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Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

Mike Bellamy
Site Vice President

10 CFR 50.73
ENGCLtr. 2.01.073

June 28, 2001

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

Docket No. 50-293
License No. DPR-35

Dear Sir:

The enclosed Licensee Event Report (LER) 2001-004-00, "*Target Rock Relief Valves' Test Pressures Exceed Technical Specification Limit*" is submitted in accordance with 10 CFR 50.73.

This letter contains no commitments.

Please do not hesitate to contact me if there are any questions regarding this report.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Bellamy".

Mike Bellamy

JRH/

Enclosure: LER 2001-004-00

cc: Mr. Hubert J. Miller
Regional Administrator, Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Sr. NRC Resident Inspector
Pilgrim Nuclear Power Station

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LICENSEE EVENT REPORT (LER)

(See reverse for number of digits/characters for each block)

APPROVED BY OMB NO. 3150-0104

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1)
PILGRIM NUCLEAR POWER STATION

DOCKET NUMBER (2)
05000-293

PAGE(3)
1 of 5

TITLE (4)
Target Rock Relief Valves' Test Pressures Exceed Technical Specification Limit

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	30	2001	2001	004	00	06	28	2001	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (Check one or more) (11)							
POWER LEVEL (10)	000	20.2201 (b)	20.2203(a)(2)(v)	X	50.73(a)(2)(i)(B)	50.73(a)(2)(viii)			
		22.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)(B)	50.73(a)(2)(x)			
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71			
		20.2203(a)(2)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER			
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A			
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)(D)				

LICENSEE CONTACT FOR THIS LER (12)

NAME Bryan S. Ford – Licensing Manager	TELEPHONE NUMBER (Include Area Code) (508) 830-8403
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE(15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Two Target Rock pilot assemblies for the Pilgrim Station main steam relief valves were removed during refueling outage (RFO) 13 for ASME Section XI testing. On April 30, 2001, Pilgrim Station was notified by Wyle Laboratories that the as-found relief pressures of both pilot assemblies exceeded the Technical Specification 3.6.D.1 limit of 1115 psig ± 11 psi (± 1%). The test pressures, however, were within the code allowed value of ± 3%.

The cause for the as-found relief pressures exceeding the Technical Specification (TS) limit is believed to be setpoint drift. The as-installed condition of these pilot assemblies had been within the ± 1% requirement of the Technical Specifications. These assemblies will be reworked and certified for future installation. Pilot assemblies previously certified to be within ± 1% replaced the assemblies tested.

The test results were received while Pilgrim Station was shut down for RFO 13. The as-found condition would not have affected performance of the valves' safety function and posed no threat to public health and safety.

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

BACKGROUND

The Pilgrim Station Pressure Relief System (PRS) is designed to prevent over-pressurization of the ASME code qualified nuclear steam supply system. The PRS consists of two safety valves and four two-stage relief valves. These valves are installed in the main steam system piping upstream of the main steam isolation valves and are located within the Drywell. The safety valves are self-actuating, provide over-pressure protection, and discharge directly into the Drywell atmosphere when actuated. The relief valves augment the safety valves and are sized to prevent unnecessary actuation of the safety valves. The relief valves are self-actuating and discharge into the suppression pool through discharge piping connected to the valves. Each two-stage relief valve consists of a pilot assembly and main stage. The pilot assembly provides the pressure sensing function and the main stage provides the pressure relieving function.

The relief valves are also part of the Automatic Depressurization System (ADS). As part of the ADS, the valves are designed to automatically actuate as a result of a depressurization permissive signal, and can be manually actuated from the control room for depressurization.

Technical Specification (TS) 3.6.D.1 specifies the nominal relief setpoint of the valves be between 1095 psig and 1115 psig with a tolerance of ± 11 psi. The valves' nameplate setpoint is 1115 psig and therefore, with a tolerance of 11 psi (+1%), the maximum pressure allowed by TS 3.6.D.1 is 1126 psig. The TS established limits are stricter than the standard allowable relief valve setpoint drift range given in ASME Section XI, which is $\pm 3\%$.

Improving relief valve performance has been an industry effort for many years. Investigations into the increased initial lift pressure identified corrosion bonding between the valve disk and seat as the primary cause. Recommendations were made concerning valve disk and seat materials to reduce the impact of corrosion bonding. Based on industry tests and recommendations, Pilgrim Station replaced the existing valve disks with Stellite 21. NRC Regulatory Issue Summary 2000-12, Resolution of Generic Safety Issue B-55, "Improved Reliability of Target Rock Safety Relief Valves," concurred that Stellite 21 was found to significantly improve performance.

