June 17, 1985

Docket Nos. 50-237
50-249
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Mr. Dennis L. Farrar
Director of Nuclear Licensing
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

SUBJECT: SAFETY EVALUATION ON CONTAINMENT ISOLATION DEPENDABILITY BY DEMONSTRATION OF CONTAINMENT PURGE AND VENT VALVE OPERABILITY (MPA B-24)

Re: Dresden 2 and 3 and Quad Cities 1 and 2

The NRC staff has completed its review of containment isolation dependability by demonstration of containment purge and vent valve operability for Dresden Units 2 and 3 and Quad Cities Units 1 and 2. Our review is based upon the Commonwealth Edison submittals cited in our enclosed Safety Evaluation (SE). Also, several meetings and telephone conference calls with the staff have been held on this subject. We find that the information submitted to date does not demonstrate the ability of the containment purge and vent valves to close against the design basis loss-of-coolant accident.

In the enclosed SE, two major items are still at issue; these are:

(1) actual values of the closing torque for the 18-inch butterfly valves

(2) quantification of the effect an elbow has on the closing torque for a butterfly valve when the valve is within five pipe diameters of the elbow or tee.

Regarding the first of the two items, the closing torque for the 18-inch butterfly valves, the staff has two separate and independent bases from which estimates of the closing torque for an 18-inch butterfly valve can be rendered. The first basis consists of an identical Henry Pratt valve located in another plant (Prairie Island) which has similar pressure resulting from the accident and has a similar installation configuration. In this instance the valve vendor, Henry Pratt, predicts a required closing torque of 18×10^3 in-lbs. The second basis is data from another valve vendor, Allis Chalmers. The staff believes data for an Allis Chalmers valve can be used when the valve discs are geometrically similar. Commonwealth Edison claims the discs are geometrically similar and uses the Allis Chalmers' data in report VER-0209, but for a different purpose. When the

staff applies the Allis Chalmers' data to the Pratt valve for the given conditions, the estimate of the closing torque is 6 to 7 times larger than the closing torque of 2.6×10^3 in-lbs presented by the licensee.

With regard to the second major issue, the staff's interpretation of the data in the Allis Chalmers report VER-0209 is that it is applicable to valve installation configurations that have an elbow immediately upstream of the valve. There are no data in the report for the valve installation configurations having only straight length of pipe upstream of the valve. The factor of 1.283 derived by Commonwealth Edison accounts for the increase in closing torque between a configuration having a valve shaft in plane with an upstream elbow and configuration having a valve shaft out of plane with an upstream elbow. Commonwealth Edison uses the factor of 1.283 (say 1.3) to account for the effect of an elbow on the closing torque.

The numerical values used by the NRC staff are bounding values. In this instance, because the value is based on specific data, the staff would accept the numerical value of 1.3 (assuming the Allis Chalmers and Henry Pratt discs are geometrically similar). However, a factor to account for the effect of an upstream elbow where the valve shaft is in the plane of the elbow remains to be determined unless the staff's value of 1.5 is accepted.

Since the staff's estimate of the closing torque is 6 to 7 times larger than that of the licensee the valve actuators (operators) may not be capable of closing the valve during a LOCA and the structural integrity of this valve (stresses) may be grossly underestimated by your analysis. The information you have submitted thus far has failed to demonstrate the ability of these valves to close against the buildup of containment pressure in the event of a LOCA.

Therefore, pursuant to 10 CFR 50.54(f), you are requested to inform us in writing under oath or affirmation within 30 days of receipt of this letter:

1. Your assessment of the operability of your purge and vent valves in light of the concerns outlined in Enclosure 1, and

2. Whether or not you intend to maintain the purge and vent valves sealed closed in accordance with Standard Review Plan Section 6.2.4, II.6.f and to verify them to be closed every 31 days whenever the reactor is not in the cold shutdown or refueling mode until such time as you submit acceptable information that demonstrates that your purge/vent valves will operate in the event of a DBA-LOCA.

This information will enable the Commission to determine whether or not further action should be taken to modify, suspend, or revoke your license.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original signed by
Frank J. Miraglia

for Hugh L. Thompson, Jr., Director
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/enclosures:
See next page

*Please see previous concurrence pages.

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JZwolinski*	DVassallo*	GLainas*	BMBordenick	HThompson
02/21/85	05/30/85	05/30/85	06/10/85	06/17/85

cc:

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