

John D. O'Toole  
Vice President

Consolidated Edison Company of New York, Inc.  
4 Irving Place, New York, NY 10003  
Telephone (212) 460-2533

June 29, 1984

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

Director of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

ATTN: Mr. Steven A. Varga, Chief  
Operating Reactors Branch No. 1  
Division of Licensing

Dear Mr. Varga:

By letter dated March 23, 1982 Consolidated Edison Company submitted an application for an amendment to the Technical Specifications for Indian Point Unit No. 2 to revise the limiting conditions for operation and surveillance requirements for the safety injection system boron injection tank. This amendment package included a curve showing the limiting boron injection tank pressure/volume relationship based on a thermodynamic polytropic index equal to 1.0. In a May 1982 telephone conversation between Mr. J. Guttman of the NRC staff and Con Edison staff, Mr. Guttman requested the basis for using a polytropic index (n) equal to 1.0 and suggested that n equal to 1.4, as indicated by the LOFT test results for accumulators, would be more appropriate.

In July 1982 we submitted our response with supporting analysis from Lehigh University to show that LOFT tests are not applicable to the Indian Point Unit No. 2 boron injection tank and that n equal to 1.0 is the appropriate value. Later that year, we informed your staff that we had authorized Lehigh University to conduct tests to determine the polytropic index of nitrogen gas as it expands in a model of the Indian Point Unit No. 2 boron injection tank.

In May 1983, Professor Badr of Lehigh and Mr. Malik of Con Edison met with members of the NRC staff to review the scope of the test program, including the scaling criteria of the test model. The tests were initiated in the Fall of 1983 and have recently been completed. The final report, describing the test program, scaling criteria and test results is enclosed.

The test results show that the polytropic gas index with the make-up nitrogen regulator valve closed is  $1.0 \pm .040$ . With the N<sub>2</sub> regulator valve open, which is the actual operational mode for the IP-2 boron injection tank, the polytropic index is 0.363.

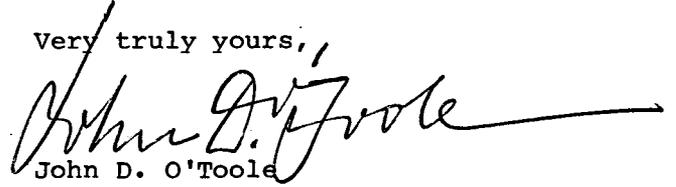
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Based on the test results, our initial assumption for the polytropic index  $n$  equal to 1.0 has been experimentally verified. Accordingly, we request that you proceed with your review of our March 23, 1982 amendment request.

If you or your staff have any questions concerning the test report or the amendment request, please call Mr. Paul Malik at (212) 460-4680.

Very truly yours,



John D. O'Toole  
Vice President

Attachment

PM/mc

cc:

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Washington, D.C. 20555

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