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EVENT DESCRIPTION

Two Target Rock pilot assemblies (RV-203-3B and 3C) for the Pilgrim Station main steam relief valves were removed during refueling outage (RFO) 13 for ASME Section XI testing. These pilot assemblies were removed before main steam line floodup to minimize any impact on the valve disks or seats due to corrosion product intrusion. Both pilot assemblies had experienced minor steam leakage while they were installed. On April 30, 2001, Pilgrim Station was notified that the as-found relief pressures of both pilot assemblies exceeded the limit of Technical Specification 3.6.D.1 of 1126 psig, including tolerance. The as-found pressures were 1127 psig and 1139 psig. In addition, Wyle Laboratories measured the leakage rate for each valve confirming inservice estimates. These out-of-tolerance conditions were documented in Problem Reports as part of the Pilgrim Station Corrective Action Program.

While the as-found values exceeded the TS limit, they did not exceed the code allowed value of $\pm 3\%$. Therefore, additional pilot assemblies were not required to be removed and tested. The safety function of the pressure relief valves was maintained and each relief valve met its design requirement.

This condition posed no threat to public health and safety.

CAUSE

The cause for the as-found relief pressures exceeding the TS limit is believed to be setpoint drift due to valve disk and seat corrosion bonding. The factors known to contribute to setpoint drift have been described in NRC Information Notice No. 88-30, "Target Rock Two-Stage SRV Setpoint Drift Update." Moreover, it has been recognized that the pilot assemblies can exhibit setpoint drift greater than $\pm 1\%$ with no associated mechanical problems.

CORRECTIVE ACTION

Corrective actions taken include the following:

Both pilot assemblies are presently being evaluated and refurbished by Target Rock. They will be retested and certified to be within $\pm 1\%$ of 1115 psig. Spare pilot assemblies with as-left setpoints within the TS limit were installed prior to restart from RFO 13.

ACTION TO PREVENT RECURRENCE

Industry recommendations to reduce setpoint drift caused by corrosion bonding included installation of Stellite 21 valve disks. Based on these recommendations, Pilgrim Station installed Stellite 21 valve disks to reduce the setpoint drift. The Pilgrim Station Inservice Testing Program continues to monitor and identify improvements to reduce the impact of operational steam leakage and corrosion bonding on setpoint drift.

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SAFETY CONSEQUENCES

The as-found relief setpoints of the pilot assemblies posed no threat to public health and safety.

For the Pressure Relief System (PRS) function, the ASME Boiler and Pressure Vessel Code Section III allows an overpressure of 110 percent of the reactor vessel design pressure. The Pilgrim Station reactor vessel design pressure is 1250 psig, therefore, the maximum code allowable reactor vessel pressure is 1375 psig. Previous transient analyses conducted for as-found relief pressures higher than the currently as-found values concluded that the maximum pressure would not reach 1375 psig. Therefore, the as-found relief pressure values of the pilot assemblies would have maintained the vessel and piping pressure within their design limit. For Pilgrim Station, pressure relief valve set point has an insignificant impact on the operating limit minimum critical power ratio (MCPR). Therefore, the as-found pressures do not decrease the margin to the safety limit MCPR.

For the Automatic Depressurization System (ADS) function, the relief valves automatically open to depressurize the reactor vessel to permit low pressure core cooling provided by the Residual Heat Removal System (LPCI mode) and Core Spray System. The opening function is provided by circuitry and stored pneumatic energy independent of main steam pressure. This function was not impacted by the as-found settings, since there was no mechanical problem associated with the valve pilot assemblies.

The condition posed no threat to public health and safety.

REPORTABILITY

This report is submitted in accordance with 10 CFR 50.73(a)(2)(i)(B) because it is assumed that the as-found pressures at the test facility would have been the pressure at which the relief valves would have automatically opened for pressure relief if a high reactor pressure condition had occurred. The condition is assumed to have existed for a period longer than the 24 hour limiting condition for operation specified in Technical Specification 3.6.D.2 for the relief valves.

SIMILARITY TO PREVIOUS EVENTS

A review was conducted of Pilgrim Station LERs. The review focused on relief valve test related LERs that were submitted since 1984. The review identified LER 91-014-01, LER 93-011-00, and LER 99-004-00.

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ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

COMPONENTS	CODES
Valve, relief	RV
SYSTEMS	CODES
Main steam system	SB