

NRC Form 388  
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Pilgrim Nuclear Power Station (PNPS) - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 9 3	PAGE (3) 1 OF 0 2
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TITLE (4)  
Target Rock Safety Relief Valve Operability Problems - Update Report

EVENT DATE (6)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)																																																																																								
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)																																																																																						
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LICENSEE CONTACT FOR THIS LER (12)

NAME Richard M. Schifone - Plant Engineer	TELEPHONE NUMBER 6 1 1 7 7 1 4 6 - 1 7 1 9 1 0 0
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
B	S/B	R/V	T	0 2 0 Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	-	-	-

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 4/4/84, during a refueling outage, the Maintenance Department was notified by Wyle Laboratories that the pilot valves on two of the Target Rock two-stage Safety Relief Valves (S/RV's) did not lift within specification when diagnostically tested in the as-found condition. This is contrary to the requirements of the intent of PNPS Technical Specification (T.S.) 2.2.B which required the S/RV's to lift at 1095 psi ± 11 psi.

The cause of the Safety Relief Valves not lifting was determined to be stuck pilot valves. The root cause of the sticking was determined to be an oxide/corrosion product buildup between the seat and disc of the pilot valve.

Corrective action has been to change the pilot disc material from Stellite 6B to Stellite 21, since the latter has been proven to be less susceptible to the effect of oxide/corrosion product buildup.

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NRC Form 366A  
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104  
EXPIRES 8/31/85

FACILITY NAME (1) Pilgrim Nuclear Power Station - Unit 1	DOCKET NUMBER (2) 0   5   0   0   0   2   9   3	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8   4	-   0   0   5	-   0   1	0   2	OF 0   2

TEXT (If more space is required, use additional NRC Form 366A's) (17)

On 4/4/84, during a refueling outage, the Maintenance Department was notified by Wyle Lab. that the pilot valves on two of the Target Rock two-stage Safety Relief Valves, Model No. 7567F, did not lift within specification when diagnostically tested in the "as-found" condition. The valves were being tested in accordance with the requirements of T.S. 4.6.D.1, 4.6.D.2, and 4.6.D.5. Section 2.2.B of T.S. required the S/RV's to lift at 1095 psi ± 11 psi.

With the air operator actuated, the pilot valve disc on RV 203-3D, Serial No. 1049, did not lift with 200 psig Nitrogen pressure applied to the steam inlet connection. The valve was then disassembled in an attempt to determine cause of the pilot valve not lifting. Cause was determined to be that the pilot valve stuck on its seat. During inspection, a very small amount of material was noted on the disc and seat. Both surfaces were cleaned, and the valve refurbished and successfully tested.

The other pilot valve disc on RV 203-3A, Serial No. 1054, also did not lift with 200 psig Nitrogen applied to the steam inlet connection. This valve was subsequently tested and shown to have a 27 percent setpoint drift caused by the stuck pilot disc.

In addition, the valve top works were sent to the Massachusetts Institute of Technology for metallurgical analysis. This analysis indicated that oxidation/corrosion product buildup at the disc/seat junction contributed to Pilgrim's safety relief valve sticking problem. The results revealed numerous pits corresponding to carbide "pull-out" in the disc/seat region and a high density of fractured carbides in the disc/seat contact area. It is postulated that the fractured carbide particles enhance safety relief valve sticking by mechanically "keylocking" the corrosion products and that higher impact forces experienced while closing the SRV's at low reactor back pressures cause an increase in fractured carbides.

To reduce the effect of corrosion product bridging, BECo has replaced all of the Stellite 6B pilot discs with Stellite 21 discs. Furthermore, to reduce the quantity of cracked carbides, safety relief valve testing will be performed at a higher reactor back pressure.

The main steam system design utilizes four of the two-stage Target Rock Relief Valves. The other two valves, RV 203-3B and RV 203-3C, did lift within specification when tested.

These Target Rock Valves are of the same design as those addressed in I&E Information Notices 83-39, 82-41, and General Electric Service Information Letter (SIL) No. 196 and associated supplements.

A previous event of a similar nature was addressed in LER 81-062/01T-0 and update LER 81-062/01T-1.

This event did not impact the health and safety of the public.

BOSTON EDISON COMPANY  
800 BOYLSTON STREET  
BOSTON, MASSACHUSETTS 02199

WILLIAM D. HARRINGTON  
SENIOR VICE PRESIDENT  
NUCLEAR

October 9, 1984

BECo Ltr. #84-170

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Docket Number 50-293  
License DPR-35

Dear Sir:

The attached update Licensee Event Report 84-005-01, "Target Rock Safety Relief Valve Operability Problems," is hereby submitted in accordance with the requirements of 10CFR50.73.

If there are any questions on this subject, please do not hesitate to contact me.

Respectfully submitted,

*J E Howard for*  
W. D. Harrington

RS:caw

Enclosure: LER 84-005-01

cc: Dr. Thomas E. Murley  
Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

Standard BECo LER Distribution

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