

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

July 26, 1978

-----

Docket Nos. 50-320 - 50-289

Metropolitan Edison Company ATTN: Mr. J. G. Herbein Vice President - Generation P. O. Box 542 Reading, Pennsylvania 19603

Gentlemen:

The enclosed IE Circular No. 78-16 is forwarded to you for information. No written response is required. Should you have any questions related to your understanding of this matter, please contact this office.

Sincerely,

smis M. allan ce H. Grier

80-074

Director

Enclosures: 1. IE Circular No. 78-16 2. List of IE Circulars Issued in 1978

cc w/encls: T. Broughton, Safety and Licensing Manager J. J. Barton, Project Manager R. C. Arnold, Vice President - Generation L. L. Lawyer, Manager - Generation Operations - Nuclear G. P. Miller, Superintendent J. P. O'Hanlon, Unit 1 Superintendent J. L. Seelinger, Unit 2 Superintendent - Technical Support I. R. Finfrock, Jr. Mr. R. Conrad G. F. Trowbridge, Esquire Miss Mary V. Southard, Chairman, Citizens for a Safe Environment

1904260490

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

> IE Circular No. 78-16 Date: July 26, 1978 Page 1 of 2

## LIMITORQUE VALVE ACTUATORS

At Rancho Seco, a Limitorque Type SMB-2 motor-driven valve actuator in a safety feature system failed to function. The failure resulted from clutch wear which was due to manual operation of the valve and improper heat treatment of the clutch parts. Other SMB valve actuators at Rancho Seco had been subjected to undue clutch wear, but were still operable. Based on information obtained from the licensee and from Limitorque Corporation, undue wear appears to be limited to Type SMB-0, 1, 2, and 3 valve actuators equipped with 3600 rpm motors.

The type SMB valve actuator is provided with a handwheel so that the valve can be actuated manually in the event that power is unavailable. To shift from motor drive to handwheel drive, the operator must manually position a clutch so that the motor is disengaged from the drive train and the handwheel is engaged. The clutch latches into this position and cannot be manually repositioned. The next time that the motor is energized, the latch releases automatically and a spring repositions the clutch so that the motor engages the drive train.

When the clutch is repositioned, a pair of lugs on the motor-side of the clutch engages a pair of lugs on the valve-side. At the instant the lugs engage, the lugs on the motor-side are being accelerated to full speed and the lugs on the valve-side are stationary. Before the motor is energized, the relative position of the lugs is random. This initial position determines the depth of engagement or bite at the instant the lugs make contact. When a full bite occurs, no damage is caused to the lugs. When a grazing bite occurs, the edges of the lugs are chipped or upset. After the edges are sufficiently rounded, the clutch will not engage and hold for motor actuation.

The licensee estimated that the failure of the Type SMB-2 valve actuator occurred after it had been clutched 25 to 100 times. The valve which failed to function at Rancho Seco (SFV-25003) is operated by the actuator and is a safety features valve in a line connecting the borated water storage tank to a high pressure safety injection pump and a decay heat removal (low head safety injection) pump. The valve actuator is wired

so that the valve which it controls fully closed position once the motion

80-076

DUPLICATE DOCUMENT

No. of pages:

Entire document previously entered into system under:

ANO 7808230012