SRS Citizen's Advisory Board

Savannah River Site Citizens Advisory Board

Nuclear Materials Management Subcommittee

Meeting Summary
July 24, 1995
Aiken, S.C.

Introduction

The Citizens Advisory Board (CAB) Nuclear Materials Management (NMM) Subcommittee held a meeting on Monday, July 24, 7 - 9:30 p.m. at the Aiken Conference Center in Aiken, South Carolina. Attending subcommittee members included Tom Costikyan, Alice Hollingsworth, Pat Tousignant, Bob Slay and Thelonius Jones. Savannah River Site resource personnel were deLisa Bratcher, Department of Energy-Savannah River (DOE-SR) and Rick Geddes and Donna Martin, Westinghouse Savannah River Company (WSRC). Public attendees included Bob Overman, David Losey and Rod Wilcox. Judith Bradbury, DOE-HQ, participated as an observer.

Meeting Purpose

Tom Costikyan, NMM subcommittee chair, said the meeting purpose was to identify nuclear material management issues to take to the full CAB for future recommendations. Costikyan had requested Rick Geddes, WSRC Nuclear Materials Planning, to provide an overview of NMM issues for subcommittee consideration.

Discussion

Geddes began the overview by saying he would concentrate on the longer-term issues of nuclear materials management. To help focus on the primary issues, Geddes suggested the subcommittee consider using the following three-phase approach when studying DOE's management of nuclear materials.

Phase 1: Reducing the active stockpile of weapons
Phase 2: Retaining an assured nuclear deterrence
Phase 3: Disposition of excess weapons-usable fissile material

DOE is addressing the various activities in fragments or segments through DOE-wide programmatic environmental impact statements (PEISs). Geddes distributed information on the following four PEISs having potential to impact Savannah River Site.

- The Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapons Component EIS (Pantex EIS)

- Stockpile Stewardship and Management PEIS (SSM PEIS)
- Disposition of Highly Enriched Uranium PEIS (HEU EIS)
- Storage and Disposition of Plutonium PEIS (PU PEIS)

According to Geddes, the DOE complex-wide PEISs will deal with managing DOE's nuclear materials for the next five to 20 years for interim storage, then beyond for final disposal of excess nuclear materials.

Summaries of Environmental Impact Statements

The end of the Cold War prompted major change in how nuclear materials are handled throughout the DOE complex, Geddes explained. For example, because the United States must reduce its number of nuclear weapons to comply with the START II treaty, DOE will have excess plutonium and uranium and must evaluate how and where to store this material. With a smaller stockpile, and an international ban on underground testing, the United States has to decide on the stockpile management location, as well as how to assure an active stockpile. Final disposition of excess nuclear materials completes the materials management scenario. A discussion of the four PEISs follow.

Pantex EIS (The Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapons Component Environmental Impact Statement)

DOE's Pantex facility in Amarillo, Texas, currently handles the disassembly of nuclear weapons. Components of a nuclear weapon include plutonium, uranium, and tritium and non-nuclear high explosives. When a weapon is disassembled at Pantex, the uranium is shipped to Oak Ridge, the tritium is shipped to SRS and the plutonium and the non-nuclear explosives remain at Pantex. The plutonium, in the form of bowling ball-sized, steel-encased pits, is stored in ammunition bunkers from the World War II era.

With more weapons being disassembled due to the international START II Agreement of reducing the nation's stockpile to 3,500 nuclear weapons, Pantex is now conducting a site-wide environmental impact statement to determine how to handle the increased storage of plutonium pits from 12,000 to 20,000.

Potential Impacts on SRS

According to Geddes, SRS may be considered by DOE as a facility to handle and store plutonium pits because it is the primary plutonium-handling site still functioning in the DOE complex. The following scenarios have been discussed by SRS personnel as possibilities in the EIS:

- Using existing SRS reactors or other nuclear buildings to store plutonium pits.
- Using SRS's plutonium handling capabilities for three possible activities

-to open the steel-cased pits for surveillance or testing -to reduce the pits to a non-weapons usable metal form to meet non - proliferation requirements -to prepare plutonium for final disposition

Geddes pointed out that other sites under consideration for relocation of activities include Kirtland Air Force Base, Hanford, and Nevada Test Site.

