UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.	)	Docket No. 50-247
	)	
Indian Point Nuclear Generating Unit No. 2	)	

EXEMPTION

I.

Consolidated Edison Company of New York, Inc. (Con Edison or the licensee) is the holder of Facility Operating License No. DPR-26, which authorizes operation of Indian Point Nuclear Generating Unit No. 2 (the facility or IP2), at a steady-state reactor power level not in excess of 3071.4 megawatts thermal. The facility is a pressurized-water reactor located at the licensee's site in Westchester County, New York. The license provides, among other things, that the licensee is subject to all rules, regulations, and orders of the Commission now or hereafter in effect.

II.

In its letter dated October 7, 1997, the licensee requested that NRC exempt the unit from the application of the 1989 Edition of the American Society for Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Appendix G (1989 methodology) as required by Title 10 of the Code of Federal Regulations, Part 50 Section 60 (50.60), and 10 CFR 50.55a. As an alternative, the licensee proposed to use the version of ASME Section XI, Appendix G

found in the 1996 Addenda to the ASME Code (1996 methodology). The 1996 methodology is less conservative than the methodology in the 1989 Edition of the ASME Code. References in 10 CFR 50.60 and Appendix G require the use of a methodology at least as conservative as that found in Appendix G to the 1989 Edition of Section XI of the ASME Code. Therefore, the staff must review and approve the 1996 methodology prior to use. The staff has reviewed the licensee's request and approves the use of the 1996 methodology in lieu of the 1989 methodology for the construction of reactor vessel pressure-temperature (P-T) limits as described in 10 CFR Part 50, Appendix G. A methodology equivalent to the 1996 methodology was used in the licensee's P-T limits submittal dated October 2, 1996. The evaluation for the proposed P-T limits is issued as part of the amendment application.

III.

The NRC has established requirements in 10 CFR Part 50 to protect the integrity of the reactor coolant system pressure boundary. As a part of these, 10 CFR Part 50, Appendix G requires that P-T limits be established for reactor pressure vessels (RPVs) during normal operation and vessel hydrostatic testing. In particular, 10 CFR Part 50, Appendix G.IV.2.b. requires that these limits must be "at least as conservative as limits obtained by following the methods of analysis and the margins of safety of Appendix G of Section XI of the ASME Code." 10 CFR 50.55(a) specifies that the applicable ASME Code is the 1989 Edition. 10 CFR 50.60, which broadly addresses the establishment of criteria for fracture prevention, states that "proposed alternatives to the described requirements in Appendices G and H of this part or portions thereof may be used when an exemption is granted by the Commission under §50.12." The licensee used the methodology equivalent to the 1996 methodology for its P-T limits application in lieu of the 1989 methodology approved by the staff in the regulations. As part of this effort, the licensee has applied for an exemption to use the 1996 methodology.

IV.

In the submittal, the exemption was requested under the special circumstances given in 10 CFR 50.12(a)(2)(ii). The provisions of this section state that special circumstances are present whenever "Application of the regulation in the particular circumstances...is not necessary to achieve the underlying purpose of the rule." The licensee explained that "With the 1996 Addenda, Article G-2000 was revised to incorporate the most recent elastic solutions.... These new solutions better characterize the conditions for irradiated vessels in the low temperature region where the thermal stresses and allowable pressure are low." The licensee also indicated that the 1996 methodology contains the same ASME Section XI, Appendix G safety margin, which includes: (1) the 6:1 aspect ratio 1/4 T flaw, (2) a factor of 2 on the membrane stress intensity factor, (3) the determination of material toughness from a reference curve based on dynamic and crack arrest data, and (4) margins on the materials' adjusted reference temperature based on Regulatory Guide 1.99, Revision 2. Therefore, the licensee concluded that application of the 1996 methodology would also meet the underlying intent of the regulations, namely to protect the integrity of the RPV from nonductile failure.

The staff examined the licensee's rationale in support of the exemption request. From the regulatory perspective, the staff concurred that a condition for an exemption exists under 10 CFR 50.12(a)(2)(ii) because the 1996 methodology, which is more appropriate than the 1989 methodology, became available recently and had been incorporated into the ASME Code. Consequently, application of the regulation in this particular instance is not necessary to achieve the underlying purpose of the rule.

From the technical perspective, the staff agrees that this alternative method meets the underlying intent of the regulations. The staff has completed its review of the technical basis of the P-T limits submittal dated October 2, 1996. The evaluation of that submittal is issued along with Amendment No. 195 to License No. DPR-26. In that review, the staff examined the application of the 1996 methodology in detail, including a comparison of critical features of the 1989 and 1996 methodologies using plant-specific data for the IP2 RPV, and confirmed the adequacy of the 1996 methodology. Hence, requesting the exemption under the special circumstances of 10 CFR 50.12(a)(2)(ii) was found to be appropriate, and the application of the 1996 methodology, or its equivalent, would meet the underlying intent of the regulations.

On the basis of its review of the technical basis of the P-T limits submittal, the staff concludes that the use of a methodology equivalent to that contained in the 1996 Addenda of the ASME Code, which is less conservative than that specified in the regulation, meets the underlying intent of 10 CFR 50.60 and 10 CFR Part 50, Appendix G. The staff accepts that the explicit conservatism incorporated within the 1996 Appendix G methodology will ensure that the RPV will be protected from non-ductile failure.

V.

For the foregoing reasons, the NRC staff has concluded that the licensee's proposed use of the alternative methodology in determining the P-T limits will not present an undue risk to public health and safety and is consistent with the common defense and security. The NRC staff has determined that there are special circumstances present, as specified in 10 CFR

50.12(a)(2)(ii), in that application of 10 CFR 50.60 is not necessary in order to achieve the underlying purpose of this regulation.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, this exemption is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security.

Accordingly, the Commission hereby grants an exemption from 10 CFR 50.60 so that this exemption permits the use of the methodology, or its equivalent, specified in Appendix G in the 1996 Addenda to Section XI of the ASME Code for developing P-T limits for IP2.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of the exemption will have no significant impact on the quality of the human environment (63 FR 6584).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 10th day of February, 1998.

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