Commonwealth Edison
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February 4, 1981

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

SUBJECT: Use of Rod-Exchange Technique for Rod Worth Measurements at Zion Station.
NRC Docket Nos. 50-295 and 50-304.

REFERENCES: 1) January 24, 1981 letter (NS-TMA-2367) from T. M. Anderson to J. R. Miller concerning generic approval of rod-exchange measurement techniques at Westinghouse 4-loop PWRs.

2) February 2, 1979 NRC memorandum from P. S. Check to A. Schwencer titled "Rod-Exchange Method of Rod Worth Measurement."

3) April 24, 1979 letter (NS-TMA-2072) from T. M. Anderson to P. S. Check transmitting rod-exchange standard test procedure.

Dear Mr. Denton:

Commonwealth Edison Company hereby submits for your review and approval the review and acceptance criteria for the initial application of the rod-exchange technique for rod worth measurements at Zion Station, a 4-loop Westinghouse PWR. This information, extracted from Reference 1, is delineated below and is being provided consistent with previous NRC requirements for first time use of the rod-exchange technique at 2-loop plants (Reference 2).

The rod-exchange technique will replace the boron dilution technique for measuring rod worths during startup testing. Reactivity compensation for all but one bank is accomplished via rod movement rather than the slower process of boration/dilution. This technique will reduce both the time needed for the measurement of rod worths, an outage critical path item, and the amount of water to be processed. Westinghouse Electric Company will provide Commonwealth Edison with the necessary nuclear design parameters, procedures, and technical assistance for applying the rod-exchange technique to the Zion Unit 1, Cycle 6 startup testing scheduled for early March, 1981.

Commonwealth Edison will conform to the review and acceptance criteria (also termed design and safety criteria, respectively) as outlined in Reference 1. Specifically, the rod-exchange program design criteria are:

1) The absolute value of the percent difference between measured and predicted integral worth for the reference bank is less than or equal to 10%;

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2) The absolute value of the percent difference between the inferred and predicted integral worths for all other banks is less than or equal to 15%, (for banks having a predicted integral worth equal to or less than 600 pcm, the absolute difference between the measured and predicted worth is less than or equal to 100 pcm); and

3) The absolute value of the percent difference between the sum of the measured/inferred bank worths and the sum of the predicted worths is less than or equal to 10%.

The safety criterion is:

> The N rod worth, as determined by rod-exchange, must be greater than or equal to 90% of the predicted N rod worth.

Although some slight modifications will be necessary to tailor the technique to Zion operation, Commonwealth Edison will, in general, adhere to the Westinghouse standard procedures (Reference 3) in performing the rod-exchange program. Commonwealth Edison will provide the NRC Staff with a report of the test results.

The use of the rod-exchange technique at Zion Station could potentially reduce the outage length by approximately one full day at a considerable economic savings to Commonwealth Edison and its customers. Therefore, Commonwealth Edison respectfully requests the NRC Staff to expedite its review and approval of the use of this technique at Zion Station by March 1, 1981. Although this technique will initially be applied to Zion Unit 1, Commonwealth Edison intends to use this technique on both Zion units and therefore, requests NRC approval for use on both units.

Please address any questions that you may have concerning this matter to this office.

One (1) signed original and thirty-nine (39) copies of this letter are provided for your use.

Very truly yours,

J. S. Abel

J. S. Abel, Director
Nuclear Licensing

JSA:RYC:lm
ID:1878A

cc: Resident Office - Zion