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SUBJECT: Submits comments on draft rept "Rates of Initiating Events at US Commercial Power Plants, 1987-1995, INEL/EXT-98-00401."

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September 14, 1998

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Duke Energy Company
McGuire Nuclear Station
Docket Numbers 50-369 and -370
Catawba Nuclear Station
Docket Numbers 50-413, and -414
Oconee Nuclear Station
Docket Numbers 50-269, -270 and -287

Subject: Draft Report "Rates Of Initiating Events At U. S.
Commercial Power Plants, 1987-1995, INEL/EXT-98-
00401"

The purpose of this letter is to present Duke's comments on
the subject draft report.

The review of the draft report covered the methodology,
treatment of data, and results and conclusions. Detailed
review of the events attributed to the Duke plants (Oconee,
McGuire, and Catawba) was performed with the objective of
validating the data, results and conclusions of the draft
report where possible and to identify any needed corrections.
Comments are as follows.

General Comment:

Our overall impression of the draft report is that the staff
has performed an excellent job in compiling a currently
applicable set of initiating event data in a very
comprehensive manner. We are pleased with the level of
detail, completeness, and the general clarity in the
methodology and assumptions.

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Comments on Classification of Duke Plant Events:

We attempted to compare our events database with those reported in the draft (Table D-5). Overall, it seems that a very good effort has been made to capture and classify the Duke events in the draft report. It appears that the LER search for initiators performed in the NUREG to be very thorough and comprehensive, with the correct classification of 124 out of 131 Duke plant events.

The remaining 7 Duke plant events and the 1997 Oconee-2 Reactor Coolant system (RCS) leakage identified in the draft report do not seem to be classified into the appropriate initiator groups. The comments on these events are as follows:

1. Oconee event (LER 287/91-008-0) - In Appendix J of the draft report this event is placed in the G3 (Small LOCA) initiators. This is not correct since the RCS leakage was not large enough to require the operation of the Emergency Core Cooling System (ECCS). As indicated in the LER, the leakage was within the capability of the RCS makeup system. The leakage was caused by the failure of an instrument tube fitting. Although the tubing size near the location of failure was indicated as 3/4 inch, the flow is limited by the 3/8 inch upstream instrument connection to the Reactor Coolant system. The estimated leakage was approximately 60 - 70 gpm according to the LER. It is recommended that this event be deleted from the list of Small LOCA events. (Please see additional discussion later in this comment letter).
2. Oconee event (LER 269/94-002-0) - In the draft report this event is placed in the H1 (Fire) initiators. The detailed description of this event in the LER states that "Control System power had failed and was smoking." Other than the indications of smoke, this event does not appear to have the characteristics and damage potential associated with a fire. Therefore, this event seems to be more appropriately classified as an equipment failure (total loss of main feedwater- P1) rather than a fire event.
3. Oconee event (LER 269/93-008-0) - In the draft report this event is placed in the QC4 (Loss of I&C Bus) initiators. The detailed description of this event in the LER indicates that only the hydraulic control circuit failed which was not a complete failure of the I&C bus. The correct classification for this event is turbine/reactor trip (QR5).

4. Catawba event (LER 414/91-015-0) - In the draft report this event is placed in the QP4 (Partial loss of condensate flow) initiators. The detailed description of this event in the LER states that both main feedwater pumps failed due to a partial loss of condensate flow. The correct classification for this event should be total loss of main feedwater (P1).
5. McGuire event (LER 370/93-008-0) - In the draft report this event is placed in the QR3 (Reactivity Control Imbalance) initiators. Although the reactor trip occurred on a reactivity control imbalance related trip function, the detailed description of this event in the LER indicates that loss of offsite power occurred. The correct classification for this event is loss of offsite power (B1).
6. Oconee event (LER 287/92-003-0) - In the draft report this event is placed in the QR5 (Turbine Trip) initiators. The detailed description of this event in the LER states that a loss of 3KI occurred which more appropriately represents a loss of the I&C bus (QC4).
7. Oconee event (LER 287/94-002-0) - In the draft report this event is placed in the QR5 (Turbine Trip) initiators. The detailed description of this event in the LER that a loss of 3KI occurred due to blown fuses on the inverter. Therefore, the event is better represented by a loss of the I&C bus initiator (QC4).
8. Oconee event (LER 270/97-01)- In Appendix J of the draft report this event is treated as having the potential to become a medium LOCA on the basis that the piping is a 2.5 inch size. However, the flow rate is limited by the 1.5 inch thermal sleeve within the upstream nozzle (connecting the Reactor Coolant system). Therefore, this event does not belong in this category.

Comment on LOCA Frequency Methodology:

It would be helpful to present the rationale for the different classification of the LOCA events. In our view, small break events are those events which require the operation of the ECCS. RCS leakage events which are within the capability of the RCS makeup system are anticipated events, and they do not have to rely upon the ECCS for mitigation. The plant is manually shutdown. If operator action to respond to this event is not

taken, automatic reactor trip and/or ECCS actuation may occur. But in the absence of additional equipment failures or failure of the expected operator action, most RCS leakage events should not be considered as small LOCA initiators. It is suggested that the treatment of the small LOCA initiator be revised with the appropriate plant response.

The study considered the previous estimates of the frequencies of the small, medium and large LOCA events, the current more complete operating experience and other approaches in obtaining the current estimates for these events. These are low probability events as evident from the operational data, and the suggested values seem to be reasonable for use in PRA studies. However, we believe it is not appropriate to assign a conditional frequency of LOCA (by use of the extrapolation factors of 2.5/DN for medium and 0.01 for small and large LOCAs) on any leakage event. These factors seemed to be more like upper threshold estimates and not best estimates. Use of these factors should be avoided in accident sequence precursor calculations of RCS leakage events.

Again, the intent of our comments is in the spirit of making sure we are presenting the data in as realistic and reasonable manner as possible for proper applications to address the safety and risk significance of regulatory and operational issues. We appreciate the opportunity to review and comment on the draft report.

If you have any questions on these comments, please contact P.M. Abraham at 704-382-4520.

Very truly yours,

A handwritten signature in dark ink, appearing to read "M.S. Tuckman", with a stylized flourish at the end.

M.S. Tuckman

U. S. Nuclear Regulatory Commission
September 14, 1998
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