Questions on the risks involved and economic benefits in absorbing some of the former Pantex mission were asked. Geddes suggested that risk and economic issues involve more detailed consideration if the Pantex EIS is choosen as the subcommittee's focus. He did say the age of the SRS buildings will likely be identified as a safety concern, but added that the canyon buildings have had upgrades and modernization since 1980 totaling more than $1 billion.

Geddes said DOE will likely prefer to keep operations at Pantex, although the facilities are not classified as nuclear facilities.

Pat Tousignant asked why DOE would even consider Pantex as viable alternative if it is not a nuclear facility. Geddes explained that "storage" is not considered a nuclear operation. Citizen participant, Bob Overman, said one explanation could be that Pantex is simply scaling its current storage mission up from 12,000 to 20,000 pits.

Tousignant then asked what would SRS do differently from Pantex. Geddes responded that SRS has the nuclear facilities to store plutonium pits and SRS could handle any problems with routine operations. He pointed out that SRS or Los Alamos scientists go to Pantex if any problems arise with the plutonium storage because Pantex does not have plutonium handling expertise.

Stockpile Stewardship and Management PEIS (SSM PEIS) The Stockpile Stewardship and Management PEIS addresses two specific activities, according to Geddes. The Stewardship section of the PEIS involves the research and development program conducted by DOE's three national laboratories to maintain the safety and reliability of the nation's nuclear smaller nuclear arsenal. Research involves such projects as computer simulation and other technologies to replace underground testing. The Management section focuses on DOE's responsibility to fabricate, maintain, evaluate, repair and replace nuclear weapons and components.

Potential Impacts on SRS

Geddes said SRS does not have a role in the Stewardship portion of the SSM PEIS, although it is being considered, along with Los Alamos National Laboratory, to handle Management activities such as recycling, upgrading and fabricating pits for the stockpile.

Several questions then surfaced on how the weapons are stored and what were the chances of a nuclear weapon explosion.

In the event of a major accident (i.e., a plane crash), there would be chances of conventional explosion in an assembled weapon. Geddes said weapons are disengaged and dismantled when the components (pits, uranium, tritium) are packaged for shipping and storing to prevent nuclear

explosions, according to Geddes. Bob Overman said he heard of one situation when a aircraft carrying a nuclear weapon crashed in Spain, an explosion occurred and some plutonium was released. Geddes stressed that the nuclear materials are placed in approved shipping containers when transported, similar to the way the plutonium was shipped from the SRS.

Because this PEIS is in the early scoping phase, DOE has not identified a preferred alternative. Pat Tousignant asked if SRS has submitted a recommendation for handling the management portion PEIS.

In response, Geddes stated that SRS has provided input to the PEIS showing how SRS could perform pit fabrication and surveillance. One way is for the majority of the manufacturing work at SRS to be performed in a tritium building in H Area and F Area. This work would likely add several hundred jobs. In essence, the Management mission would replace the Rocky Flats mission. Geddes said there will likely be questions from the CAB and citizens about the possibility of SRS entering a new arena of weapons business.

Bob Slay brought up the issue of bringing in new business if the old business has not been finalized. Slay said it seems all he is hearing is "storage" not manufacturing missions. Slay added he may agree to vote to receive nuclear materials if it the material is reprocessed.

Geddes said the vulnerable nuclear materials at SRS are being addressed now in the site-specific Interim Management of Nuclear Materials (IMNM) EIS. The study is in draft form and states DOE-SR's preferred alternatives to manage SRS's vulnerable materials identified in the Defense Nuclear Facility Safety Board 94-1 recommendation. The final EIS and a Record of Decision must be released before any stabilization activities can begin.

Costikyan noted the NMM subcommitte chose not to address the INMN EIS during the public comment period for the draft document. He added that the PEISs dealing with longer term storage and disposition are now timely and within the purview of the subcommittee.

Geddes then outlined the nuclear materials in inventory at SRS. They include: (1) spent nuclear fuel from SRS reactors and from offsite sources (other DOE facilities, foreign and domestic research reactors; (2) radioactive solutions remaining from ceased processing operations; (3) uranium feedstock, which at one time was sent to Oak Ridge and (4) plutonium scrapsÑproducts that were completed but not shipped and scraps identified for recycle in the canyon building.

