



Commonwealth Edison
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December 24, 1991

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

Subject: Commonwealth Edison Company Response to Generic Letter 88-20,
Supplement 4, "Individual Plant Examination of External Events
(IPEEE) for Severe Accident Vulnerabilities"

Byron Units 1 and 2,
NRC Docket Numbers 50-454/455
Braidwood Units 1 and 2,
NRC Docket Numbers 50-456/457
Zion Units 1 and 2
NRC Docket Numbers 50-295/304
Dresden Units 2 and 3,
NRC Docket Numbers 50-237/249
Quad Cities Units 1 and 2,
NRC Docket Numbers 50-254/265
LaSalle Units 1 and 2,
NRC Docket Numbers 50-373/374

- References:
- (1) Generic Letter 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities", dated November 23, 1988.
 - (2) Generic Letter 88-20, Supplement 4, "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities", dated June 28, 1991.
 - (3) NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities" June 1991.
 - (4) W. H. Rasin (NUMARC) letter to Dr. T. E. Murley (NRC) dated November 20, 1991

Dear Dr. Murley:

Commonwealth Edison Company (CECo) has actively followed and supported the evolution of the NRC's structured program for closure of severe accident issues. Our earlier submittal responding to Generic Letter 88-20 and our continued dialogue with the NRC have established our very positive approach to realistic and appropriate identification of severe accident issues and the resolution of those issues. CECo continues this philosophy through consideration of Supplement 4 to Generic Letter 88-20, the external events IPE effort.

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1. Purpose of the IPEEE:

In responding to Supplement 4, Edison has given careful consideration to the objectives of its overall IPE and Accident Management Programs. These objectives are stated in the Program Plan Executive Summary, section 2, filed with the NRC in response to reference (1), above. They are restated below:

1. To identify, evaluate, and resolve the severe accident issues germane to CECo plants in a realistic, technically acceptable manner with emphasis on the prevention of such accidents and on the need to effectively respond to sequence progression in the very unlikely event of the onset of a severe accident.
2. To identify and develop input, concurrent with the first objective above, to senior management decision-making processes relative to potential enhancements of plant design and/or operation aimed at reduction of risk from severe accidents.
3. To evolve realistic, well documented, and scrutable PRA's for each CECo nuclear plant which can be readily maintained, readily used, and which will be suitable for ongoing use in a variety of PRA applications.
4. To respond to the existing NRC information request in Generic Letter 88-20 regarding IPE's and those information requests anticipated in the near future on closely related topics (external events IPE and AM).

With the release of references (2) and (3) by the NRC, CECo has re-examined its program to insure that the latest NRC guidance is appropriately reflected in CECo's technical program which supports the stated purpose of the external events IPE.

The NRC, in reference (2), has listed four purposes for the external events IPE (IPEEE) request. Of these four, two are denoted as being of foremost importance. The search for knowledge regarding plant behavior under severe accident conditions and the search for potential improvements are the highest priority purposes. As stated in Generic Letter 88-20 Supplement 4, "It must be emphasized that for the IPEEE the key outcome is the knowledge and appropriate improvements resulting from such an examination which can be conducted using any of the approaches discussed below or and alternate approach, if acceptable to the NRC."

While the choice of wording is different, the CECo and NRC aims remain in tight accord. CECo recognizes the need to gain this knowledge about the behavior of its plants in the severe accident environment. We further recognize the need to search out and consider those appropriate, cost effective enhancements which are identified through this process.

