

From: "Gaynor, Douglas" <GAYNORD@coned.com>
To: "James Trapp" <JMT1@nrc.gov>
Date: Thu, Feb 24, 2000 2:19 PM
Subject: RE: IP2 Risk Assessment

CCDP
#E x DR = B
 $\frac{1E-6}{1E} = 1$

Jim,

The frequency of core damage events per year resulting from Steam Generator Tube Rupture (SGTR) Initiating Events in our model is 1.0 E-6 out of a total frequency of 2.4 E-5 core damage events per year in the current Internal Events baseline PSA model. Since the frequency of the SGTR initiating event itself is 1.3 E-2 per year, the conditional core damage probability is:

$$\frac{1.0 \text{ E-6}}{1.3 \text{ E-2}} = 7.7 \text{ E-5}$$

This is based on the year average unavailabilities and failure rates of the mitigating systems. Although, so far as I am aware, there was no relevant mitigating equipment out of service prior to the event, this would not reduce the above calculated CCDP significantly for this event.

Since this is a conditional core damage probability, it is not readily combined with the year average CDF associated with all the other initiating events which could have, but did not occur, to get a total "instantaneous" risk for the plant at that time.

If we had to force fit it, we could:

- 1) Simply add it to the year average value {(i.e. 2.4 E-5 + 7.7 E-5 = 1.01 E-4} or, I think more appropriately,
- 2) Limit the impact of other initiating events to the 24 hour period following the SGTR (24 hours is the typical mission time considered for PSAs and is also approximately the time it took us to get out of the ALERT). This would result in a CDF following the event of:

$$\{2.4 \text{ E-5} \times (1 \text{ day} / 365 \text{ days}) + 7.7 \text{ E-5}\} = \{6.6 \text{ E-8} + 7.7 \text{ E-5}\} \sim 7.7 \text{ E-5}$$

It can be seen that in this case, the other events would have no significant effect on the plant risk configuration during the period after the SGTR until we reached cold shut down.

I have been asked here to relate this to the daily plant risk status that we generate here using the SAFETY MONITOR. The Safety Monitor is designed to see the impact of taking equipment out of service and is not intended to be used to determine conditional core damage probability of events as we have done above. If we simply examine the impact of core damage frequency determined above, however, in both Cases 1 and 2, the resulting CDF is between the YELLOW color cutoff of 5.2 E-5 and the RED color cutoff of 5.2 E-4 (i.e. it would be in the YELLOW band).

Give me a call if you want specific dominant sequences or just want to talk. If I'm not at 734-5336, try 788-3279 (or my beeper 917-802-7080)

P.S. It is not clear to me how, if at all, the Significant Determination

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