Jersey Central Power & Light Company

MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N.J. 07960 • 539-6111

May 1, 1972

Dr. Peter A. Morris, Director
Division of Reactor Licensing
United States Atomic Energy Commission
Washington, D. C. 20545

Dear Dr. Morris:

Subject: Docket No. 50-219
Oyster Creek Station
Safety Valve Seat Bushing Cracks

The purpose of this letter is to provide you with an interim report regarding the discovery of cracks in the seat bushings of two main steam safety valves at the Oyster Creek Station.

Liquid penetrant inspection of the pressure containing parts of five spare safety valves at Oyster Creek has disclosed cracks in the seat bushing of two valves. The five valves inspected had been in service from plant startup in 1969 to September 1971 at which time they were replaced by five similar valves in order to permit them to be bench checked for set point.

One of the two cracked seat bushings has been sent to the Vallecitos Nuclear Center for metallographic examination. Preliminary results of the examination indicate the cracks extend to a maximum depth of approximately 150 mils and are transgranular.

Mr. Floyd Cantrell, AEC Region I Compliance Office, was informed of the cracks on April 21, 1972 and was furnished information on the valve design in accordance with his request.

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The Oyster Creek Station has a total of sixteen six-inch diameter spring-loaded safety valves on the main steam lines between the reactor vessel and the isolation valves. A drawing of the safety valve identifying the primary parts is shown in Figure 1. As shown on Figure 1, the seat bushing and the disc are the reactor coolant pressure boundary. The seat bushing is machined from 304 stainless steel. The disc is machined from 422 stainless steel. Both the seat bushing and the disc were ultrasonic and liquid penetrant inspected at the time of manufacture.

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The first of five spare safety valves was being disassembled and decontaminated for return to the factory for set point checks on steam and nitrogen when difficulty was experienced in cleaning the seat bushing. A liquid penetrant inspection of the part disclosed cracks in the areas of the radioactive contamination.

After cracks were observed in the seat bushing of the first valve, the remaining four spare safety valves were completely disassembled and the seat bushing and the disc from each valve was liquid penetrant inspected. The examination disclosed cracks in two of the five seat bushings. No cracks were observed in the five discs.

The seat bushing from valve serial number BK-6247 had radial cracks at the valve seat and circumferential cracks at the inner radius above the threads. The radial cracks started at the outside surface and extended part way across the seat face.

The circumferential crack extended around a major portion of the circumference. The maximum depth of the circumferential cracks was approximately 120 mils as determined by grinding out the cracks. There was no crack indications on the inside diameter of the seat bushing.

The seat bushing from valve serial number BK-6268 had approximately fifteen radial cracks across the seat, numerous longitudinal cracks on the outer diameter and circumferential cracks at the inner radius above the threads. No crack indications were found on the inside diameter with the exception of those on the seat face, or in the flange area of the part.

Following the liquid penetrant inspection at the station that was performed by Jersey Central Power & Light Company personnel and witnessed by the valve vendor and Jersey Central consultant personnel, the seat bushing from valve BK-6268 was shipped to the Vallecitos Nuclear Center for destructive metallographic examination. Samples examined to date indicate the cracks extend to a maximum depth of 150 mils and are all transgranular. The examination also disclosed that the material is fully annealed and shows no sensitization.

We will keep you advised as additional information is developed.

Twenty-five copies of the letter are attached.

Very truly yours,

Ivan R. Finfrock, Jr.
Manager, Nuclear Generating Stations

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Enclosures

cc: Mr. J. P. O'Reilly, Director
Division of Compliance, Region I

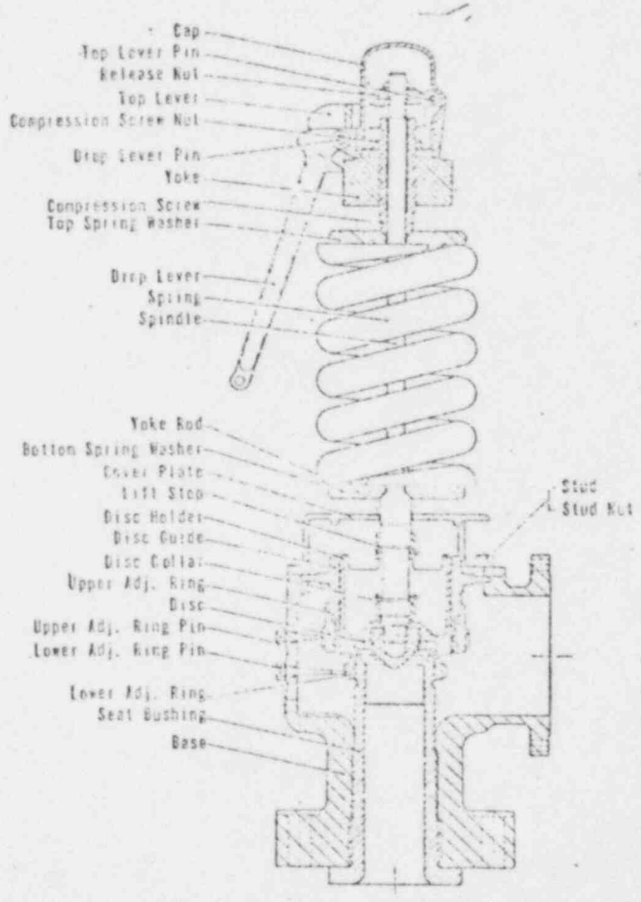

FIGURE I - MAXIFLOW SAFETY VALVE