

TELECOPY MESSAGE

215-337-5324

Telephone Number

Date/Time: Oct. 10. / 1980

To: Director, Region I
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

From: Pilgrim Nuclear Power Station
RFD #1 Rocky Hill Road
Plymouth, MA 02360

Subject: PROMPT REPORTABLE OCCURRENCE
Docket Number 10-293; License DPR-35

Assigned LER Number 90-069/DIX-0 (Reported per Technical Specification 6.9.3.)

Event Description: On October 7, 1980 at 0403 hours with the reactor at 96 percent steady state power operation, the reactor vessel relief valve RV 203-1A opened. The reactor was subsequently manually scrammed and an investigation to determine the cause of the relief valve operation initiated.

Cause and Corrective Action: Investigation revealed that high nitrogen pressure of 160 psi resulted in leakage past the seat of the valve's three-way solenoid control valve into the diaphragm of the relief valve causing it to lift. Nitrogen pressure was reduced to 110 psi.

Facility Status:

a) Routine Startup _____
b) Routine Shutdown _____
c) Steady State Y
d) Load Changing _____

96 % Thermal MW

e) Shutdown _____
f) Refueling _____
g) Other _____
h) Not Applicable _____

A written follow-up report will be sent within two weeks.

NRC person notified Mr. John Johnson

Prepared by Mr. M. Thomas McLoughlin

Mail (2) copies to:

Director
Office of Management Information and Program Control
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

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BOSTON EDISON COMPANY
PILGRIM NUCLEAR POWER STATION
DOCKET NO. 80-291

Attachment to LER 80-069/01X-0

Description

At 0403 hours on October 7, 1980 with the unit in steady state operation at 96% power and reactor pressure approximately equal to 1023 psi Safety Relief Valve (S.R.V.) 203-3A opened.

Station procedures were followed and unit taken off line. All indications are that the valve remained open until the vessel depressurized. Operations personnel tried many times during the pressure reduction, to cycle the valve using controls on control panel 903.

Unit was taken to cold shutdown, the drywell inerted, and an entry made at approximately 1700 hours the same day.

Cause and Corrective Action

Investigation revealed that the inadvertent opening of the S.R.V. was caused by excessive Nitrogen supply pressure. Nitrogen pressure at the time of the event was approximately 160-165 psi instead of the 110 psi indicated in the design specification.

This excessive pressure resulted in some leakage through the solenoid valve into the diaphragm of the S.R.V.

The design of the S.R.V., is such that the air pressure on the diaphragm needed to cause the S.R.V. to open reduces as the main steam pressure increases. This explains why the valve did not open until this particular reactor pressure level was realized.

The analysis indicates that the S.R.V. should have closed as the main steam pressure decreased as long as the leakage through the solenoid control valve remained constant. However, operating practices dictate that whenever a S.R.V. does open or is caused to open, attempts will be made to close it via controls on panel 903. This was done repeatedly during the time the vessel was depressurizing. When the control for "A" S.R.V. was placed first in the "open" position and then in the "close" position, the solenoid control valve energized and opened. The design of the control valve is such that it cannot close with either air or nitrogen pressure greater than 135 psi. The 160 psi Nitrogen pressure therefore, resulted in the control valve staying in the open position which prevented the S.R.V. from closing.

Until a permanent redesign of the N₂ supply system can be implemented, the following corrective measures have been initiated:

1. N₂ supply pressure will be maintained at 110 psi as indicated at PI 4339.
2. Station procedure No. 2.1.15 "Daily Surveillance Log" will be revised to require an operator verification check of nitrogen pressure once/shift.