UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

January 6, 1977

Docket No. 50-29

Yankee Atomic Electric Company
Attention: Mr. Robert H. Groce
Licensing Engineer
20 Turnpike Road
Westborough, Massachusetts 01581

Gentlemen:

The enclosed IE Circular, 77-01 is forwarded to you for your information. No written response is required.

Should you have any questions concerning this matter, please contact this office.

Sincerely,

Robert F. Carlson for
James P. O'Reilly
Director

Enclosure:
IE Circular No. 77-01

cc: H. Autio, Plant Superintendent
Donald G. Allen, President

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NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

IE Circular No. 77-01
Date: January 6, 1977


MALFUNCTIONS OF LIMITORQUE VALVE OPERATORS

DESCRIPTION OF CIRCUMSTANCES:

On October 28, 1976, Portland General Electric Company reported that the two motor operated (Limitorque) valves located between the Refueling Water Storage Tank and the charging pump suction at the Trojan Nuclear Plant failed to open in response to a spurious safety injection (SI) signal. The malfunction in both valves resulted from the torque limit switch in the opening circuit becoming activated before the valve was fully off its seat.

The licensee's investigation revealed that in each case the valve had been manually closed hard on its seat following a maintenance operation.

The licensee's investigation of this occurrence revealed difficulty in the opening of three additional motor operated (Limitorque) valves in the inlet and outlet piping of the Boron Injection Tank. Each of the valves failed to open in response to a single actuation of its manual control switch. In each case, the cause for failure was attributed to premature activation of the valve's torque limit switch. These valves had opened in response to the SI signal on October 28, 1976, following which they were closed normally using their motor operators.

Subsequent investigation by the licensee revealed that each of the valves which malfunctioned was equipped with a torque limit switch in the opening circuit, the actuation of which stops valve motion. The valves are also equipped with an adjustable bypass switch which defeats the function of the torque limit switch when the valve is being moved from its full open or full closed position. Each of the valves which malfunctioned was found to have its bypass switch adjusted such that it allowed the limit torque switch to be unbypassed and operable in the circuit before the valve was moved from its seat. Examination by the licensee revealed similar improper adjustment of the bypass switches on several other motor operated valves in safety related systems.

Corrective actions by the licensee included the establishment of procedural controls to insure that valves which are manually closed are checked for proper operation (by cycling them open with the motor operator) prior to their being declared operational. The bypass switches on all similar motor operated valves were checked and their position in terms of proper valve travel adjusted.

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RECOMMENDED ACTION BY LICENSEES:

If valves similar to those described are in use in safety related systems, you should verify that your procedures contain adequate provisions to insure that these valves are adequately checked for operation following maintenance or manual closure, and that operating personnel are properly instructed to assure conformance with the procedures. You should also verify that measures are taken to insure the proper setting of torque limit switches and limit switch bypasses, to assure that the bypass function is not negated prematurely in either the opening or closing cycle.

No written response to this Circular is required. If you require additional information regarding this matter, contact the Director, of the appropriate NRC Regional Office.