



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

November 7, 1980

Those on Attached Address Listing:

This IE Information Notice No. 80-40 is provided as an early notification of a possibly significant matter. It is expected that recipients will review the information for possible applicability to their facilities. No specific action or response is requested at this time. If further NRC evaluations so indicate, an IE Circular or Bulletin will be issued to recommend or request specific licensee actions. If you have questions regarding this matter, please contact this office.

Sincerely,

James G. Keppler
for James G. Keppler
Director

Enclosure: IE Information
Notice No. 80-40

cc w/encl:
Mr. D. W. Kane,
Sargent & Lundy
Mr. Gary N. Wright, Chief
Division of Nuclear Safety
Reproduction Unit NRC 20b

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RIII's CORPORATE ADDRESSES FOR OPERATING LICENSEES AND CONSTRUCTION PERMIT HOLDERS
(BWR's and PWR's)

Docket No. 50-329
Docket No. 50-330

Consumers Power Company
ATTN: Mr. James W. Cook
Vice President
Midland Project
1945 West Parnall Road
Jackson, MI 49201

cc w/encl:
Central Files
Director, NRR/DPM
Director, NRR/DOR
PDR
Local PDR
NSIC
TIC
Ronald Callen, Michigan
Public Service Commission
Myron M. Cherry, Chicago

Docket No. 50-409

Dairyland Power Cooperative
ATTN: Mr. F. W. Linder
General Manager
2615 East Avenue - South
La Crosse, WI 54601

cc w/encl:
Mr. R. E. Shimshak,
Plant Superintendent
Central Files
Director, NRR/DPM
Director, NRR/DOR
AEOD
Resident Inspector, RIII
PDR
Local PDR
NSIC
TIC
Mr. John Duffy, Chief
Boiler Inspector

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OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

SSINS No.: 6835
Accession No.:
8008220269
IN 80

November 7, 1980

IE Information Notice No.: 80-40: EXCESSIVE NITROGEN SUPPLY PRESSURE ACTUATES
SAFETY-RELIEF VALVE OPERATION TO CAUSE
REACTOR DEPRESSURIZATION

Description of Circumstances:

On October 7 and 31, 1980, the reactor coolant system was spuriously depressurized at Boston Edison Company's Pilgrim Nuclear Power Station Unit No. 1. The Pilgrim Station Unit 1 uses a GE BWR. The depressurizations resulted when excessive pressure in the nitrogen supply system caused the "A" Target Rock (TR) safety-relief valve to open and remain open until the excessive supply pressure could be isolated, pneumatic operator pressure vented and the main steam system depressurized sufficiently to allow the main disk to reseal. These two events involved a failure in the pressure regulation of the supply nitrogen and not a failure of the TR safety-relief valve to function as designed.

The safety-relief valves at Pilgrim are designed to be supplied, with other drywell instrumentation, from either the compressed air system or containment atmosphere control system (CACCS). The CACCS uses nitrogen for containment inerting. The supply for the safety-relief valves is provided from the CACCS through an ambient air vaporizer and then through one of two parallel pressure regulators or a parallel bypass line. Shortly before the time of each event a new supply of liquid nitrogen had been added to the storage tanks. At the time of the events the two pressure regulators were in service with the bypass closed. Nitrogen pressure supplying the valves increased to 160 - 165 psi. This may have been caused by liquid nitrogen reaching the pressure regulators or by a failure in a pressure regulator. The result was excessive pressure which was sufficient to leak through the solenoid actuator and initiate the pneumatic operator of the safety-relief valve.

The design normal operating pressure of the compressed air or nitrogen systems supplying the safety-relief valves is 90-110 psi. At a pressure of 145 psi the solenoid valve may begin to leak since excessive pressure acts to unseat the disk. The supply pressure must then decrease to 135 psi or less for the solenoid disk to reseal. In addition, the design of the safety-relief valve is such that as the main steam pressure increases, less instrument pressure is necessary to initiate the pneumatic operator. Approximately 3 to 5 psi at the pneumatic operator is sufficient to initiate the safety-relief valve opening. Such a pressure begins to build with leakage through the solenoid actuator and was reached in the "A" valve at 160 psi supply pressure. According to information from GE and TRC, approximately 180 psi pressure is necessary for all of the safety-relief valves to open as result of supply overpressure. It would appear that under such conditions of overpressure that safety-relief valve openings would be sequential rather than simultaneous.

The particular solenoid actuator valves used on the safety-relief valves are manufactured by TRC. Their design pressure tends to unseat the solenoid valve. The safety-relief valves use either AVCO (Automatic Valve Company) solenoid valves according to information from TRC.

DUPLICATE DOCUMENT

Entire document previously
entered into system under:

ANO 8008220269

No. of pages: 10