

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

IN 81-40

March 20, 1981

Information Notice No. 81-40

POTENTIALLY SIGNIFICANT EQUIPMENT FAILURES
CAUSING UNECESSARY RADIATION EXPOSURE TO
PUBLIC RESULTING FROM DRUG-RELATED INCIDENTS

Description of Circumstances:

During an engineering evaluation of the scram discharge air system in response to recently issued NRC requirements, the Boston Edison Company identified a potential path for loss of primary coolant at its Pilgrim Nuclear Power Station. The licensee found that the installed location of an anticipated transient without scram (ATWS) alternate rod insertion (ARI) solenoid valve could cause actuation of control rods without an associated closure of the scram discharge vent and drain valves. The loss of coolant could then follow an ARI actuation through the open vent and drain valves to the reactor building sump. The rate of coolant loss through the inserted drives could be approximately 500 gpm (based on 4 gpm per drive for 145 control rod drives) that would be released by the open vent and drain valves. This loss rate is well within the 4250 gpm capability of the high pressure coolant injection (HPCI) system. However, the capability of the reactor core isolation cooling (RCIC) system would be the 100 gpm of the CRD pumps to maintain level.

An alternate rod insertion installation was completed at the Pilgrim BWR during the refueling outage ending in May 1980. The installation was intended to permit dumping the air header supplying the scram valves. This function is similar to that provided by the backup scram valves, and it provides a means for inserting the control rods in the event of an ATWS that includes failure of the reactor protection system. The testing of the ARI installation at the time apparently failed to confirm vent and drain valve function.

During identification of the potential path for loss of primary coolant, the licensee reviewed plant procedures to assure that until system modifications could be completed, immediate operator actions during an ATWS event include closing the scram discharge vent and drain valves. It is noted that instrumentation installed in the scram discharge header in response to NRC Bulletin 80-17 and the instrumented volume level switches should alert the operator to the presence of reactor coolant following ARI actuation.

The licensee modified the system during a scheduled outage in February, 1981 to cause the scram discharge volume vent and drain valves to close in the event of ARI actuation.

Also enclosed are draft copies of the transmittal letters

James W. Snierek, Director
Division of Resident and
Regional Franchise Inspection

Enclosure

- 1 Draft Transmittal letter
for Action
- 2 Draft Transmittal letter
for Information
- 3 IF Supplement No. 4 to
BU letter No. 80-17

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