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

March 30, 1981

IE Information Notice No. 81-11: ALTERNATE ROD INSERTION FOR BWR SCRAM
REPRESENTS A POTENTIAL PATH FOR LOSS OF
PRIMARY COOLANT

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 insertion of control rods without an associated closure of the scram discharge volume 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 equipment drain tank and then to the reactor building sump. The rate of coolant loss through the inserted drives could be approximately 500 gpm (based on 3 to 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 400 gpm capability of the reactor core isolation cooling (RCIC) system would need the 100 gpm of the CRD pumps to maintain level.

The 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 Pilgrim apparently failed to confirm vent and drain valve function.

Following 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 would include closing the scram discharge vent and drain valves. It is noted that instrumentation installed in the scram discharge header in response to Bulletin 80-17 and the instrumented volume level switches should alert the reactor 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.

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Discussion with General Electric indicates that they plan to provide pertinent information to operating BWR licensees regarding the described potential path for loss of primary coolant.

This information is provided as a notification of a possibly significant matter which is still under review by the NRC staff. In case the continuing NRC review finds that specific licensee actions would be appropriate, an IE bulletin or circular may be issued. In the interim, we expect that BWR licensees will review this information for applicability to their facilities. Licensee testing of the ARI installation should also be reexamined to confirm that vent and drain valves close as a direct result of ARI actuation.

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

Attachment:
Recently issued IE Information Notices

RECENTLY ISSUED
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
81-10	Inadvertant Containment Spray Due to Personnel Error	3/25/81	All power reactor facilities with an OL or CP
81-09	Degradation of Residual Heat Removal (RHR) System	3/26/81	All power reactor facilities with an OL or CP
81-08	Repetitive Failures of Limitorque Operator SNB-4 Motor-to-Shaft Key	3/20/81	All power reactor facilities with an OL or CP
81-07	Potential Problem with Water-Soluble Purge Dam Materials Used During Inert Gas Welding	3/16/81	All power reactor facilities with an OL or CP
81-06	Failure of ITE Model K-600 Circuit Breaker	3/11/81	All power reactor facilities with an OL or CP
81-05	Degraded DC System at Palisades	3/13/81	All power reactor facilities with an OL or CP
81-04	Cracking in Main Steam Lines	2/27/81	All power reactor facilities with an OL
81-03	Checklist for Licensees Making Notifications of Significant Events in Accordance with 10 CFR 50.72	2/12/81	All power reactor facilities with an OL
81-02	Transportation of Radiography devices	1/23/81	All Radiography licensees
81-01	Possible Failures of General Electric Type HFA Relays	1/16/81	All power reactor facilities with an OL or CP.

OL = Operating Licenses
CP = Construction Permits