BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
POWER AUTHORITY OF THE STATE OF NEW YORK	)	Docket No. 50-286
Indian Point 3 Nuclear Power Plant	)	

APPLICATION FOR AMENDMENT TO OPERATING LICENSE

Pursuant to Section 50.90 of the regulations of the Nuclear Regulatory Commission (NRC), the Power Authority of the State of New York, as holder of Facility Operating License No. DPR-64, hereby applies for an Amendment to the Technical Specifications contained in Appendix A of the license.

This application for amendment seeks to revise Sections 1, 3.1, 3.3, 4.3, and 6 of Appendix A of the Indian Point 3 Technical Specifications. These revisions extend the Heatup-Cooldown limits from 11 to 13 effective full power years (EFPYs), provide the corresponding Overpressure Protection System (OPS) limits, relocate the new pressure temperature limit curves and low temperature OPS limits to the pressure temperature limit report (PTLR) and include some minor revisions which ensure specification clarity and conservatism.

The proposed changes to the Technical Specifications are included as Attachment II to this application. The Safety Evaluation is included as Attachment III.

POWER AUTHORITY OF THE
STATE OF NEW YORK

By
J. Knubel
Senior Vice President and
Chief Nuclear Officer

STATE OF NEW YORK
COUNTY OF WESTCHESTER

Subscribed and Sworn to before me
this 3rd day of November 1997

Notary Public

EILEEN E. O'CONNOR
Notary Public, State of New York
No. 4991062
Qualified in Westchester County
Commission Expires January 21, 1998

ATTACHMENT I TO IPN-97-149

JUSTIFICATION OF PROPOSED EXEMPTION REQUEST FROM REQUIREMENTS OF 10 CFR 50.60

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

JUSTIFICATION FOR EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 50.60

In accordance with 10 CFR 50.12(a), the Authority requests an exemption from the regulations of 10 CFR 50.60, "Acceptance Criteria for Fracture Prevention Measures for Light-Water Nuclear Power Reactors For Normal Operation." This exemption would allow Indian Point 3 to determine the low temperature overpressurization system (LTOP) parameters using the American Society of Mechanical Engineers (ASME) Code Case N-514 in lieu of the safety margins required by 10 CFR 50, Appendix G. The Code Case limits the OPS curve to no greater than 110% of the pressure determined to satisfy Appendix G, paragraph G-2215 of ASME Code, Section XI, Division 1, further reduced to allow for static head due to elevation differences and dynamic head effect of the operation of the four reactor coolant pumps. In addition, the Code Case allows the OPS enable temperature to be the coolant temperature corresponding to a reactor vessel metal temperature less than RT_{NDT} + 50°F for the limiting beltline position, or 200°F, whichever is greater. (RT_{NDT} is defined by ASME Code Case N-514 to be the highest adjusted reference temperature for weld or base metal in the beltline region at a distance one-fourth of the vessel section thickness from the vessel inside surface, as determined by Regulatory Guide 1.99, Revision 2.)

10 CFR 50.60 states that all light-water nuclear power reactors must meet the fracture toughness and material surveillance program requirements for the reactor coolant boundary set forth in Appendices G and H of Part 50. Appendix G to 10 CFR 50 specifies fracture toughness requirements for ferritic materials of pressure retaining components of the reactor coolant pressure boundary to provide adequate margins of safety during any condition of normal operation, including anticipated operational occurrences and system hydrostatic tests to which the pressure boundary may be subjected over its service lifetime. 10 CFR 50.60 specifically states that alternatives to the requirements described in Appendix G may be used when an exemption is granted by the NRC.

The provisions of ASME Code Case N-514 allow for a recalculation of LTOP parameters which results in greater operational flexibility than do the requirements of the version of ASME Section XI, Appendix G currently endorsed by 10 CFR 50.55(a). Code Case N-514 was approved by the ASME Code Case Committee and incorporated into Appendix G of Section XI of the ASME Code and published in the 1993 Addenda to Section XI. A draft revision to Regulatory Guide (RG) 1.147, published by the NRC in February 1997, endorses the use of this code case. However, since the approved versions of RG 1.147 and 10 CFR 50.55(a) do not currently endorse Code Case N-514 or the 1993 Addenda of the ASME Code, an exemption to 10 CFR 50.60 is requested.

Justification for Exemption

10 CFR 50.12(a) states that the NRC may grant exemptions from the requirements of the regulations contained in 10 CFR 50 provided that:

(1) the exemption is authorized by law;
(2) the exemption does not present an undue risk to the public health and safety;
(3) the exemption is consistent with the common defense and security; and
(4) special circumstances, as defined by 10 CFR 50.12(a)(2), are present.

(1) The requested exemption is authorized by law.

