

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

August 30, 1994

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

Serial No. 94-459
NL&P/JBL R0
Docket Nos. 50-339
License Nos. NPF-7

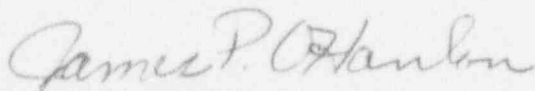
Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT 2
LICENSEE PEER REVIEW COMMENTS
PRELIMINARY ACCIDENT SEQUENCE PRECURSOR (ASP)

As requested by your letter dated July 21, 1994, Virginia Electric and Power Company has reviewed the NRC's Preliminary Accident Sequence Precursor (ASP) analysis for North Anna Unit 2. Our review indicates that the results are comparable with the Individual Plant Examination (IPE) model for North Anna Power Station. This conclusion was reached by checking the ASP analysis and by performing a sensitivity analysis on the IPE model. We have no significant additions or corrections to the NRC's ASP evaluation. The attachment to this letter provides the results of our review.

If you have any further questions, please contact us.

Very truly yours,



James P. O'Hanlon
Senior Vice President - Nuclear

Attachment

cc: U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W.
Suite 2900
Atlanta, Georgia 30323

Mr. R. D. McWhorter
NRC Senior Resident Inspector
North Anna Power Station

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Attachment

Peer Review Comments for the North Anna Unit 2
Preliminary Accident Sequence Precursor (ASP)

Peer Review Comments for the North Anna, Unit 2 ASP Evaluation

A review of the ASP evaluation performed for the North Anna, Unit 2 reactor trip of April 93 has been completed. The review concentrated on Enclosure 1 to the NRC cover letter dated July 21, 1994. Enclosure 1 is a PSA analysis of the reactor trip along with the immediately following system response and operator actions. The analysis was performed by NRC contractors as part of an on-going program to review operating events that could be considered as precursors to severe accidents.

The PSA modeling approach used is appropriate. The "Transient with MFW Available" is the proper event tree for the analysis. The analysts have modeled the scenario assuming that the AFW system is failed but recoverable. The non-recovery probability used is the smallest allowed by the ASP program guidelines. It is appropriate to use a small non-recovery probability since the AFW pumps could be recovered from the control room simply by moving the pump selector switch from the pull-to-lock position to the auto position.

The ASP results are given on pages 5 and 6 of Enclosure 1. Since the sequence probabilities are obtained by multiplying along the path that forms each sequence it was possible to check the results. The total non-recovery probability for each sequence could be duplicated using the stated AFW value of .04. However, the AFW non-recovery probability, when calculated from the sequence probability, is not the same for each sequence. The stated value of .04 was found for all sequences except #17 and #22.

Enclosure 4 contains portions of the ASP document including Appendix A. In Section A.1.5 sample calculations are given. Using the approach given therein (i.e., multiplying successes and failures along each path) the sequence probabilities were calculated and are compared below:

Sequence Number	ASP Enclosure 1	Va Power Review
12	1.6E-8	1.7E-8
22	4.6E-8	4.1E-9
15	4.5E-7	4.5E-7
16	4.9E-8	5.0E-8
17	<u>4.9E-7</u>	<u>4.2E-7</u>
Sum (cd)	1.1E-6	9.4E-7

Of course, these answers are nearly identical and the differences are certainly not significant given the approximate nature of the calculations.

The results were also checked by performing a sensitivity analysis on the IPE model. The sensitivity results were slightly higher than those above. However, no effort was made to include a non-recovery probability for this scenario in the sensitivity analysis. If a non-recovery probability had been calculated using the Virginia Power IPE methodology, it would likely have been an order of magnitude lower than the 0.04 value contained in the ASP guidelines. Thus, the IPE sensitivity results are slightly lower than those from the ASP analysis. This would be expected given the purpose of the ASP program.