The surplus plutonium, from SRS and other DOE facilities, will be addressed in the Storage and Disposition of Weapons Usable Plutonium PEIS. Geddes pointed out that the majority of the surplus plutonium is in pit form, which is weapons-usable.

Pat Tousignant asked about nuclear material that is not getting attention. Costikyan said the Board cannot address the entire arena of nuclear materials management.

Bob Overman said all of the issues fall into one category: handling plutonium. He said people experienced in handling nuclear materials should be responsible for future activities.

Tousignant then asked how DOE is planning to dispose of nuclear materials and questioned the idea of temporary storage. She asked about DOE's ultimate goal and that led into discussion of two PEISs on storage and disposition of excess nuclear materials.

Disposition of Highly Enriched Uranium EIS (HEU EIS) Geddes outlined three options DOE is considering to manage highly enriched uranium (HEU). One option is the to store the material; a second is to blend the material to low enriched uranium (LEU); and a third is to blend it down and dispose of it as waste.

SRS has the most extensive capabilities in the DOE Complex to blend down HEU to LEU, according to Geddes. He said the uranium could be diluted and purified in the SRS canyons.

At this point, Bob Slay asked that the subcommittee not get "caught" in another EIS due to insufficient time for a thorough review. He asked the subcommittee to decide what is important and conduct an orderly process to develop a recommendation.

Geddes said the HEU EIS was extracted from the larger Storage and Disposition of Weapons Usable Fissile Materials PEIS and a public meeting on the draft HEU EIS will be held in September.

Slay added that because the subcommittee members are not full-time, they should hire an independent consultant with no affiliation with DOE or WSRC. Geddes offered to provide to the subcommittee SRS input submitted to DOE-HQ for the various PEISs.

Storage and Disposition of Weapons Usable Plutonium (PU PEIS) The final discussion focused on the disposition of plutonium. Geddes said the options are to (1) store; (2) prepare for disposal as waste; (3) to convert to reactor fuel. If converted to fuel, DOE has the choice of building a new facility or to converting existing facilities. He said SRS separations facilities would probably be more suitable for the task than any other existing facilities in the complex.

Thelonius Jones asked if the plutonium disposition mission would create more jobs in the Aiken/Augusta area. Geddes said it is a very big program that could involve thousands of jobs for decades.

Because of the significance of the nation's plutonium disposition issues and the lead time for careful evaluation, the subcommittee members generally agreed to concentrate on the PU PEIS and felt it was within the purview of the subcommittee's operating guidelines.

Summary and Path Forward

Bob Slay stated that the PU PEIS is very relevant to the site and one of the highest priorities is to get the plutonium stabilized. He also emphasized that recommendations do not have to be directly linked to the PU PEIS.

At this point, Costikyan suggested the July 25 subcommittee report to the CAB state that the PU PEIS would be the focus over the next six months. A presentation without recommendations will

be considered for the September meeting. Geddes added the draft PU PEIS is not scheduled for release to the public until January 1996.

Costikyan then called for a formal vote that the subcommittee concentrate on the PU PEIS and related matters. The vote was unanimous for the PU PEIS.

To prepare for the recommendation, Costikyan said the subcommittee should get a "serious dose" of information for four to six weeks. He asked Rick Geddes and Donna Martin to identify information, including non-DOE or WSRC reports, extract the details more relevant to SRS, and distribute to the NMM subcommittee members. All subcommittee members agreed with receiving summaries of reports.

Geddes recommended the subcommittee receive the National Academy of Sciences (NAS) report, "Management and Disposition of Excess Weapons Plutonium" for review. He added that the report provided much of the basis for DOE's plutonium disposition plan.

To further emphasize objective research, Slay said that although CAB members have a great deal of respect for WSRC and DOE representatives, the subcommittee should go to an outside consultant for advice on other informational material to review and assistance with developing the "right" questions to ask.

In closing, Costikyan suggested the subcommittee meet during the first two weeks in September, since several subcommittee members were not available in August. Another recommendation was to have a day-long meeting in Beaufort, SC on September 25, prior to the full CAB meeting on September 26.

Note: Meeting handouts may be obtained by calling the SRS CAB toll free number at 1-800-249-8155.