

Mr. James Knubel  
Chief Nuclear Officer  
Power Authority of the State  
of New York  
123 Main Street  
White Plains, NY 10601

April 10, 1998

SUBJECT: EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 50.60, "ACCEPTANCE CRITERIA FOR FRACTURE PREVENTION MEASURES FOR LIGHTWATER NUCLEAR POWER REACTORS FOR NORMAL OPERATION," TO ALLOW FOR USE OF ALTERNATIVE METHODOLOGY FOR CONSTRUCTION OF PRESSURE TEMPERATURE CURVES - INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 (TAC NO. M99928)

Dear Mr. Knubel:

By letter dated January 28, 1998, you requested an exemption from the requirements of 10 CFR 50.60, "Acceptance Criteria for Fracture Prevention for Lightwater Nuclear Power Reactors for Normal Operation."

By granting this exemption, NRC permits the use of the CE methodology detailed in your application for exemption dated January 28, 1998, for developing P-T limits for the Indian Point Nuclear Generating Station Unit No. 3.

A copy of the exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Original Signed by:

George F. Wunder, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-286

Enclosure: Exemption

cc w/encl: See next page

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NAME	BBoger		SCollins			
DATE	04/8/98		04/10/98			

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DATE	03/8/98		03/10/98			

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April 10, 1998

- 4 -

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.

Therefore, the Commission hereby grants the following exemption:

The Power Authority of the State of New York is exempt from the requirements of 10 CFR 50.60 in that they are permitted to use the CE methodology detailed in their application for exemption dated January 28, 1998, for developing P-T limits for the Indian Point Nuclear Generating Station Unit No. 3.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the quality of the human environment ( 63 FR17902 ).

This exemption is effective upon issuance. Dated at Rockville, Maryland, this 10th day of April 1998.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by  
Samuel J. Collins

Samuel J. Collins, Director  
Office of Nuclear Reactor Regulation

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NAME	GWueller/rs1		SLittle	SBajwa		JZwol/insk
DATE	03/24/98		03/24/98	03/17/98	03/17/98	03/16/98
OFFICE	NRR:ADPR(A)		NRR:D			
NAME	BBoger		SCollins			
DATE	03/18/98		03/10/98	03/17/98	03/17/98	03/17/98

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NAME	GWagner/rs1		SLittle	SBajwa		JZwojinski
DATE	03/24/98		03/24/98	03/7/98	03/11/98	03/16/98
OFFICE	NRR:ADPR(A)		NRR:D			
NAME	BBoger		SCollins			
DATE	03/8/98		03/10/98	03/11/98	03/11/98	03/11/98

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**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

April 10, 1998

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Chief Nuclear Officer  
Power Authority of the State  
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123 Main Street  
White Plains, NY 10601

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A copy of the exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

A handwritten signature in cursive script, reading "George F. Wunder", is written over a horizontal line.

George F. Wunder, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-286

Enclosure: Exemption

cc w/encl: See next page

James Knubel  
Power Authority of the State  
of New York

Indian Point Nuclear Generating  
Unit No. 3

cc:

Regional Administrator, Region I  
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Resident Inspector  
Indian Point 3 Nuclear Power Plant  
U.S. Nuclear Regulatory Commission  
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Nuclear Safety and Licensing  
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and Chief Operating Officer  
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Mayor, Village of Buchanan  
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Assistant Attorney General  
New York Department of Law  
120 Broadway  
New York, NY 10271

**UNITED STATES OF AMERICA**  
**NUCLEAR REGULATORY COMMISSION**

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

**EXEMPTION**

**I.**

The Power Authority of the State of New York (the licensee) is the holder of Facility Operating License No. DPR-64, which authorizes operation of the Indian Point Nuclear Generating Unit No. 3 (IP3). The license provides that the licensee is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

The facility is a pressurized water reactor located in Westchester County, New York.

**II.**

The Code of Federal Regulations 10 CFR 50.60, states that the reactor coolant pressure boundaries for light water reactors must meet the fracture toughness and material surveillance program requirements set forth in Appendices G and H to 10 CFR Part 50.

By letter dated January 28, 1998, the licensee requested an exemption from 10 CFR 50.60 to allow the use of an alternate methodology for the development of pressure-temperature (P-T) curves. As an alternative, the licensee proposed to use a methodology by ABB Combustion Engineering Nuclear Operations (the CE methodology).

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 (the 1989 ASME Appendix G methodology or the 1989 methodology); therefore, the staff must review and approve the use of the CE methodology. The staff has reviewed the licensee's

request and approves the use of the CE methodology in place of the 1989 methodology for the construction of reactor vessel pressure-temperature (P-T) limits as described in 10 CFR Part 50, Appendix G. The CE methodology was used in the licensee's P-T limit amendment submittal dated February 27, 1998.

### 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, Section 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." The Code of Federal Regulations at 10 CFR 50.55(a) specifies that the applicable ASME Code is the 1989 Edition. The Code of Federal Regulations at 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 CE methodology for constructing its P-T limits in place of the 1989 ASME Appendix G methodology approved by the staff in the regulations; therefore, the licensee applied for an exemption to use the CE 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 would not serve



the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule." In the application, the licensee stated that "The use of ABB-CE alternate methodology requested by this exemption provides greater operational flexibility while still maintaining reactor vessel integrity. In addition, the use of the ABB-CE methodology to generate pressure-temperature curves yields comparable results to the use of the ASME Appendix G methodology. Therefore, the reactor vessel is protected against nonductile failure and the underlying purpose of the rule is achieved."

The staff reviewed the licensee's application and the CE methodology and has concluded that this alternative method meets the underlying intent of the regulations. The thermal analysis method of the CE methodology consists of a plant-specific thermal analysis and a fracture mechanics analysis based on influence coefficients from finite element analyses under thermal loading. The staff review determined that this thermal analysis method is more rigorous than that of the 1989 methodology and that the rest of the CE methodology is the same as the 1989 ASME Appendix G methodology. The staff concludes, therefore, that an exemption under the special circumstances of 10 CFR 50.12(a)(2)(ii) is appropriate, and that the application of the CE methodology meets the underlying intent of the regulations.

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.


Therefore, the Commission hereby grants the following exemption:

The Power Authority of the State of New York is exempt from the requirements of 10 CFR 50.60 in that they are permitted to use the CE methodology detailed in their application for exemption dated January 28, 1998, for developing P-T limits for the Indian Point Nuclear Generating Station Unit No. 3.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the quality of the human environment (63 FR 17902 ).

This exemption is effective upon issuance. Dated at Rockville, Maryland, this 10th day of April 1998.

FOR THE NUCLEAR REGULATORY COMMISSION

  
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