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AND

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April 10, 1984

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

Subject: Indian Point Unit 2  
Docket No. 50-247

Indian Point Unit 3  
Docket No. 50-286

Amendment 2 to the Indian Point Probabilistic Safety Study

Dear Mr. Denton:

Enclosed are fifty (50) copies of Amendment 2 to the Indian Point Probabilistic Safety Study (IPPSS). The copies are numbered 1 through 50, corresponding to the copy numbers of the original study and Amendment 1, forwarded to you on March 5, 1982 and January 21, 1983, respectively. As with IPPSS Amendment 1, all pages of Amendment 2 are identified and dated in the upper right-hand corner to distinguish them from pages of the original study. The present material is dated December 1983, representing the date of completion of the underlying analysis.

The Amendment includes an updated summary of the risk at Indian Point Units 2 and 3. Some of the scenarios analyzed in Amendment 2 were found to have no risk impact and, therefore, the results of those analyses were not carried through to the final risk curves. Those results which turned out to be more important to risk -- the additional seismic analyses for Units 2 and 3, changes to the Unit 2 fire analysis, the revision of LOCA paths outside containment, and the revision of the Unit 2 wind and tornado analysis -- have been fully propagated through the analysis and are reflected in the revised Amendment 2 risk curves in Section 8. The quantifications of those sections of Amendment 2 which simply provide a more complete justification for analyses in IPPSS as submitted in March 1982 have not all been re-propagated through the analysis since they are already reflected in the risk curves.

A summary of Amendment 2 follows:

- o Revision of Steam Generator Tube Rupture Model for Units 2 and 3. Because of questions raised by Sandia National Laboratories (Sandia) a more detailed steam generator tube rupture analysis has been performed, which has only a minor impact on the

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overall results. This revision assumes the implementation by the licensees of emergency procedures similar to the Westinghouse Owners Group Emergency Response Guidelines for steam generator tube rupture, and it further assumes the operators have been trained in their use. This implementation is being carried out.

- o Verification that ATWS Pressure Transients Will Not Cause Correlated Failures of Safety Injection System Check Valves. IPPSS assumed that the safety injection system would most likely remain operable if an ATWS occurred (i.e., one chance in 100 of failure was assumed if an overpressure event occurred). Amendment 2 provides an expanded discussion of this assumption in response to questions raised during a meeting with the Nuclear Regulatory Commission in Albuquerque, New Mexico on October 13, 1982.
- o Revision of LOCA Paths Outside Containment. A revised analysis of the interfacing systems LOCA is presented in response to questions raised by Sandia. This analysis, based on new data and refined methodology, yields results differing only slightly from those in the IPPSS as submitted in March 1982.
- o Analysis of Component Cooling System Pipe Breaks for Units 2 and 3. Because of differences between the IPPSS and Sandia's modeling of component cooling system pipe breaks, further analysis was performed, demonstrating that such breaks do not contribute significantly to risk at either plant.
- o Additional Seismic Analyses for Units 2 and 3. An updated seismic analysis, based on more detailed containment design and strength information than was used in the original IPPSS work, demonstrates that structural failure of the containment from a seismic event does not occur for the range of credible earthquakes; therefore, containment failure due to a seismic event is not a contributor to the risk at either unit.

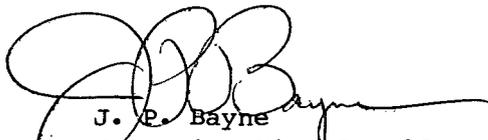
Amendment 1 to the IPPSS, submitted in January 1983, presented a more detailed analysis of the seismic vulnerability of the control room ceilings at both Indian Point units. This reanalysis was in response to questions raised during the review of IPPSS. Following the submittal of Amendment 1, both utilities completed modifications to the plants which render highly unlikely control room ceiling failure due to a seismic event. Therefore, the Amendment 1 analysis has been updated in Amendment 2 to reflect these modifications.

- o Changes to Fire Analysis for Unit 2. Amendment 1 to the IPPSS analyzed changes in the fire risk at Indian Point Unit 2 due to Appendix R modifications. Fire risk reductions resulting from these modifications, coupled with the original very conservative analysis of the auxiliary feedwater pump room and

the electrical penetration areas, caused the fire risk from these areas of the plant to have been overstated as a contributor to overall fire risk. Therefore, Amendment 2 provides a more appropriate and realistic analysis of the fire risk in these plant areas.

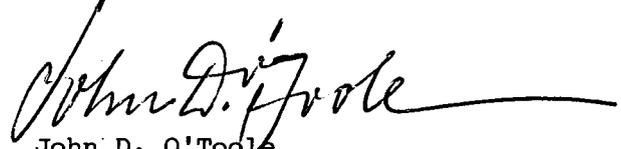
- o Revision of Unit 2 Wind and Tornado Analysis. Amendment 2 contains significantly more comprehensive wind analyses for Unit 2 than were originally included in the IPPSS. They include a more detailed consideration of structural effects, and also the use of site-specific wind hazard data, and have resulted in a reduction in the frequency of core melt due to wind.

