

March 21, 2000

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

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. MA6830)

Dear Mr. Knubel:

By letter dated September 15, 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 Indian Point Unit 3. The leak was detected in a 10-inch nominal pipe size service water header supply pipe (Line 1093) to the emergency diesel generators.

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 that 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/*

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 September 15, 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 Indian Point Unit 3 (IP3). The leak was detected in a 10-inch nominal pipe size service water (SW) header supply pipe (Line 1093) to the emergency diesel generators (EDGs). The SW system has a design temperature of 160 °F and pressure of 150 psi. The pipe is cement lined carbon steel of nominal wall thickness of 0.365 inch.

The leak in the pipe, about 2 drops per minute, is upstream of valve SWN-30. 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 that the degraded pipe area was about 0.5 inch in length with less than 30 percent of nominal wall thickness.

The licensee considered the on-line repair of the SW piping not practical because the leaked SW line, which is the essential supply line from the three SW pumps to all three EDGs, cannot be removed from service during plant operations. 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 requests relief until a Code repair can be performed during the refueling outage (RFO) 10, in September 1999.

2.0 DISCUSSION AND EVALUATION

The Code of Federal Regulations, part 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 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 generic letter 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 of the GL for the pin hole area of the SW pipe. The allowable through-wall crack length calculated by the licensee for the as-is condition is 3.0 inches for the emergency loading condition. This allowable crack length exceeds the detected degraded pipe area of 0.5 inch in length by a large margin. Consequently, the licensee concluded that the structural integrity is adequate for continued operation of the Unit from August 19, 1999, the date that the licensee found the leak, through the end of RO 10. A rubber patch may be installed to stop or reduce the leakage from the SW pipe pin hole for housekeeping purposes. The staff reviewed the evaluation and confirmed that the plant-specific evaluation curve for the 10-inch SW lines that was developed by the licensee and the application of the evaluation curve in the submittal is 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 found two additional locations with degradation (no leakage), one on the same line and the other on a different SW line (Line 1099). Both were found acceptable structurally. The licensee has proposed to conduct weekly monitoring of the affected location during plant walkdown inspections and to perform periodic augmented UT inspections as specified in GL 90-05.

### 3.0 CONCLUSION

The staff has reviewed the licensee's request for relief and finds that the licensee has followed the analytical methods provided in GL 90-05. Further, 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 through the completion of RO 10.

Principal Contributor: S. Sheng

Date: March 21, 2000