

From: Tanya Eaton *NRA*
To: Diane Jackson *NRA*
Date: Tue, Oct 5, 1999 3:27 PM
Subject: My comments on IRSS Study

Diane,

Attached are some of my comments on the report from IRSS, dated Sept. 30, 1999. I just jotted down some thoughts. Mostly on his criticism that the staff did not consider alternatives. Those were considered (independent SFP support systems, and low density racking/dry storage) and were not cost/beneficial in NUREG 1353. I have listed some sources in the attached letter.

Also, his criticism that we did not address partial draindown. Seems like he is applying our work to operating reactors which makes it seem like we are trying to backfit our work to operating reactors. I had a concern about hydrogen generation if you recall from our talks of applying high-expansion foam to an empty SFP. I was told that this is not a concern until you are way over 1500 C. By this point, there will be nothing we can do anyway.

Read over my comments when you get a chance (they are about a page) and let me know what you think. I plan to read in more detail again, but I just wanted to give you some feedback, as I'm sure Glenn and Joe will.

Thanks,

Tanya

01/104

Tanya's Comments Regarding Spent Fuel Pool Accidents
from the
Institute for Resource and Security Studies

(1) Appendix D: Hydrogen generation due to the interaction of steam with zirconium was my concern with applying a high expansion foam mitigation system. Literature shows that this is not a concern until you reach much higher temperatures around 1500 C and greater. Sandia did not consider hydrogen generation in their study since they also assumed an instantaneous draindown.

Suggestion: Perhaps in the final report we need to specify what we mean by instantaneous draindown. Of course we don't mean the water will disappear in a second. But I think it should be clear that it means there is no possibility for reflood due to pump capacities that can not exceed the leakage rate, or that the time in which the water drains is a small window of time and will not allow time for operator actions, or that the time it would take to drain the pool for a beyond design basis earthquake would exclude any possibilities of significant hydrogen production. I'm no spent fuel expert, but if it were explained to me in similar statements, I think it provides a clearer understanding of our terminology.

Maybe we also need to explain in further detail that our results do not extend to an operating plant that has EP and more equipment available than decommissioning plants. (If it's not already stated).

(2) Page 11, "Alternative Options for Spent Fuel Management": The author states that the staff did not consider alternative options for management of spent fuel. Such as employ high-density pool storage but introduce technical measures that sought to increase the reliability of the cooling systems, utilizing independent support systems for pools C and D, and combining low density pool storage with dry storage.

My findings on independent support systems: This option was considered for operating plants in NUREG/CR - 5281 and NUREG 1351. The study looked at providing another full capacity pump to eliminate the need for running the cooling system without a backup pump. The other option looked at was to provide a completely independent makeup train which could recover a potential SFP loss.

NUREG - 1352 concluded on page 5-15, that additional requirements to improve the cooling/makeup systems would not result in a cost-beneficial improvement. This alternative would require improvements beyond the requirements currently used to license SFP. Credit was given for operator action to diagnose and recover from a loss of cooling event and that based on IE Bulletins and IN's, licensees were aware of the need to assure adequate instrumentation is available and maintained to alert operators to SFP degradation.

My findings on combining low density pool storage with dry storage: NUREG 1353 - pages 5-7 to 5-12 show that the NRC and industry costs for additional storage requirements that result from going to low density racks are expected to be small in comparison to the dry-storage costs and

have been quantified. Including the cost of dry storage would result in an even-less favorable value/impact or cost benefit assessment. As it stands, The value/impact ration remains \$32, 130 per averted person-rem. This exceeds the \$1,000 per averted person-rem general guideline value.

Safeguards/ Acts of Malice: Since we are addressing this issue in the final draft, we need to make it clear that we did not/could not quantify acts of malice in a PRA. However, we examined the issues, etc..