The NRC is authorized by law to grant this exemption. 10 CFR 50.60 states that the use of alternative methods to 10 CFR 50, Appendix G is acceptable when an exemption is granted by the NRC. Further, the NRC has granted similar exemptions to other nuclear facilities.

(2) The requested exemption does not present an undue risk to the public health and safety.

The requested exemption allows the determination of LTOP parameters using ASME Code Case N-514 in lieu of 10 CFR 50, Appendix G. The LTOP system controls RCS pressure at low temperatures so the integrity of the reactor coolant pressure boundary is not compromised. As stated in the Code Case, the LTOP systems shall be effective at coolant temperatures less than 200°F or at coolant temperatures corresponding to a reactor vessel metal temperature less than RT_{NDT} + 50°F (whichever is greater) and the maximum pressure in the vessel shall be limited to 110% of the pressure allowed by the NRC approved version of Appendix G of ASME Code, Section XI. The existing approved analysis supporting the heatup/cooldown and OPS limitations for Indian Point 3 (Reference 1) has been reviewed by Combustion Engineering (the author of the analysis) and confirmed to be applicable to the ASME code case (Reference 2). Therefore, the exemption does not present an undue risk to the public health and safety.

(3) The requested exemption will not endanger the common defense and security.

The common defense and security are not affected by this exemption request.

(4) Special circumstances are present which necessitate the request for an exemption.

10 CFR 50.12(a)(2) states that the NRC will not consider granting an exemption unless special circumstances are present. This exemption meets the special circumstances listed in 10 CFR 50.12(a)(2)(ii), 10 CFR 50.12(a)(2)(iii), and 10 CFR 50.12(a)(2)(v).

1. 10 CFR 50.12(a)(2)(ii) - Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.

   The intent of the requirements of 10 CFR 50.60 is to provide protection of the reactor vessel against pressure transients at low temperatures. At Indian Point 3, the LTOP system provides this protection. ASME Code Case N-514 was approved by the ASME Code Case Committee as an acceptable alternative to the ASME Appendix G curves. This Code Case permits the recalculation of LTOP system parameters so as to limit the maximum pressure in the reactor vessel to 110% of the pressure determined to satisfy Appendix G of the ASME Code and to allow the LTOP enable temperature to equal 200°F or the coolant temperature corresponding to a reactor vessel metal temperature less than RT_{NDT} + 50°F (whichever is greater). Use of these parameters reduces the unnecessary actuation of the LTOP system due to normal pressure surges that occur during low temperature operation (i.e., surges resulting from starts of a reactor coolant pump or charging pump), while maintaining acceptable safety margins. Therefore, use of the Code Case meets the intent of 10 CFR 50.60.

2. 10 CFR 50.12(a)(2)(iii) - Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.

   LTOP limits are designed to ensure that pressure transients at low temperatures do not cause fracture of the reactor vessel. As the vessel ages, the operating window created by the LTOP system is reduced because of the embrittling effects of neutron irradiation on the reactor vessel. This narrow operating window creates the potential of inadvertent actuation of the LTOP system. Inadvertent actuation of the LTOP system results in rapid pressure transients which place additional stresses on plant systems. This constitutes an unnecessary burden which can be alleviated by the use of ASME Code Case N-514. This Code Case permits the recalculation of the LTOP system setpoint with methodology which expands the operating window. The larger operating window does not significantly reduce the margin of safety and helps eliminate the unnecessary actuation of the LTOP system due to normal pressure

surges that occur during low temperature operation. For these reasons, compliance with 10 CFR 50.60 results in undue hardships which are in excess of those contemplated when the regulation was adopted.

3. 10 CFR 50.12(a)(2)(v) - The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation.

   Indian Point 3 is currently in compliance with the regulations of 10 CFR 50.60. In order to maintain sufficient operating margin, an exemption is requested to use ASME Code Case N-514. Draft Regulatory Guide 1050, issued in February 1997, is a draft of Revision 12 to Regulatory Guide (RG) 1.147. This document proposes to endorse the use of Code Case N-514 in RG 1.147. Therefore, this exemption is needed only until the RG is amended to allow use of the Code Case.

Conclusion

The Authority concludes that continued compliance with the regulations of 10 CFR 50.60 results in an undue hardship. An exemption to allow the use of ASME Code Case N-514 to determine LTOP parameters would allow Indian Point 3 to meet the underlying purpose of the rule while gaining greater operational flexibility. This larger operating margin would help avoid unnecessary actuation of the LTOP system, and the associated rapid pressure transients, and still provide adequate margins against failure of the reactor pressure vessel.

References

1. ABB Combustion Engineering Report, "Final Report on Pressure-Temperature Limits for Indian Point 3 Nuclear Power Plant," dated July 1990.

2. ABB Combustion Engineering Calculation, "Indian Point Unit 3 Section XI LTOP Enable Temperatures for 13 & 15 EFPY (063-PENG-CALC-061, Revision 0)," dated August 14, 1997.