

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

February 24, 2000

SUBJECT: RELIEF REQUEST FROM AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BOILER AND PRESSURE VESSEL CODE (ASME CODE) SECTION XI FOR
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 (TAC NO. MA5684)

Dear Mr. Knubel:

By letter dated May 17, 1999, you requested relief from the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI requirements regarding repair to a leak in a Class 3, moderate energy pipe at the Indian Point Nuclear Generating Unit No. 3. The leak was detected in an 18-inch nominal pipe size service water (SW) supply pipe to component cooling water heat exchanger #31.

The Nuclear Regulatory Commission staff has reviewed your request for relief and finds that performing a Code repair on the leaking river water pipe while the unit is operating is impractical. Pursuant to 10 CFR 50.55a(g)(6)(i) and consistent with the guidance in Generic Letter 90-05, relief is granted until the end of the refueling outage that began on September 10, 1999. We understand that the temporary non-Code repair was replaced with a Code repair during the last outage.

The granting of relief where Code requirements are impractical and imposing alternative requirements is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest, given due consideration to the burden upon the facility that could result if the Code requirements were imposed on the facility.

The staff's safety evaluation is enclosed.

Sincerely,

/RA by Peter Tam for/

Marsha Gamberoni, Acting Chief, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-286

Enclosure: Safety Evaluation

cc w/encl: See next page

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Unit No. 3

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM

POWER AUTHORITY OF THE STATE OF NEW YORK

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

DOCKET NUMBER 50-286

1.0 INTRODUCTION

By letter dated May 17, 1999, the Power Authority of the State of New York (PASNY or the licensee) requested relief from the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI requirements regarding repair to a leak in a Class 3, moderate energy pipe at the Indian Point Nuclear Generating Unit No. 3. The leak was detected in an 18-inch nominal pipe size service water (SW) supply pipe to component cooling water heat exchanger #31. The SW system conveys water at design temperature of 160 °F and pressure of 150 psi. The pipe is cement lined carbon steel of nominal wall thickness of 0.375 inch.

The leak in the pipe, about 4 drops per minute, is from a weld downstream of valve SWN-34-1. The licensee attributed the leak to crevice corrosion where a corrosion mechanism is created in the gap between two welded sections of cement lined pipes. An ultrasonic (UT) examination at the leak location revealed degraded weld of 1.5 inches in length with 15 percent of nominal wall thickness. Away from the pin hole, the pipe wall thickness ranges from 37 percent to 147 percent of nominal wall thickness.

The licensee considered the on-line repair of the SW piping not practical because it is difficult to establish a proper isolation boundary and the repair and replacement procedure could take longer than the 48 hour allowed outage time for the component cooling water (CCW) heat exchanger. Based upon the above, the licensee submitted a relief request in accordance with the provisions of Generic Letter (GL) 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping." The licensee requested relief until a Code repair could be performed during refueling outage (RFO)10.

2.0 DISCUSSION AND EVALUATION

The Code of Federal Regulations, 10 CFR 50.55a(g), requires nuclear power facility piping and components to meet the applicable requirements of Section XI of the Code. This section of the Code specifies Code-acceptable repair methods for flaws that exceed Code acceptance limits in piping that is in service. A Code repair is required to restore the structural integrity of flawed Code piping, independent of the operational mode of the plant when the flaw is detected. Those repairs not in compliance with Section XI of the Code are non-Code repairs.

In some circumstances, the required Code repair may be impractical unless the facility is shut down. In such cases, the Commission may evaluate determinations of impracticality and may grant relief and impose alternative requirements pursuant to 10 CFR 50.55a(g)(6)(i). GL 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping" (dated June 15, 1990), provides guidance to the staff for evaluating relief requests submitted by licensees for temporary non-Code repairs to Code class 3 piping.

On November 7, 1991, the Commission issued GL 91-18, "Information to Licensees regarding two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability." This GL and the NRC Inspection Manual Part 9900 provided detailed discussions of specific operability determinations, one of which was operational leakage. In this regard, Section 6.15 of Part 9900 states the following:

"Upon discovery of leakage from a Class 1, 2, or 3 component pressure wall (i.e., pipe wall, valve body, pump casing, etc.) the licensee should declare the component inoperable. The only exception is Class 3 moderate energy piping as discussed in Generic Letter 90-05. For Class 3 moderate energy piping, the licensee may treat the system containing the through-wall flaw(s), evaluated and found to meet the acceptance criteria in Generic Letter 90-05, as operable until relief is obtained from the NRC."

The licensee has evaluated the flaw in accordance with GL 90-05. The licensee has used the "through-wall flaw" approach for the pin hole area of the SW pipe and the "wall thinning" approach for area outside the pin hole. The licensee concluded that the structural integrity is adequate for continued operation of the unit for 2 1/2 years and proposed to install a rubber patch to stop or reduce the leakage from the SW pipe pin hole for housekeeping purposes. The staff reviewed the evaluation and confirmed that both approaches are in accordance with GL 90-05 and Code Case 480 that was referred to by the GL. Further, the issues of flooding, water spraying on other equipment, and loss of flow were analyzed and found to be insignificant to the operation of the SW system. The licensee has also performed an augmented inspection using UT. This inspection did not find any additional locations with degradation below Code requirements for wall thickness.

The licensee has proposed to conduct weekly monitoring of the affected location during plant walkdown inspections and to perform periodic augmented UT inspections once every 3 months as specified in GL 90-05.

3.0 CONCLUSION

The NRC staff has reviewed the licensee's request for relief and finds that the licensee has followed the analytical methods provided in GL 90-05. Furthermore, the staff finds that performing a Code repair on the leaking river water pipe while the unit is operating is impractical. The staff concludes that the granting of relief where Code requirements are impractical and imposing alternative requirements is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest, given due consideration to the burden upon the licensee and facility that could result if the Code requirements were imposed on the facility. Pursuant to 10 CFR 50.55a(g)(6)(i) and consistent with the guidance in GL 90-05, relief is granted until the end of RFO 10.

Principal Contributor: S. Sheng

Date: February 24, 2000