mike French
Bill McDonell
Kent Rosenberger
Chuck Keilers, DNFSB

DOE/Contractors

John Anderson, DOE
Amy Poston, DOE
Charlie Hansen, DOE
Joan Bozzone, DOE
Gerri Flemming, DOE
Mike Dunsmuir, DOE
Lee Refalo, WSRC
John Dickenson, WSRC
Donna Martin, WSRC

*Denotes CAB NM members not present.

Defense Nuclear Facilities Safety Board presentation

Chuck Keilers, DNFSB site representative, opened his presentation by briefly describing how the DNFSB was established. According to Keilers, the DNFSB was established in 1988 by Congress to serve as an independent safety oversight organization for DOE defense nuclear facilities. It would report to Congress and the President as an external action-forcing agency, but not as a regulatory agency. The actual Board consists of five people appointed by the President who are experts in nuclear safety. The current staff includes 90 people, with 10 members of the staff serving at the various DOE facilities.

The primary responsibilities, established by public law, include review and evaluation of standards, investigations, review of design and operational data, as well as facility design and construction. Results of the oversight often culminate into recommendations to the Secretary of Energy. Keilers said to date, the DNFSB has made 40 recommendations to the Secretary of Energy, including the latest recommendation, 2000-1.

Recommendation 2000-1 basically reemphasizes an earlier recommendation, 94-1. Both recommendations focused on improving the schedule for stabilization of nuclear materials left in the manufacturing pipeline when the Cold War ended. According to Keilers, the decision to develop Recommendation 2000-1 resulted because the DNFSB felt that "the progress being made in certain

areas of the stabilization activities addressed by Recommendation 94-1 does not reflect the urgency that the circumstances merit."

Keilers then traced the history of the 94-1 recommendation and how it was addressed by DOE. After the DNFSB presented Recommendation 94-1, DOE accepted the recommendation and developed an implementation plan in early 1995 that included a schedule of stabilizing the materials. The DNFSB suggested that high priority materials presenting imminent hazards be stabilized within two to three years, and stabilizing the metals and oxides within eight years.

Keilers commended DOE for progress of many stabilization activities through 1998. He pointed out that SRS materials considered to be at risk of becoming imminent hazards had been addressed by DOE. A plutonium storage standard (3013) for long term storage was identified and the following milestones were accomplished:

- Key facilities restarted using a thorough readiness assessment process
- F Canyon dissolved 147 metric tons of heavy metal of Mark -31 targets and stabilized 320,000 liters of solutions
- H Canyon/HB-Line stabilized more than 13,000 liters of solution (Pu-242)
- 235-F repackaged 14 Pu-238 containers
- All plutonium metal in contact with plastic was repackaged
- FB-Line packaged 56% of plutonium-metal items into seal welded containers

In December 1998, DOE presented a revised 94-1 Implementation Plan that pushed out the stabilization of other activities beyond the original eight-year commitment. Many of the SRS activities were linked to the construction of the Actinide Packaging and Storage Facility (APSF) that was suspended in February 1999.

Keilers said the DNFSB had several concerns with the delay in APSF and extended stabilization schedule and informed DOE throughout 1999 of those concerns. In May 1999, the DNFSB reiterated to the Secretary that the APSF was vital to SRS and the DOE complex. By December 1999, however, the DNFSB was informed that DOE was looking at ways to stabilize material without the benefit of capital money to construct a facility. WSRC scoping studies indicated that such an option could extend the schedule out to 2011.

This information led to action by the DNFSB. Recommendation 2000-1 was submitted to the Secretary of Energy on January 14. In this recommendation, the DNFSB listed several items in order of priority, with many directed toward stabilization activities at SRS.

Keilers emphasized the following point made in the DNFSB letter that forwarded Recommendation 2000-1 to the Secretary of Energy, "After careful consideration, the Board has concluded that the progress being made in certain of the stabilization activities addressed by Recommendation 94-1 does not reflect the urgency that the circumstances merit and that was central to the Board's recommendation."

The following items were listed by the new DNFSB recommendation according to priority. Also listed is the commitment date established in February 1995, the new estimate as of January 2000 and the total delay:

HEU solutions	12/97	12/03	6 year delay
Americium/Curium	11/99	11/04	5 year delay
Neptunium solutions	9/03	6/06	3 year delay
Plutonium solutions	3/00	6/02	3 year delay
Mark 16/22 SNF	12/00	12/01	2.5 year delay

Plutonium Oxides	5/02	5/02	Uncertain
Plutonium Residues	5/02	5/02	Uncertain

HEU solutions were considered the top concern because they contain fissile material, they are stored in tanks outside of the canyon buildings and their continued safe storage is highly dependent on operator actions (i.e. administrative controls). The americium/curium solution is inside a canyon tank but is highly radioactive and rapidly generates flammable gas in the tank by decomposing the water in the solutions. Americium/curium is the dominant radiological source term for many potential accident scenarios in F Canyon. He pointed out that, unlike other canyon solutions (e.g. plutonium), americium/curium solutions are not routinely sampled because of the highly radioactive condition.

