



## **SRS Citizens Advisory Board**

Nuclear Materials Management Subcommittee

### **Meeting Summary**

**Friday, July 19, 1996**

**Aiken, S.C.**

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The Citizens Advisory Board (CAB) Nuclear Materials Management (NMM) Subcommittee held a meeting on Friday, July 19, at the Savannah River Site in Aiken, SC. Subcommittee members attending were CAB chair, Bob Slay, Tom Costikyan, CAB NMM subcommittee chairperson, Brendolyn Jenkins, Ed Tant, and Suzanne Matthews. Savannah River Site resource personnel attending included Donna Martin and Mary Flora, Westinghouse Savannah River Company (WSRC) and deLisa Bratcher, Associate Designated Deputy Federal Officer, DOE-Savannah River. James Burkhalter represented the South Carolina Department of Health and Environmental Control. Bob Newman attended from the public. DOE-HQ Environmental Safety and Health (ES&H) presenters were Bill Weaver and Subir Sen; supporting contractor personnel for ES&H was C.B. Crowse. Karl Waltzer, Drew Grainger, Jim Giusti, and Brent Gutierrez were present from DOE-SR and Rick Geddes, Dave Freeman, Mark Dupont and David Losey attended from WSRC.

Tom Costikyan, NMM chair, opened by stating the meeting was a continuation of a July 10 subcommittee meeting that focused on seismic issues of the F and H Area Canyon buildings and a public report by former SC State Representative, Billy Keyserling, on safety problems with L Reactor Basin.

Concerning the canyon seismic issues, Costikyan stressed the Board's intent was to evaluate the procedure followed by DOE to conduct the report and derive an understanding or comfort level of the process involved.

Jim Giusti, DOE-SR, emphasized the review of the study was still ongoing although DOE was available to talk about the process. For background purposes, Giusti explained the WSRC was conducting a mandatory safety update when a potential issue with earlier data (1980s) was identified.

Rather than concentrate only on certain safety aspects of the canyon, DOE chose to evaluate the complete structure, Giusti said. No other materials would be introduced to F Canyon for processing until the study was complete and DOE recommended to continue canyon operations. That decision, Giusti said, would not occur until mid August 1996. In summary, the goal of the seismic study was to determine the various magnitude of earthquakes the canyons could withstand.

Bill Weaver, DOE-ES&H, was then introduced by Giusti to give an overview of an independent review of the seismic study. Weaver said Tom Grumbly, then Assistant Secretary for Environmental Management made a formal request to Tara O'Toole, Assistant Secretary for ES&H that the separate division of DOE review and evaluate the study. (See attached correspondence) Weaver, team leader, said O'Toole agreed and an ES&H independent review team was formed on July 8. They were mandated by O'Toole to complete a review by August 5.

DOE-ESH proceeded to gather experts from within DOE and to contract outside experts to review the SRS seismic report. (See attached handout for names and resumes of team members). Weaver explained the review will be independent in that ES&H is not a line organization and is in a different chain of command. Weaver pointed out that collectively, the ES&H team has over 250 years of experience.

Weaver explained that through prior work he and many other of the team members were familiar with F Canyon activities. Two years prior, he and another ES&H team spent two weeks at SRS to validate issues of the F Canyon before processing restarted to stabilize vulnerable plutonium solutions.

Costikyan initiated questions by asking Weaver about the level of shock required to compromise the canyon's structure, specifically, how are material failures defined and how are consequences quantified.

Weaver explained the team looked at geotechnical and structural responses, not at consequences of environmental releases. He added the safety analysis report (SAR) and other mandatory required DOE documentation contains accident scenarios and addresses risk to the public. The seismic study reviews the ability to confine spills to the structure.

Costikyan asked about the level of earthquake the canyons could withstand. Giusti said before the recent study, prior DOE documentation stated the canyons could withstand an earthquake of .2 gs. Beyond that magnitude, there could be a breach in containment. All analyses and potential risks are based on the .2g magnitude earthquake. Though not officially complete, Giusti said the latest results indicate the canyons can withstand an earthquake greater than .2gs without a breach in the building.

Weaver and Giusti once again stated the seismic study does not address risk but rather, the structural stability of the canyons.

In discussion on the various magnitude of earthquakes, Weaver said the experts look at probabilities in nature. For example, lower magnitude earthquakes are more probable to occur. Without question, he said there is probability for an earthquake so severe to induce failure of the canyon building. One goal of the study is to define the structure's responses at various earthquake magnitudes.

WSRC has acquired more knowledge and updated methods of analyzing earthquakes since the last seismic study of the canyon was conducted in the 1980s. Weaver said one responsibility of the ES&H team is to ensure DOE standards address return frequency

Bob Newman said it was his understanding the SARs used .2gs as accepted criteria. He said the SAR included the calculated responses of equipment inside the canyon. In the scenario, radionuclides would be released from the tanks but the material would be contained within the building. He added the canyon were also constructed to withstand a .2g earthquake while the Defense Waste Processing Facility was designed to withstand a lower magnitude earthquake.

