



Savannah River Site Citizens Advisory Board

Nuclear Materials Management Subcommittee

Meeting Notes
May 13, 1996
Savannah, Ga.

The Citizens Advisory Board (CAB) Nuclear Materials Management (NMM) Subcommittee held a meeting on Monday, May 13, 7 to 9 p.m. at the Hyatt Regency in Savannah, Ga. Subcommittee members attending were Tom Costikyan, Bob Slay and newly elected CAB subcommittee members Brendolyn Jenkins, Suzanne Matthews and Ed Tant. Savannah River Site resource personnel attending included Donna Martin and Rick Geddes, Westinghouse Savannah River Company (WSRC) and deLisa Bratcher, Associate Designated Deputy Federal Officer, Department of Energy-Savannah River. Shelly Phipps represented the South Carolina Department of Health and Environmental Control.

Tom Costikyan, NMM chair, said the evening subcommittee meeting would consist of two phases (a) an overview of the Storage and Disposition of Weapons Usable Fissile Materials (PU PEIS) and (b) discussion on the proposed recommendation on the PU PEIS.

Costikyan opened by stating the Department of Energy produced many tons of weapons-usable plutonium during the Cold War that it must now prepare for disposal. According to the PU PEIS he said, the United States is responsible to dispose of about 50 tons of excess plutonium.

Brendolyn Jenkins asked how the plutonium is currently being stored. Costikyan said excess plutonium remained in various forms from the production cycle when DOE stopped making fissile materials in 1992. Some plutonium is in solutions or scraps or metal buttons form while other is in the form of pits dismantled from nuclear weapons.

Jenkins then asked if the plutonium was volatile or hazardous. Costikyan answered that the different forms of plutonium vary in risk. Rick Geddes, WSRC, added the biggest risk with plutonium comes if dust particles become airborne and a person breathes the material.

Geddes said inhalation of plutonium dust particles poses a greater health risk than ingestion of plutonium because the dust particle can lodge in an organ, while ingested plutonium passes through the body and is excreted.

Jenkins asked if it was necessary to purify the plutonium prior to storage. Geddes said the plutonium pits in weapons are in a stable form and surrounded with a stainless steel coating. Costikyan agreed that from his perspective and information he has read and heard, the pits are in a stable form for storage.

In talking more specifically about the PU PEIS, Costikyan pointed out the study covers only U.S. excess plutonium, not Russian excess plutonium.

Although Russia has to deal with more plutonium, they are less financially capable to make major decisions on disposition of the material, said Costikyan. He added that there is more plutonium in the world from commercial nuclear reactor operation than declared excess by Russia and the United States.

Costikyan explained that when uranium-238 is irradiated in a commercial reactor, plutonium is one of the products created. After a burning cycle, the fuel rods that were used to generate the power (now called "spent" fuel rods) must be placed in cooling basins filled with water for temporary storage.

Ed Tant asked if all the excess weapons plutonium would be stored in one place. Geddes said he expected most of the material to be temporarily stored at each facility, with the exception of Rocky Flats. DOE has ordered that the 12 tons of plutonium (scraps and residues) be removed from the Rocky Flats facility. Some of the material is already being moved to SRS, he said.

Costikyan then began discussing the seven-point draft recommendation. He said the drafted CAB recommendation concentrates only on the disposition of the plutonium,, while the major sections of the PU PEIS include temporary or "interim" storage at each facility or consolidating the material to one site. Point one of the draft recommendation does state the importance of interim storage, he added.

Points two, three and four were straightforward, Costikyan said. Point two states that choice of locations for storage should be based on security and cost effectiveness since the PU PEIS did not show any differences in environmental and health effects in the locations.

Point 3 basically states transportation of nuclear materials is routinely shipped safely in the commercial realm. and should not be an issue if shipment of plutonium between sites is deemed necessary.

Point 4 states that deep boreholes should not be pursued as an alternative due to potential political obstacles, any contaminating event or clandestine theft. Costikyan added that Deep borehole also precludes potential recovery of plutonium as a fuel.

The potential use of a commercial reactor in plutonium disposition was the fifth point. Costikyan said if mixed oxide fuel is an option, then commercial reactors should be considered as a potential cost saving measure.

In discussion of point six, which Costikyan referred to as potentially the most controversial point in the recommendation, he discussed the various decisions on plutonium disposition from other countries. For example, he said Russia has strongly stated plutonium was too valuable to be thrown away or placed in permanent storage and their intention was to burn it for energy.

Other nuclear powers including England, France, Belgium and soon, Japan, are recovering plutonium through reprocessing spent fuel rods and making more fuel for commercial nuclear reactors.

Tant asked if the United States had a plan for energy if its fossil fuel sources are depleted. Costikyan said public policy on reprocessing fuel has basically limited the growth of commercial nuclear power in the United States.

Turning back to the draft recommendation, Costikyan explained the term "spent fuel standard" as identified by the National Academy of Sciences. In simple terms, the plutonium is mixed with highly radioactive wastes to make it virtually inaccessible to theft.

Two options being considered by DOE—burning plutonium in a reactor and encasing the material in glass with highly radioactive wastes—meet the spent fuel standard, said Costikyan. Burning the plutonium in a reactor will result with the plutonium embedded in highly radioactive spent fuel rods. Pouring high-level waste over the plutonium will also meet spent fuel standards.

Donna Martin suggested the third bullet in point six be removed because it was not relevant to discussion on the spent fuel standard. Geddes pointed out it also duplicated the last paragraph in point six. The committee agreed to remove that wording.

Suzanne Matthews questioned why should the U.S. spend time and money on plutonium disposition while Russia pursues its own interests. Costikyan said the general opinion is that the U.S. should set an example to other nations.

The final point, number seven, stated that if security and technology needs require the assistance of SRS, the CAB would support such a decision. A change in wording was suggested to specify that any plutonium storage and disposition program at SRS must be safe secure, and cost effective.

In closing, the subcommittee agreed with taking the draft recommendation presented by Costikyan to the full CAB for vote.