October 19, 1998

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

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT - DRAFT REQUEST FOR ADDITIONAL INFORMATION REGARDING GENERIC LETTER 96-06 (TAC NO. M96812)

Dear Mr. Knubel:

On July 30, 1998, you provided additional information regarding your response to Generic Letter 96-06, "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions." The NRC staff has determined that additional information regarding your response will be required to complete its review of this issue. A draft copy of the information request was provided to you on September 29, 1998. The final request for additional information is given in the enclosure, and is unchanged from the September 29 draft. On October 5, 1998, Mr. Art Zaremba of your staff informed me of your intent to provide the requested information within 30 days of the end of the upcoming FitzPatrick refueling outage. If you have questions on this topic, please contact me at (301) 415-1470.

Sincerely,

original signed by:

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

Docket No. 50-333
Enclosure: Request for Additional Information
cc w/encl: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Docket No. 50-333

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James Knubel
Power Authority of the State
of New York

James A. FitzPatrick Nuclear
Power Plant

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JAMES A. FITZPATRICK NUCLEAR POWER PLANT

GENERIC LETTER 96-06 - ASSURANCE OF EQUIPMENT OPERABILITY AND CONTAINMENT INTEGRITY DURING DESIGN BASIS ACCIDENT CONDITIONS

REQUEST FOR ADDITIONAL INFORMATION

1. In its July 30, 1998, submittal, the New York Power Authority (NYPA, also known as the Power Authority of the State of New York) indicated that a total of 23 pipe segment penetrations were potentially susceptible to thermally-induced pressurization. NYPA stated that 9 of these segments are Reactor Building Closed Loop Cooling (RBCLC) containment penetrations for which there would be no thermal pressurization damage due to the following two considerations. The first consideration is that fluid pressure would lift the air operated globe valves by pressurizing under the valve seats. The second consideration is that the isolation valves require manual isolation which does not occur until after 10 minutes following a loss-of-coolant accident which would preclude enough heatup within the penetrations to cause thermal pressurization.

   Please provide the following information for these penetrations:

   A. Describe the applicable design criteria for the piping and valves. Include the required load combinations;

   B. Provide a drawing of the valve. Describe the method used to estimate the pressure at which the valve was determined to lift off its seat or leak. Discuss any sources of uncertainty associated with the estimated valve disk lift off or leakage pressure;

   C. Provide the maximum-calculated stress in the piping run based on the estimated lift off or leakage pressure;

   D. The licensee states that plant operating procedures only direct the operators to isolate the valves for these penetrations if there are symptoms of a breach in the RBCLC piping and that 10 minutes elapsed time is assumed for operator action. Describe how the plant operating procedures assure that the operators would not take action at any time prior to 10 minutes;

   E. Provide the maximum-calculated temperature and pressure for the pipe runs. Describe, in detail, the method used to calculate these pressure and temperature values. This description should include a discussion of the heat transfer model used in the analysis and the basis for the heat transfer coefficients used in the analysis. Include the lengths and thicknesses of the piping segments and the type and thickness of the insulation.

2. In its July 30, 1998, submittal, NYPA stated that 11 of the 23 pipe segment penetrations were evaluated for the thermal pressure conditions which would occur with the consideration that an isolation valve would lift off its seat to limit the pressure. For these, the licensee evaluated the pipe stresses due to thermal pressurization and other loads in accordance with ASME Appendix F criteria.

Please provide the following information for these penetrations:

A. The acceptance criteria includes a load combination for a Normal/Upset Primary Stress condition which is 2.4 times the basic allowable stress at temperature. Since Appendix F does not address Normal/Upset conditions, the staff believes that the 2.4 factor is inappropriate for these conditions. Please provide clarification regarding the appropriate criteria for Normal/Upset thermal pressurization conditions and how it is applied to the components evaluated;

B. The licensee does not combine thermal pressurization loads with occasional hydrodynamic loads. The licensee states that hydrodynamic loads will dissipate before internal pressure can significantly increase. Describe in detail the hydrodynamic loads which can occur for these penetrations and when they specifically occur relative to thermal pressurization for licensing basis events;

C. Describe the applicable design criteria for the isolation valves. Include the required load combinations;

D. Provide a drawing of the valves. Describe the method used to estimate the pressure at which the valve was determined to lift off its seat or leak. Discuss any sources of uncertainty associated with the estimated valve disk lift off or leakage pressure;

E. In addition, for two of these 11 penetrations (X-18 and X-19), NYPA states that the leak path generated through one of the isolation valves is "non-resealing" due to the seat materials. This infers that the leak would be caused due to significant deformation of the valve internals. This scenario appears to involve much more uncertainty in determining the peak pressure than for a valve where fluid pressure under a disk acts against a linear-elastic spring resistance. The licensee also relies on the other isolation valve remaining leak-tight until this valve leaks to relieve the fluid pressure. Address the uncertainty in determining the peak pressure and how it is assured that the sole remaining containment isolation valve will remain leak-tight and not undergo similar damage during the pressurization.

3. In its submittal dated July 30, 1998, NYPA stated that Pipe Line Numbers 3"-WL-151-1A and 1B may also be subject to thermal pressurization, but were not analyzed since they are not required for containment integrity. Please verify that containment isolation is the only safety function of this system.

4. In its submittal dated July 30, 1998, the licensee also stated that for High Pressure Coolant Injection penetration X-226, isolation valve leakage tests would be required, "perhaps on a periodic basis," to verify sufficient leakage to prevent pressure locking of the valves. Please clarify the specific frequency of the tests necessary to verify the required leakage.