Newman then asked if the study included effects of the earthquakes on the equipment inside, and if the team took into consideration the nature of the soils in the area. He gave an example that when the canyons were constructed in the 1950s, void areas in the subsurface were identified. Those underground areas were filled with grout.

Brent Gutierrez, DOE-SR seismic study review team, said they were aware the U.S. Corps of Engineers grouted the areas in the 1950s. Newman continued and asked if any of the grouted areas had been identified.

Gutierrez said Site geotechnical personnel have found grouted material in the subsurface over the years, particularly in F and H areas. Newman then asked if liquefaction would cause a problem for canyon stability.

At this point, Costikyan said the CAB was not knowledgeable enough to delve into extreme technical details. Newman responded and said he was simply trying to determine what was reviewed in the study and if the study was adequate. He then explained that the term means the soil turns into liquid, which could result in the building tipping over.

Costikyan asked DOE if there were potential scenarios causing risks to the public that were not part of the study. He added the CAB wants to know the nature of the risks, not the technical information.

Weaver said he could not give an indication on the direction of the independent study because the ES&H has only begun to analyze.

Bob Slay asked when the final ES&H report would be available. Weaver said the report would be completed by August 5 and presented to Al Alm, recently named Assistant Secretary of Environmental Management.

Weaver then said data used by the WSRC team consisted of new and historical data. He added the ES&H team was waiting on new information on the concrete core data.

Slay said he was impressed with the credentials of the ES&H team. He explained to Weaver that the CAB was particularly interested in the study because one of the CAB's recommendations focused on the operation of the canyons.

Weaver emphasized the ES&H team was independent and the first charge to each member was to cross out bias if any existed. Newman said he had worked with Dames and Moore before and he had much respect for the organization and its expertise.

Slay explained the issue with the canyons was vital because the CAB's recommendation supported bringing Foreign Research Reactor fuel to SRS and to process it. He said it was important that DOE make the decision to continue operation of the canyons.

Giusti explained the ES&H team had the responsibility to resolve any issue cited during the reviews. Slay asked if the DOE-HQ decision would be based on the context of the review. Giusti said the team would primarily help resolve any issues and offer recommendations. The issues and recommendations by the ES&H team would be documented.

In response to a question by Costikyan about the delay in F Canyon operation, Geddes said operations stopped in March 1996 to conduct the seismic study. Giusti clarified processing continued on those materials already in the canyon but no new material can be introduced until DOE-HQ makes decisions on the seismic issues.

Geddes said the stabilization schedule was delayed, stating that Mark-31 production reactor targets would now be complete if operations had not been interrupted.

Slay asked how the seismic issue surfaced and why did it occur after F Canyon had begun operations to process vulnerable materials. Giusti said periodic reviews of safety documentation of all DOE facilities are conducted and it was during the latest review WSRC reapplied some of the existing data and found seismic issues. Waltzer added DOE was in the process of updating the SAR to meet DOE orders and chose to broaden the study and go beyond DOE requirements.

Matthews said she understood a comprehensive seismic study is conducted about every 10 or 15 years. Giusti said DOE orders require a study every 10 years. The last study was conducted by SRS's former contractor, duPont, which contracted an outside firm to conduct the study.

Matthews then asked if any of the teams looked at the previous studies. Weaver said there was consistency between the previous and recent analyses. Because the science has improved dramatically in 10 years, however, WSRC and DOE can make better assumptions.

Brendolyn Jenkins about the quality of the 1980s report. Weaver responded it was well done yet the science is much better today and all of the data that goes into the report is more comprehensive and higher quality.

Jenkins asked Weaver if he was aware of any issues or differences by the personnel preparing and reviewing the report. He said WSRC has satisfactorily responded to 45 out of 50 questions; the ES&H review team is waiting for answer the other five questions.

Weaver stressed that the study looked only at the structure and if it could withstand a seismic event. Even with inventory in the canyons, the study does not address consequences, it only determines if a breach in the structure occurs.

Newman asked about residues and plutonium dust. Again, Weaver said the study is including environmental consequences.

Costikyan once again focused on the level of violence of an earthquake. For example, he asked if the .2 gs earthquake would occur 1 in every 5000 years. Weaver said in some areas of the world earthquakes do appear periodically. He explained the theory applies most in seismology.

Costikyan then stated, with agreement from Weaver that the canyon could withstand a 1 in 1000 year earthquake if it could withstand the 1 - 5000 year earthquake, which is equivalent to .2g. He then asked if the canyons could withstand a .25g earthquake. Weaver said that data can be extracted and predicted, yet the study was conducted to only meet the DOE requirements of .2gs.

