

9 Twin Orchard Drive  
Oswego, NY 13126  
June 8, 2021

→ Chairman Christopher T. Hanson  
Commissioner Jeff Baran  
Commissioner Annie Caputo  
Commissioner David A. Wright  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Hello:

Today I am, once again, bringing to the attention of the commission, my thoughts on reducing total plant/local area damage when experiencing very severe commercial nuclear plant accidents during which a continuous supply of cooling water to the reactor core cannot be provided.

(I understand that, today, we now have FLEX diesel generators. However, I also understand that it is possible for all (?) 5 to be unable to start and keep running.)

When heat from the core is not being removed, the temperature rises. Eventually, the fuel cladding begins to melt. Also, if water is supplied, the very hot cladding metal reacts with the oxygen atoms in the water molecules, which produces hydrogen. This is a standard explanation. However, I believe that there should be another consideration. Apparently, due to thermal decomposition, water molecules alone can be the source of hydrogen and of oxygen just due to sufficient heat. And, at higher temperatures you get more hydrogen.

So, I am asking that the thoughts above be checked for accuracy or mistakes. Next I am asking that calculations be made to find out how long a core cannot be cooled before an unacceptable amount of hydrogen is produced (when water flow would be reestablished). Finally, it would appear necessary to insert procedural guidance to "add no water" after that plant specific time of no core cooling.

The idea is this: if the core is already gone, why blow up the plant as well?

Thank you,  
  
Tom Gurdziel

(I previously wrote to the entire commission on this topic on Feb. 28, 2013.)

9 Twin Orchard Drive

Oswego, NY 13126

Feb. 28, 2013



Chairman Allison M. Macfarlane

U.S. Nuclear Regulatory Commission

Washington, DC 20555-0001

Dear Chairman Allison M. Macfarlane:

As I remember it, when doing Level I BWR PRA work some time ago, our conversation with our PRA consultant, (also a former utility company vice president), went beyond our assigned work to the accident condition of reestablishing a water supply to a melting reactor core. Thinking that we would be in good shape then, we asked him what he thought. He said: "You would be in trouble."

Well, it took Fukushima Daiichi and even more time to pass, but I think I understand his statement now. As a result, I am suggesting that a different station blackout, (severe accident (?)), process be studied now (in a low stress, non-urgent environment.)

Here is the idea. Supplying water to a melting zirconium/uranium core appears to be equivalent to manufacturing a bomb of hydrogen and oxygen. Once cooling water to the reactor core is lost long enough that core melting takes place, effectively write off the entire core and DO NOT SUPPLY ANY MORE WATER TO THE REACTOR VESSEL. Flood up the primary containment. (You lost the core anyway, why manufacture hydrogen and destroy the Reactor Building too?)

That's the idea. (I know it is unconventional.) The question is, will it work better than what we have now?

Thank you,

Tom Gurdziel

Copy:

Commissioner Kristine L. Svinicki

Commissioner George Apostolakis

Commissioner William D. Magwood, IV

Commissioner William C. Ostendorff



Thomas Gurdziel  
9 Twin Orchard Dr.  
Oswego, NY 13126

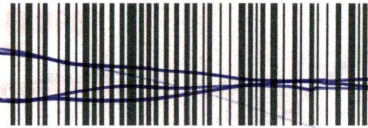
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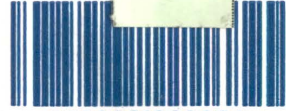
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