If you have any questions regarding this letter or its enclosures, please call us.



J. P. Bayne  
Executive Vice President  
New York Power Authority

Very truly yours,



John D. O'Toole  
Vice President  
Consolidated Edison Company  
of New York, Inc.

Enclosures (as stated)

INDIAN POINT PROBABILISTIC SAFETY STUDY  
CHANGE SUMMARY SHEET

AMENDMENT 2

APPENDICES TO THE ACCIDENT SEQUENCE ANALYSIS

Add the attached appendices (Sections 1.3.8.1 and 1.3.8.2) to the IPPSS immediately following page 1.3-652. These appendices are referenced by other Amendment 2 changes.

After filing these new appendices, place this change summary sheet behind the tab "Index of Changes."

INDIAN POINT PROBABILISTIC SAFETY STUDY  
CHANGE SUMMARY SHEET

AMENDMENT 2

ANALYSIS OF COMPONENT COOLING SYSTEM PIPE BREAKS FOR UNITS 2 AND 3

The analyses in Sections 1.3.5.12 and 1.3.6.12 depend on the fact that component cooling system pipe breaks beyond existing makeup capability are very unlikely because of the system design and location. The attached changes reference detailed reviews of the component cooling systems which establish that such failures do not contribute to risk at Indian Point. Replace pages 1.3-393, 1.3-394, 1.3-601, and 1.3-602 with the new pages.

While adding the replacement pages, you may wish to mark the original pages "superseded" and retain them for reference in tracking results through the balance of the study.

After filing these pages, place this change summary sheet behind the tab "Index of Changes."

INDIAN POINT PROBABILISTIC SAFETY STUDY  
 CHANGE SUMMARY SHEET

AMENDMENT 2

REVISION TO LOCA PATHS OUTSIDE CONTAINMENT FOR UNITS 2 AND 3

The analysis of LOCA paths outside containment (Event V) has been modified to account for additional, newly developed data and revised analyses. Changes due to this revision appear in Sections 1.3.5.1.3 and 1.3.6.1.3. While adding the replacement pages, you may wish to mark the original pages "superseded" and retain them for reference in tracking results through the balance of the study.

Section	Original Pages	Replacement Pages
1.3.5.1.3	1.3-237 through 1.3-242 1.3-255 through 1.3-256	1.3-237 through 1.3-242A-4 1.3-255 through 1.3-256A-1
1.3.6.1.3	1.3-445 through 1.3-450	1.3-445 through 1.3-450A-1; also 1.3-462A-1*

After filing these pages, place this change summary sheet behind the tab "Index of Changes."

\*Place page 1.3-462A-1 immediately following page 1.3-462.

INDIAN POINT PROBABILISTIC SAFETY STUDY  
CHANGE SUMMARY SHEET

AMENDMENT 2

VERIFICATION THAT ATWS PRESSURE TRANSIENTS WILL NOT CAUSE  
CORRELATED FAILURES OF SAFETY INJECTION SYSTEM CHECK VALVES

An analysis of the operability of check valves subjected to pressure transients demonstrates that the "safety injection system operable" assumption in the ATWS analysis is conservative (i.e., that fewer than 1 in 100 ATWS pressure transients would cause failure of all safety injection system check valves).

Replace pages 1.3-229 and 1.3-230 of Amendment 1 with the new pages. While adding the replacement pages, you may wish to mark the Amendment 1 pages "superseded" and retain them for reference in tracking results through the balance of the study.

After filing these pages, place this change summary sheet behind the tab "Index of Changes."

INDIAN POINT PROBABILISTIC SAFETY STUDY  
CHANGE SUMMARY SHEET

AMENDMENT 2

STEAM GENERATOR TUBE RUPTURE SCENARIO FREQUENCY REQUANTIFICATION

The SGTR scenario frequencies at Indian Point Units 2 and 3 have been requantified to reflect the more detailed steam generator tube rupture (SGTR) analysis presented in Amendment 2 to Section 1.3.4.4. The results are presented in Sections 1.3.5.4 for Unit 2 and 1.3.6.4 for Unit 3.

Section	Original Pages	Replacement Pages
1.3.5	1.3-279 through 1.3-292	1.3-279 through 1.3-289A-4; also 1.3-290 through 1.3-292
1.3.6	1.3-487 through 1.3-498	1.3-487 through 1.3-496A-4; also 1.3-497 and 1.3-498

Based on the scenario frequencies obtained in this new quantification and the discussion of scenario consequences given in Section 1.3.4.4, SGTR scenarios are a negligible contributor to risk compared to the risks from other scenarios. Therefore, the results of the requantification have not been thoroughly propagated through the remainder of the study.

While filing the replacement pages, you may wish to mark the original pages "superseded" and retain them for tracking purposes. After filing the pages, place this change summary sheet behind the tab "Index of Changes."