Newman added the .2gs requirement also meets Nuclear Regulatory Commission guidelines for structures in the Southeast, although requirements are higher on the West Coast. The function of the facility also has bearing on earthquake requirements, he said. The DOE standard for a non-reactor facility is 1 in 2000.

Although the ES&H team did not conduct a detailed study inside the building, Weaver said he served on another team that looked at the canyon equipment. In that study, he found the vessels within the canyon would not fail until the earthquake was over .3gs. He added he was comfortable with the SAR analyses.

Jenkins said the public will ask what will happen to the material inside the building. Weaver said in the scenario, the piping would fail and spill out on the floor. However, he noted the spill would be contained within the cell block shielding.

Giusti said all material releases data reviewed and analyzed prior to startup of stabilization activities for the F Canyon solutions were based on the material being confined in the building, according to the recently completed Interim Management of Nuclear Materials Environmental Impact Statement (IMNM EIS). No new risks are being identified in the seismic study.

Weaver did state that increased health risks are involved during the actual chemical separation process although there are more health risks with storing plutonium in solution form as opposed to storing the material in a stable metal form. He also pointed out that there are built in precautions for failure even in the absence of an earthquake. Newman stated the difference is that there is greater chance of the ventilation system shutting down.

Tant then questioned the strength of the concrete in the canyon. Giusti said there were other public questions on the strength or thickness of the canyon concrete. Costikyan added the Natural Resources Defense Council (NRDC) endorsed a thorough investigation of the canyons. Waltzer added that the WSRC review team showed that the thickness of the canyon walls range from 2 1/2 and 4 1/2 feet of reinforced concrete.

Newman said he was interested in the specifics of the study because he was involved in a readiness review at Hanford in Washington State. He said it took months to review and ensure the necessary interlocks were included in the ventilation system of the facility as safeguards against an earthquake. It was pointed out that the SAR for the canyon, which addresses failure scenarios for the canyons is available to the public and is located in DOE public reading rooms.

To prepare for the July 23 full CAB meeting, Costikyan suggested the subcommittee give a brief information session on the seismic study. Slay agreed and said the CAB should receive information in steps, with the ultimate focus resting on the results from the independent ES&H review team.

Gutierrez said his team reviewed the WSRC study and approached it from an outside looking in approach. The DOE-SR/HQ review team consisted of Gutierrez, two DOE-HQ personnel and two consultants. This team had responsibility to evaluate the methodologies against the DOE criteria. Gutierrez said the team together had over 130 years experience.

Although the team could not check every number due to the magnitude of the analyses, the team did spot check calculations, review the methodologies and performed simple analyses to bound the structure data.

For the benefit of the new CAB members, Slay explained the CAB voted on processing in the canyons based on work that was being done at the time. If risk factors have increased since the recommendation made 13 months ago, then the CAB should reassess its posture. He added, however, that many people and organizations are philosophically opposed to reprocessing and if the seismic issue does not stop the canyons from operating, other roadblocks would be found.

Jenkins asked if the seismic issue was a reoccurring issue and if it was brought up by the public. Giusti said the seismic issue was not a public issue yet DOE decided to bring the issue into the public venue.

Matthews then asked about the probability of a 1 in 2000 earthquake at SRS. Giusti said WSRC looked at even greater magnitude earthquakes and there is confidence the canyon can withstand an earthquake of more than .2gs.

Slay then said it would be helpful to hear the internal review of the WSRC study, although the CAB will rely most on the independent report by the ES&H team. Slay also emphasized it was important to get the canyon issue back on the CAB's venue because the operations of the canyons are important in future activities of SRS.

Costikyan added that DOE deferred judgment on processing in the record of decision for the FRR EIS. Now, he said, DOE is saying it will not consider processing for a significant number of the spent rods. Slay said it is an example of the CAB going back to an issue because of recent decisions.

Jenkins asked if DOE was currently aware of any issues in the seismic study and if any issue had been brought up by the different review groups. Weaver said his preference would be to bring all of the information to the Board once the ES&H study was complete. Several members agreed to hear results of the internal study then hear from the ES&H team at the September board meeting.

Weaver said the ES&H recommendation should be reviewed before he makes specific statements. Slay said he highly recommended DOE share as much information as possible to avoid situations where CAB members get news (and sometime inaccurate news) from the media.

He stressed concern that the CAB would not hear about the final study until September. By then, he said, decisions would have already been made and released to the public.

