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U.S. Nuclear Regulatory Commission

Mr. Brian W. Sherron, Director

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Office of Nuclear Regulatory Research

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Dear Mr. Sharon:

Thank you for your response on the severe nuclear reactor accident phenomena, and I would like to inform you that I had been aware that the present understanding is based on the described in your letter experiments. Moreover, I did use in my evaluation the results of both, these being the bests in the field. Also, you should be aware that these experiments are representing isothermal, or steady temperature processes, and the steam cladding reaction in a real core should be represented as a transient, what I made in the sent to you evaluation. I did not see a correct transient representation nor in the MAAP, nor in the MARCH nor in the RELAP codes, but an unacceptable simplification is made in the all of them, transferring the generated in an extremely thin reaction layer heat to the entire mass of the fuel rods. It causes that the related to the average temperature reaction rate shows an acceptable low hydrogen generation rate and finally "core-meltdown". The real process is that if the critical combination of oxide thickness, temperature and steam flow velocities are reached in a local spot in the core, an ignition is unavoidable, what leads to a heavy fire.

I will be happy to assist to your scientists in the continuing the modeling work, but even more willingly to realise the ways to avoid the possibility of such processes in the core at any circumstances.

Sincerely

  
Aladar Stolmar

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