Although not considered an imminent threat, Keilers said the materials remaining to be addressed should not be allowed to continue unremediated. He added that a resource-loaded plan to achieve timely stabilization

Lee Poe, former employee of SRS, said he was aware of the HEU solutions but did not understand why the DNFSB was so concerned with criticality. Keilers said the concern revolves around what could happen because of the large amount of solution outside the canyon, the chemical nature of some of the solution, and the high reliance on operator actions, and there are few engineered safety features for most of the tanks. Although procedural controls are in place, there is always a potential for a serious accident until the material is stabilized.

According to Keilers, the original plan for the HEU solutions was to dilute it to low enriched uranium and directly dispose of it. The plan then changed to diluting it and shipping it to the Tennessee Valley Authority (TVA) to be used for fuel in commercial reactors. This requires both TVA and DOE to negotiate and sign a memorandum of agreement. Keilers pointed out that in December 1998, DOE identified that the agreement would be in place in April 1999. After that date was missed, Keilers said DOE's answer for signing the agreement was four months away.

Concerning APSF, Poe asked if the DNFSB was included in the decision to suspend construction of that facility. Keilers said the DNFSB was part of the decision process. Keilers said DOE appeared to be putting more effort into bringing material from Hanford to SRS (material not included in the 94-1 recommendation) than into completing the 94-1 activities. Keilers pointed out that the original plan to stabilize the materials within eight years has stretched to 14 years, with some activities having no completion end date. As a result, the DNFSB felt it necessary to develop Recommendation 2000-1 to place more emphasis on the stalemated 94-1 program.

The Secretary of Energy did accept Recommendation 2000-1 on March 13, although not all points. The Secretary rejected points 10 and 11, which recommended per statute he go to Congress and the President and inform them of the lack of funding to complete stabilization activities. The Secretary's letter states the delays were not the result strictly of funding shortfalls, but also from lack of adequate contractor baselines, technology maturity, facility and operational readiness and unanticipated difficulties in maintaining and operating aging facilities.

Carl Mazzola, public, asked Keilers to explain the next steps of the DNFSB/DOE process. Keilers said the DNFSB may reaffirm the recommendation or revise it. In the meantime, DOE will be developing its revised implementation plan that will address 94-1 and 2000-1 recommendations and deliver it to the DNFSB by late April.

John Anderson, Acting Assistant Manager for DOE-SR Materials and Facility Stabilization, said DOE is taking 2000-1 seriously, although it acknowledges the schedule has slipped from the original implementation plan developed in 1995. Factors delaying the schedules included identifying an appropriate technology to stabilize americium/curium, and issues with signing the TVA contract for the uranium solutions. Anderson additionally stated that actions have been taken to enhance the safety of the

material in its present form prior to stabilization. This included upgrading safety documentation and controls and isolating material by physical means in tanks.

Keilers said the DNFSB is most interested in hearing from DOE the actions necessary for the items to be stabilized. Charlie Hansen, Acting Deputy Manager for DOE-SR, said DOE did in fact accept 94-1 and committed to stabilize the materials within eight years. Hansen pointed out that although DOE-SR did eradicate the imminent hazards, it did encounter technology and baseline problems. Much of the work also was more expensive than originally estimated. He emphasized that DOE has full intentions of measuring the actions against what is achievable. DOE-SR is currently looking at how it can fund 94-1 activities, and one of the ways was to divert \$30 million from the In-Tank Precipitation Program (to identify a new technology to conduct salt processing) to the 94-1 program.

Tom Costikyan said he felt the \$140 million of the budget scheduled to conduct environmental remediation was too high considering the risks in the ER program are not as high as those identified by the DNFSB. Keilers said the DNFSB is very careful not to suggest DOE take money from one program to fund another.

At the conclusion of the discussion, Costikyan said the CAB would likely ask to hear a presentation from DOE once the Implementation Plan was complete.

Issues: How will the DNFSB address DOE's first response to Recommendation 2000-1 and a revised 94-1/2000-1 implementation plan expected in April.

Action: Develop a draft recommendation requesting a DOE presentation on its revised 94-1/2000-1 Implementation Plan.

For copies of meeting handouts call 1-800-249-8155.