### **L Reactor Basin Discussion**

Discussion then turned to the report by former SC State Representative Billy Keyserling which questions the safety of the L Reactor Basin for the storage of foreign spent fuel. Costikyan stated that while developing Recommendation #6 on the FRR EIS, the subcommittee reviewed information on both the L Basin and the Receiving Basin for Offsite Fuel (RBOF). Costikyan said he and the committee were convinced that the quality and storage space in RBOF was sufficient for the first several shipments of FRR fuel. He added the subcommittee also received reports on the L Basin and procedures in place to upgrade the basin to water quality equal to RBOF.

Costikyan said he wished to address the Keyserling report because he had received calls from the public and he felt the report directly challenged the CAB recommendation on the FRR fuel. As a result, he chose to ask DOE to help him understand the issues and how DOE has addressed the issues. He then asked for suggestions from the subcommittee on how and if the CAB should go further in addressing the Keyserling report.

Slay said his initial reaction is that the CAB cannot react to and address every issue that comes up. Matthews said she felt DOE had already addressed and corrected all of the statements in the Keyserling report at the July 10 meeting in Williston.

Giusti said the Keyserling report simply readdressed issues that were already raised in various DOE vulnerability reports. Slay emphasized to the new subcommittee members DOE had already provided the information to the CAB in advance of Recommendation #6.

Slay continued and said a response now probably would not be timely. Even if it was discussed at length in the full CAB meeting, there would not likely be any press coverage. Slay then suggested that the subcommittee should share the DOE response paper (developed for the CAB) with other CAB members and the public if there are any requests.

Costikyan asked if the report affected the governor of South Carolina's posture with the site. Giusti said DOE talked with the governor's office but there was no indication of any immediate reactions.

Slay suggested the CAB should consider taking a tour of L Reactor Basin during the November CAB meeting at the Site. He felt this opportunity would give the members an understanding and possibly satisfaction that the basin meets safety requirements.

Costikyan then discussed how the news media constantly features negative information about SRS yet never includes the other side of the story. As a result, the public builds up suspicion and distrust toward DOE and WSRC. He explained that is one reason he wanted to discuss whether the CAB should address the Keyserling report.

Slay said he felt the canyons have become almost a daily issue in the public arena, however, he was not sure if the L Reactor Basin has reached that point. With the pending shipments of FRR fuel, the issue may resurface and as a result, there would be benefit for the CAB to physically see the L Basin facility.

Specifically concerning the Keyserling report, Costikyan said the public would probably have more concern with how DOE has addressed and corrected the situations rather than discussing the report line by line.

Slay questioned how that information could get to the public, even if the CAB members addressed it among themselves. He said writing an editorial on every issue is not the answer and that it would be nearly impossible to correct all of the information released by the media.

Tant said he felt the Keyserling report was one of the most dangerous actions lately to bring down credibility of DOE. He suggested that an invitation to attend the September public meeting in Beaufort not only be extended to Keyserling, but also to the South Carolina delegation.

Giusti said DOE has briefed the state delegation, and specifically Representative Sharpe, on how the department is addressing the items pointed out in the Keyserling report. Giusti also said DOE understands the concern the CAB had about the report, however, he explained that although the Keyserling report was accurate in most instances, it did not go the full length of how DOE was addressing the issues.

Slay said the subcommittee could easily add discussion of the Keyserling report to the CAB July 23 agenda. Matthews suggested that Jim Giusti or Carl Everatt attend the CAB meeting to address any public inquiries. Slay added that copies of the DOE response should also be available to the CAB members and the public.

Tant then asked Slay if he felt the public would not give this issue attention. Slay responded that there would likely not be any press coverage of the CAB July 23 meeting and by putting the issue back on the table, it would serve only to enlighten the CAB on recent circumstances.

All members agreed to invite Keyserling to the September meeting in Beaufort. Costikyan added the downriver community has a high level of suspicion yet little understanding of SRS activities.

Newman suggested the CAB be prepared to address issues if similar situations occur in the future rather than address what was now a two-week-old news story. Timing and a brevity of evidence possessed by the CAB could cause more harm, he added.

At this point, Slay emphasized it was not in the CAB's charter to support the site, although it did have a responsibility to ensure recommendations are sound. Giusti said when he was queried about the report, he had advised the NMM subcommittee not to address the report because it was aimed specifically at DOE. He said DOE responded to the report the best it could with the little information it had.

All subcommittee members agreed the DOE response developed for the CAB was adequate (see attached paper). Slay added the CAB may have responded differently if Keyserling had presented the information directly to the CAB. At this point, he said it was most appropriate for DOE to handle the response.

In conclusion, the CAB NMM subcommittee decided on two actions for the July 23 full CAB meeting (1) Brent Gutierrez, DOE-SR, would give basic information on the seismic study process and the internal DOE-SR/HQ review at the July 23 CAB meeting and, (2) Costikyan would briefly discuss the Keyserling report, the NMM subcommittee's approach to the issue and state the DOE response was available for CAB members and any interested public.