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D. Kadamb

From: N. Prasad Kadambi <npk@nrc.gov>
To: TWFN_DO.twf2_po(NRCREP)
Date: Sun, Apr 2, 2000 12:26 PM
Subject: Draft Report Comments: SR1614 V2, PART 2, APPENDIX - Draft

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RULES & DIR. BRANCH
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 N. Prasad Kadambi (npk@nrc.gov) on Sunday, April 2, 2000 at 12:26:33

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Comments: Comment #1:

The performance goal of public confidence is extremely important and the staff is trying very hard to make progress on it, but with very limited success, I believe. We get certain organizations representing polarized views to participate in meetings, but the public confidence does not appear to be improving. We should bring in more people who can play a constructive role in the discussions. The technical community is an important stakeholder in this regard. The first step could be taken to bring in as stakeholders technical societies who are also standards developing organizations (eg. IEEE, ANS, ASME, ASTM, etc.). Next, broader technical societies such as AAAS could be included to explore the commonality of safety perspectives among seemingly diverse areas subject to regulation. As an example, segments of the technical community are exploring how the risks from genetically modified foods may be regulated. As our nation deals with the difficult job of finding a scientifically sound methodology to regulate such risks, lessons learned in one area should be conveyed broadly to improve the efficiency of safety regulation, while also improving public confidence.

Comment #2:

A performance measure related to the goal of "Maintain Safety" is that no more than one event per year will constitute a significant precursor (probability of a reactor accident greater than $1E(-3)$). This measure is beneficial because it counters the notion that all events are equally bad. However, it may present difficulties because some may view it as being risk-based decision making as opposed to being risk-informed. Also, it is unclear how uncertainty factors would be considered. While a definitive solution to this problem is probably being sought, alternative measures should also be explored.

I have a suggestion that is risk-informed and performance-based, and also addresses a significant (I believe) comment from a stakeholder. The comment from the stakeholder was to the effect that risk-informed regulation was akin to playing a slot machine, in which by pure chance, if a reactor event, equipment failure and operator error arrive at an unfortunate confluence, a reactor accident is bound to happen. The comment raised in my mind the question whether these are random variables or could they be correlated. A positive correlation would mean that the likelihood of equipment failure and human error

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would increase relative to the pure-chance level when an event occurs. This would raise safety concerns. A negative correlation could be taken to mean that the combination of human and equipment performance becomes more safety conscious during an event, thus mitigating the risk to some extent. The inference one might draw is that constantly learning from operational experience and training operators properly takes reactor operation away from a slot machine. We should be looking into development of a model which would enable us to input past operational data and answer the question as to which direction does a postulated correlation take.

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