



Commonwealth Edison

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September 25, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Station Units 1 and 2
Braidwood Station Units 1 and 2
Pipe Whip Restraints Utilizing
Crushable Energy Absorbing Material
NRC Docket Nos. 50-454/455 and 50-456/457

- References (a): E. D. Swartz letter to H. R. Denton
dated September 7, 1984
- (b): E. D. Swartz letter to H. R. Denton
dated September 20, 1984

Dear Mr. Denton:

On August 29, 1984, a meeting was held in the NRC Region III offices among Region III, NRR, and Commonwealth Edison and our consultant (Sargent & Lundy) personnel to discuss the remaining NRC concerns with the use of energy absorbing material (EAM) in certain of the pipe whip restraints utilized at our Byron and Braidwood Stations. At this meeting, the NRC staff requested that we demonstrate how the qualification efforts to date bound all of the installed pipe whip restraint configurations, and that we provide a detailed discussion of all completed testing including testing for vertical stacking, precrushing and height-to-length and width ratio. This discussion was to include an evaluation by a party other than the vendor of such things as the repeatability of precrushing test data, and plots of vertical load versus displacement and vertical load versus energy absorbed. This discussion was also to provide a comparison of the crush strengths of the materials tested and the crush strength of the installed material, and the basis for concluding that the test results are applicable.

In addition, the NRC staff requested clarification of the Byron Station angular configuration test results presented in S&L Report SAD-431, Revision 1. This was to include justification for any measured data discarded, the significance of the larger than normal load oscillations on the load versus time plots, and the justification for the 30% reduction in force magnitude for force measurements made using the new one million pound instrument tup.

The enclosed Sargent and Lundy Report No. SAD-443 Revision 0 dated September 1984 provides this requested information.

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During the meeting, the NRC staff also requested that the FSAR be updated to identify all completely or partially installed pipe whip restraints and to include a description of the rationale and technical basis for the restraint voiding process. The following briefly describes this process and provides our commitment to update the Byron and Braidwood FSAR.

High energy line breaks were originally postulated at locations determined by a conservative interpretation of Regulatory Guide 1.46. Branch Technical Position MEB 3-1 (included in Standard Review Plan Section 3.6) clarifies the methodology to be used to define the break locations. In 1983 and 1984, final piping stress analyses were available and were utilized to compare the existing break locations with the guidelines of MEB 3-1. As a result, a significant number of postulated breaks were determined to be not required and were subsequently deleted. The pipe whip restraints associated with these breaks were therefore deleted from the Byron and Braidwood design. Depending upon the state of construction, the restraints were either abandoned in place, removed, or not installed.

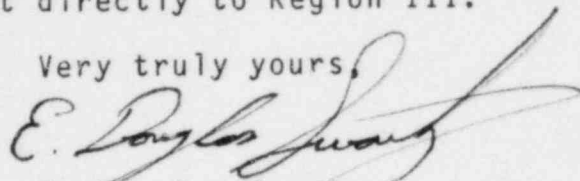
Our Byron and Braidwood FSAR will be updated to indicate only the valid break locations. All partially and completely installed restraints will be shown. Those restraints which are installed but are no longer required, will be specifically identified as such.

References (a) and (b) previously provided the simplified sketches of the pipe whip restraints and the detailed nonlinear finite element analysis also requested during the meeting. We believe that the information and commitments provided within this letter and its Enclosure, along with that provided in Reference (a) and (b) address all of the concerns identified by the NRC Region III and NRR staff during the August 29, 1984 meeting concerning the use of EAM in certain of the pipe whip restraints utilized at our Byron and Braidwood Stations, and should no longer be considered a Byron Unit 1 fuel load concern.

A test specification is currently being developed to govern the additional EAM testing as defined in the Enclosure to this letter. Upon completion, we will forward the specification to Region III for review.

One signed original and fifteen copies of this letter with the Enclosure are provided for your use. Additionally, this information package is being sent directly to Region III.

Very truly yours,



E. Douglas Swartz
Nuclear Licensing Administrator

Enclosure

cc: J. A. Stevens - LB1
J. Streeter - RIII

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