Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

December 8, 2008

Mark G. Kowal, Branch Chief Mail Stop 8 C2A
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: INDIAN POINT ENERGY CENTER ACTIVE FAILURE ON PASSIVE FAILURE

Dear Mr. Kowal:

John Boska on your staff e-mailed me a copy of his letter dated December 4, 2008, transmitting Amendments 257 and 238 to the operating licenses for Indian Point Units 2 and 3 respectively. Those amendments approved a change to the passive failure assumed during the first 24 hours after a postulated loss of coolant accident (LOCA).

I was pleased to see that the safety evaluation for the amendments explicitly dealt with the issues I raised in a letter dated July 2, 2008 (ADAMS ML081960599). I was displeased to see how those concerns had been hand-waved away on technically bogus grounds. If this safety evaluation is ever nominated for a science fiction or fantasy award, I'd be glad to write letters of endorsement. It will never be used in any forum dealing with non-fiction or technical adequacy.

The alleged logic documented in the safety evaluation is truly baffling from a technical and scientific perspective. On page 13, the safety evaluation expressly agrees with the technical concern identified in my July 2nd letter:

> *The NRC staff acknowledges that pressures and temperatures are highest during the first 24 hours following a LOCA.*

I raised this point of now mutual agreement because the passive failure in question – failure of piping during recirculation phase operation – is most likely to occur when stresses on the piping are highest, and the maximum stresses occur when pressure and temperature are highest. In other words, the conditional failure probability (the condition being the LOCA event) is highest when piping stresses are maximum (i.e., during the first 24 hours post-LOCA).

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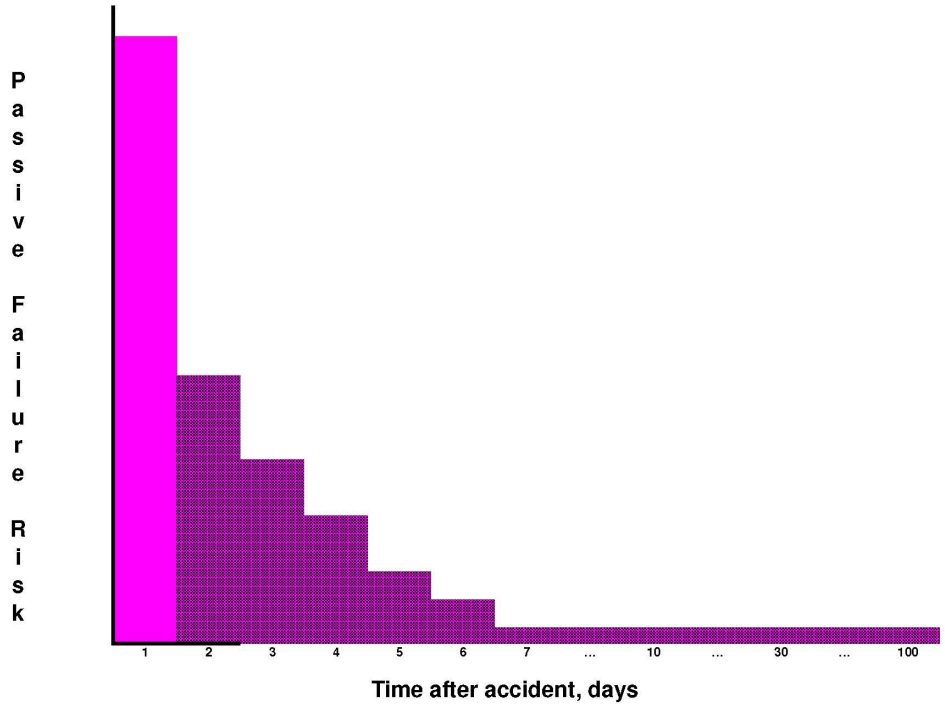
According to the safety evaluation, the NRC granted the amendments because "…*operating experience has shown that the probability of passive failures in these relatively low-temperature, low-pressure, safety-related systems such as the LOCA recirculation system is extremely low.*" The safety evaluation provides no cited reference for this alleged operating experience, but pieces of science fiction and fantasy tend not to be extensively footnoted.

The ECCS systems in this case have a post-LOCA mission time of longer than 24 hours. It may be 30 days or it might be as long as 100 days (I could check the Indian Point design and licensing bases, but the question seems moot now that NRC has already approved the amendments). The following chart illustrates the risk of passive failure of the piping in the LOCA recirculation system as a function of time after the accident.



Curiouosly, although the probability of passive failure of the recirculation system piping is lowest from Day 2 through the end of the mission time, the amendments retain such failure within the Indian Point licensing and design bases. And although the piping passive failure probability is highest on Day 1, the amendments exclude it. How bizarre.

I hasten to point out that the values in the chart are for illustration only and may not accurately portray the actual (i.e., non-fiction) risk at Indian Point. But the relative portrayal is accurate in that the risk is highest on Day 1 and lower thereafter.

It very easily could be that the passive failure risk on Day 1 exceeds the cumulative passive failure risk from Day 2 through the end of the recirculation system mission time. If so, or if the Day 1 risk even approaches the cumulative risk from the remainder of the mission time, it seems absurd and improper for the NRC to dismiss the Day 1 risk on an undocumented probability basis and yet retain the Day 2-plus risk.

On technical and scientific grounds, the recirculation system piping passive failure should either be totally within or totally outside the LOCA licensing and design bases. Excluding the first 24 hours when the failure probability is highest make no technical or scientific sense.

On science fiction and fantasy grounds, anything is possible as the NRC's safety evaluation in this matter proves.

The NRC has not right by the public it claims to protect, except in fantasy world.

Sincerely,

David Lochbaum
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