

From: Thomas Essig , *NMSS*
To: David Matthews , *NRR*
Date: Fri, Feb 26, 1999 5:21 PM
Subject: Followup to EP basis question(s) from yesterday's meeting

David,

You and Gary have exchanged e-mail regarding Gary's approach, so this response may not be needed right at this moment. But, since I was asked to look into the EP basis from yesterday's meeting, I offer the following thoughts:

The basis for the 10-mile EPZ appears in both NUREG-0654 and -0396.

NUREG-0654 states the basis as follows:

1. Projected doses from traditional design basis accidents would not exceed EPA PAGs outside the EPZ;
2. Projected doses from most core melt sequences would not exceed EPA PAGs outside the EPZ;
3. For most core melt sequences, immediate life-threatening doses would generally not occur outside the EPZ; and
4. Detailed planning within 10 miles would provide a substantial base for expansion of response efforts in the event that this proved necessary.

NUREG-0396 states the basis as follows:

Rationale for the 10-mile EPZ considered the following: risk, probability, cost-effectiveness, and consequence spectrum. The Task Force which authored the document chose to base the rationale for the planning basis on a spectrum of consequences, tempered by probability considerations.

Regarding consequences from major core damage accidents with catastrophic failure of containment, NUREG-0396 points out that if emergency actions such as evacuation and sheltering were taken within about 10 miles of a power plant, there would be significant savings of early injuries and deaths from even the most severe atmospheric releases.

The probability considerations included a core melt accident probability of $5E-5$ per reactor-year. According to the NUREG-0396, 30% or less of the core melt accidents would result in high exposures outside of the 10-mile EPZ. If this probability is multiplied by the number of operating reactors, a basis for the lack of a need for planning outside of the EPZ is then developed and compared with consequences of natural disasters for which explicit emergency response planning requirements do not exist.

We can probably mine these two documents (and perhaps others) for additional nuggets at a later time. Hopefully the above information is (or will be) useful in further considerations of EP issues for permanently shutdown nuclear power plants.

Tom Essig

CC: Daniel Barss, Diane Jackson, Gary Holahan, Geor...

PH

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