2. Technical Background:

Before addressing the CECo IPEEE program directly, it is necessary to make a few key points about the predecessor IPE work being conducted by CECo. The CECo IPE program is both realistic and comprehensive in nature. For the Zion Station IPE, as an example, CECo has performed transient analyses, using the MAAP computer code, on roughly 500 different accident sequences to investigate transient responses to severe accidents involving different initiating events, different recoveries, different timings and different modelling assumptions. This represents a huge and unique body of plant response knowledge. Also, CECo has a detailed plant support state model which considers, at Zion, over 200 discrete states of the various plant support systems. Each of these states serves as the basis for a unique, full quantification of all (except those that were initiator unique) of the trees in

2. Technical Background (continued):

the Zion Plant Response Tree (event tree) model. The result is a plant model of much greater detail and completeness when compared with the technology of a few years ago. These factors, in combination, represent a very significant and complete body of plant response knowledge in terms of plant behavior, sequence structure and relative importance.

The level of realism and detail noted above represent significant improvements over past PRA practice, which may be unique to the CECo IPE Program, which vastly increase our knowledge about how a plant might respond to severe accidents. In fact, this body of knowledge is so large that it will encompass, by its very nature, the structure of almost all of the accident sequences derived from external events. Apart from postulated, major structural failures, CECo believes that the IPE work described above, along with the rest of that realistic effort, provides such a broad base of information that severe accident sequences of any significant likelihood are built into the structure. In short, once a certain level of knowledge is established, the accident sequences tend to be independent of the initiator.

As noted above, CECo remains sensitive to the concern about major structural failure induced by external events. CECo is also sensitive to the need to search for the unexpected condition which might invalidate the conclusion reached above.

3. CECo IPEEE Program:

The CECo IPEEE program will be based on detailed plant walkdowns and careful screening analyses. This approach will provide a very high level of assurance that unexpected conditions do not exist which might lead to significant, unconsidered, severe accident conditions. Careful screening assessments will also be capable of addressing the issue of major structural failures leading to new, unconsidered, severe accident sequences of significance. The Seismic Qualification Utility Group (SQUG) proposes to conduct detailed training programs for walkdowns aimed at resolving the A-46 issue. CECo, NUMARC, and the NRC share the desire to integrate the SQUG walkdowns with the IPEEE work. CECo desires, further, to use these walkdowns to support the fire issue as well. CECo plans to use the SQUG training as the basis for identifying the nature and scope of the non-A-46 plants' walkdowns.

This common basis will complement the consistent approach used in the CECo IPE Program for each of the CECo plants. Trained IPE personnel will participate in the walkdowns to provide the risk perspective gained from the extensive IPE effort to the IPEEE effort.

The screening analyses will carefully consider the findings of the walkdowns along with other available information on the seismic capacity, fire capability and the influence of other external events. The emphasis will be on identifying plant behavior unique to external events initiators, if any, and on identifying enhancements which might alleviate any such events in a cost effective manner. The evaluations will be qualitative and subjective in nature. Trained personnel in the areas of external events, the IPE program, and, as needed, plant design, will participate in this process.

At the conclusion of the walkdown and screening work, an assessment will be made of the results and CECo's confidence in those results. Further work may be initiated and documented at that time up to and including the performance of full PRA efforts in one or more external events areas for each plant. CECo would review each such situation with the NRC before any major, further effort was undertaken.

The screening analyses would serve as the necessary first step to defining the focus and scope of fire PRA's on CECo plants. The screening analysis contemplated would include a joint fire engineer IPE engineer review of the IPE and Appendix R programs prior to conducting the walkdown. This would serve as the basis for conducting the walkdown and establishing the need for areas requiring further investigation. Performing the screening analyses will allow resources to be allocated to the key plant areas/functions during any subsequent work. In turn, this will enhance the quality of that work, minimize the time needed for that work, and reduce the level of resource consumption associated with that work.

For example, the screening analysis might well show that certain areas of the plant are basically free from concentrations of critical equipment and cable runs and that little or no combustible material is present in that area. Conversely, it might find that one or two areas have concentrations of important cables from more than one safety division in each area and that equipment in the area contains a significant amount of combustible lubricating oil. Detailed investigation and/or analysis of these areas might be warranted and might focus on the likelihood of damaging key cables in more than one division due to a fire and of damaging one set of such cables coincident with random equipment failures.

