

A. Alan Blind
Vice President

Consolidated Edison Company of New York, Inc.
Indian Point Station
Broadway & Bleakley Avenue
Buchanan, NY 10511
Telephone (914) 734-5340
Fax: (914) 734-5718
blinda@coned.com

August 29, 2001

Re: Indian Point Unit No. 2
Docket No. 50-247
NL-01-104

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station O-P1-17
Washington, DC 20555-0001

SUBJECT: Best Estimate Small Break LOCA Methodology

References WCAP-14936, "Code Qualification Document for Best Estimate Small Break LOCA Analysis" (Rev 0).

Dear Sir:

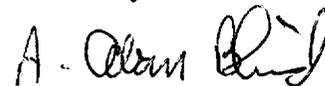
Consolidated Edison Company of New York (Con Edison), requests NRC review of the small break loss-of-coolant-accident (LOCA) evaluation methodology in WCAP-14936, "Code Qualification Document for Best Estimate Small Break LOCA Analysis" for Indian Point Unit No. 2. WCAP-14936 documents a realistic, or best estimate, methodology pursuant to 10 CFR 50.46. The attachment to this letter provides a summary of the best estimate small break LOCA program. Volumes 1 through 4 of WCAP-14936 will be transmitted directly by Westinghouse to the NRC.

Should approval be granted, the best estimate small break LOCA evaluation model can be utilized by Indian Point Unit No 2 to preserve margin. This margin can be used to improve plant performance by reducing existing restrictions in such areas as core peaking factors, ECCS setpoints and functional requirements, licensed power level and surveillance testing. The utilization of this approach is anticipated to result in significant cost savings to Indian Point Unit No. 2. Review and approval of the proposed methodology is requested by September 30, 2002.

There are no commitments contained in this letter.

Should you have any questions regarding this matter, please contact Mr. John McCann, Manager, Nuclear Safety and Licensing (914-734-5074).

Sincerely,



cc: Next Page

Flood

Attachment

cc: Mr. Hubert J. Miller
Regional Administrator - Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Patrick D. Milano, Senior Project Manager
Project Directorate I-1
Division of Licensing Project Management
US Nuclear Regulatory Commission
Mail Stop O-8-C-2
Washington, DC 20555

Senior Resident Inspector
US Nuclear Regulatory Commission
PO Box 38
Buchanan, NY 10511

ATTACHMENT

BEST ESTIMATE SMALL BREAK LOCA METHODOLOGY
PROGRAM SUMMARY

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247

BEST ESTIMATE SMALL BREAK LOCA PROGRAM SUMMARY

Following the NRC approval of the best estimate large break LOCA methodology, Westinghouse, under the sponsorship of Indian Point Unit 2, initiated work on the best estimate small break LOCA methodology. Westinghouse reviewed the large break code and methodology, described in WCAP 12945-P-A, "Westinghouse Code Qualification Document for Best Estimate Loss of Coolant Accident Analysis," and determined the same principles could be adapted to reliably predict the processes that occur in a small break LOCA. The document "Code Qualification Document for Best Estimate Small Break LOCA Analysis" (WCAP-14936), describes the small break LOCA version of the WCOBRA/TRAC computer code, the code validation performed, and the methodology to determine the 95th percentile peak clad temperature (PCT) for small break LOCA transient events in a Westinghouse-designed PWR. While Indian Point Unit 2 was used to develop and demonstrate the methodology, it is generically applicable to Westinghouse NSSS designs.

Volume 1 of WCAP-14936 describes the features, models, and correlations contained in the small break LOCA version of the WCOBRA/TRAC computer code. First, the small break processes considered to have the greatest effect during a small LOCA event are identified and ranked in a phenomena identification and ranking table (PIRT). The sufficiency of the existing large break WCOBRA/TRAC models and correlations for small break LOCA analysis is then evaluated. The comprehensive presentation of the entire set of WCOBRA/TRAC models and correlations follows in the remainder of Volume 1.

Volume 2 of WCAP-14936 documents simulations of a large number of separate and integral effects tests using this small break version of the code. The simulations provide, at different scales, predicted transients in which all of the important processes are compared with experimental data. The test simulation and subsequent comparison to experimental data determine the bias and uncertainty of major model packages as they apply to small break LOCA thermal-hydraulic conditions.

Volume 3 of WCAP-14936 reviews the operator actions to a small break LOCA event using the Indian Point 2 Emergency Operating Procedures as a reference. Sources of uncertainty in the plant condition and in the limiting accident analysis assumptions are identified. The effects of various assumptions on small break LOCA transient behavior are investigated through numerous calculations using WCOBRA/TRAC. The calculations examine the sensitivity of the results to the break size, location, orientation, and offsite power availability.

Volume 4 of WCAP-14936 presents calculations that are performed to determine the sensitivity of results to the plant core power distribution, the initial and boundary conditions, and code model assumptions. Volume 4 also demonstrates the compliance of the Westinghouse best estimate small break LOCA methodology with U.S. Nuclear

Regulatory (NRC) Regulatory Guide 1.157, "Best-Estimate Calculations of Emergency Core Cooling System Performance," Rev 0 (05/89) and with 10CFR50.46. These studies, in which parameters are varied one at a time, are performed for Indian Point Unit 2 to quantify the sensitivity of plant behavior to changes in plant initial conditions and in the accident model. An uncertainty methodology consistent with application of the Code Scaling, Applicability, and Uncertainty (CSAU) methodology is utilized to determine the 95th percentile PCT for the Indian Point Unit 2 small break LOCA analysis.

The calculated 95% PCT value is 1328°F utilizing the proposed WCAP-14936 methodology for Indian Point Unit 2 assuming an uprated power level of 3216MWt along with increased core peaking factors. This is in contrast to the licensing basis value, which includes PCT assessments, of 2116°F using the currently approved Appendix K approach and represents a significant increase in PCT margin.