Screening analyses, in accordance with NRC guidance, will be employed to examine external event initiators other than fire and seismic events. A full spectrum of such events, in accordance with that guidance, will be undertaken for CECo's plant locations.

CECo believes that the IPEEE program outlined above allows full and appropriate credit for the extensive CECo IPE Program and that, by approaching the entire area in a careful, phased, manner, it is fully responsive to the mutual NRC and CECo goal of achieving a defensible understanding of the behavior of CECo's nuclear plants and developing effective enhancements where appropriate. This program also focuses resources where investigation shows they are warranted.

4. Schedule:

Reference (4) notes the IPEEE's dependence on the SQUG effort in terms of effective utilization of critical utility resources. The industry and the NRC have long agreed that it is extremely desirable, if not vital, that the SQUG walkdowns and the IPEEE walkdowns be integrated for maximum efficiency. CECo believes that non-USI A-46 CECo plants will also benefit from the methodology to be used in the SQUG walkdowns. Also, since CECo would contemplate a simultaneous fire walkdown and seismic/SQUG walkdown, the fire effort in the IPEEE will be closely tied to the SQUG effort.

The simultaneous approach is the most efficient use of IPE and station resources and helps to broaden the technical perspective of the entire walkdown team. The training to be conducted for the SQUG walkdowns is, however, on hold pending the receipt of the SQUG SER from the NRC.

CECo believes that it is not possible to commit to a detailed schedule for seismic IPEEE work until 120 days after the receipt of the SQUG SER without areas of generic disagreement. CECo has reviewed the probable level of effort associated with organizing the training and with organizing the walkdowns properly and is convinced that this time frame is the minimum needed to build a valid commitment. Since CECo has linked the fire effort to this same issue, CECo will defer any scheduler commitment on the fire IPEEE for that 120 day period.

CECo does believe that each of our IPEEE's must follow after the completion of a given plant's IPE to make maximum use of what has been learned in the IPE. We expect that, given a prompt SER release, the first of our walkdowns and screening analyses, that for Zion, should be completed in late 1993. If further work is needed beyond that effort, CECo believes that even a full fire and seismic PRA could be completed for Zion by late 1995. If the SQUG SER is further delayed, these dates will, of course, slip accordingly. Similar schedule additions to expedite the IPEEE program for the other five CECo plants would likely be required.

5. Conclusion:

CECo believes that the approach discussed above is fully responsive to the stated purposes for the IPEEE. It allows CECo to take into account the extensive knowledge gained through its IPE effort and to focus resources where careful evaluation shows they are needed. Further, all other things being equal, this approach will allow resolution of the IPEEE issues in a timely manner.

We would be pleased to meet with the staff at their convenience to discuss this commitment further to assure there is a consistent understanding of our plans for and commitment to addressing the effect of external event initiators on the six CECo nuclear facilities.

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respect these statements are not based on my personal knowledge, but on information furnished by other CECo employees, contractor employees, and consultants. Such information has been reviewed in accordance with Company practice, and I believe it to be reliable.

If there are any questions or comments, please contact me at (708) 515-7292.

Sincerely,

D. J. Chrzanowski

D.J. Chrzanowski
Nuclear Licensing Administrator
Generic Issues

- cc: A. B. Davis, Regional Administrator-RIII
- R. Pulsifer, Project Manager-NRR/PDIII-2
- A. Hsia, Project Manager-NRR/PDIII-2
- B. Siegel, Project Manager-NRR/PDIII-2
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- S. DuPont, Senior Resident Inspector (Braidwood)
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- W. Rogers, Senior Resident Inspector (Dresden)
- Senior Resident Inspector (LaSalle)
- T. Taylor, Senior Resident Inspector (Quad Cities)
- J. Smith, Senior Resident Inspector (Zion)

State of Ill, County of Cook
 Signed before me on this 24th day
 of December, 19 91 by DJC
 Notary Public *[Signature]*

