10 CFR 50.73

BOSTON EDISON
Pilgrim Nuclear Power Station
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U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

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

The enclosed Licensee Event Report (LER) 93-012-00, "Group 1 Isolation During Startup While Opening Main Steam Isolation Valve", is submitted in accordance with 10 CFR Part 50.73.

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

E. T. Boulette, PhD

WJM/bal

Enclosure: LER 93-012-00

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U.S. NUCLEAR REGULATORY COMMISSION

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
PILGRIM NUCLEAR POWER STATION	05000 - 293	1 of 5

TITLE (4)

Group 1 Isolation During Startup While Opening Main Steam Isolation Valve

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
									N/A	05000
05	29	93	93	012	00	06	25	93	FACILITY NAME: N/A	DOCKET NUMBER: 05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	001	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
William J. Munro - Sr. Compliance Engineer	(508) 747-8474

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

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

ABSTRACT

On May 29, 1993 at 0614 hours, an unplanned Primary Containment Isolation Control System (PCIS) Group 1 isolation signal occurred while opening a Main Steam Isolation Valve (MSIV) during startup. The signal resulted in the automatic closing of the related valves. The isolation signal was caused by a high Reactor Vessel (RV) water level (+48 inches). The high water level occurred while opening an MSIV that caused a swell (expansion) of RV water. The root cause of the event was licensed operator error. While attempting to equalize steam line pressures, a misunderstood communication occurred between an operator and the Nuclear Watch Engineer regarding the RV water level and RV pressure. This caused the NWE to leave the 'C' inboard main steam isolation valve open longer than planned, resulting in a relatively greater decrease in RV pressure and a corresponding rise in RV water level to the point (+48 inches) where the high water level isolation occurred. Contributing to the event was the fact that the MSIVs were opened with RV water level starting slightly higher than that directed by the applicable procedure and several manual isolation valves downstream of the MSIVs, thought to be closed, were open resulting in increased steam flow through the MSIV when opening the valve. The importance of procedural adherence and clear communication was stressed by the Chief Operating Engineer to the applicable Watch Engineer. Procedure 2.2.92 will be revised to ensure that applicable valves are checked in the event outboard steam pressure does not build up. This event occurred during a startup with the reactor mode selector switch in the STARTUP position. The control rods were in a partially withdrawn position. The RV water temperature was 350 degrees Fahrenheit and the RV pressure was 140 psig. The reactor power level was approximately one percent. This report is submitted in accordance with 10 CFR 50.73(a)(2)(iv). This event posed no threat to the health and safety of the public.

EVENT DESCRIPTION

On May 29, 1993 at 0614 hours, an unplanned Primary Containment Isolation Control System (PCIS) Group 1 (one) isolation signal occurred. The signal was the result of a high water level in the Reactor Vessel that occurred while opening Main Steam System isolation valve (MSIV) AO-203-1C. The MSIV was being opened with a differential pressure of approximately 140 psid across the seat of the MSIV.

The signal resulted in the following responses:

- The outboard MSIVs AO-203-2A/B/C/D, in the open position, closed automatically.
- The inboard MSIVs AO-203-1A/B/D, in the closed position, remained closed.
- The inboard MSIV AO-203-1C closed automatically.
- The inboard and outboard Main Steam drain line isolation valves MO-220-1 and MO-220-2, in the open position, closed automatically.
- The inboard and outboard Sample System Valves AO-220-44 and -45, in the open position, closed automatically.

After reducing the RV water level, the isolation signal was reset.

Problem Report 93.9279 was written to document the event. The NRC Operations Center was notified in accordance with 10 CFR 50.72 at 0810 hours on May 29, 1993.

This event occurred during a startup with the reactor mode selector switch in the STARTUP position. The control rods were in a partially withdrawn position. The Reactor Vessel (RV) water temperature was 350 degrees Fahrenheit and the RV pressure was 140 psig. The reactor power level was approximately one percent. The RV water level was being manually controlled and was approximately +26 inches just prior to the event.

CAUSE

The cause for the high RV water level trip signal was the swell (expansion) of the RV water that occurred when the "C" inboard MSIV AO-203-1C was opened with the "C" outboard MSIV AO-203-2C in the open position. The root cause was utility licensed operator error.

Following refueling outage No. 9 the plant was started up with MSIVs closed to perform pre-op testing on the main turbine. On May 29, 1993 operations personnel were performing activities to restart the plant using Procedure 2.1.3 (Rev. 23) "Startup With MSIVs Closed Rx Pressure Less Than 600 psig." The Nuclear Watch Engineer (NWE) had indicated that the inboard MSIVs would have to be opened prior to pressurizing the reactor greater than 150 psig.

The operators were using Procedure 2.2.92 (Rev. 25) "Main Steam Isolation and Turbine Bypass Valves". Section 7.1 "Opening MSIVs with Reactor Pressurized" instructs the operators to open the outboard MSIVs, equalize the main steam header and reactor pressures within 50 psig and then open the inboard MSIVs one at a time. Procedure 2.2.92 also contains a CAUTION statement to maintain a lower initial RV water level in the low end of the normal operating range at less than 24" to account for "swell" during opening of the MSIVs.

The valve lineup was configured to drain condensed steam from the main steam lines. Following a warm-up of the drain lines, drain valve MO-220-04 was closed in an attempt to pressurize the main steam lines and obtain a 50 psi differential across the MSIVs (50 psid is the preferred differential; a maximum of 200 psid is allowed). After an hour there was no increase in pressure.

After discussion with the Chief Operating Engineer a decision was made by the NWE to open the inboard MSIVs for short periods of time to pressurize the lines. The reactor pressure was 140 psig. Control room operators were assigned to monitor reactor water level and outboard steam pressure, and to announce the parameters as each MSIV was opened. Following the individual opening of the "A" and "B" inboard MSIVs the reactor water level swelled from +28 inches to +43 inches and +28 inches to +39 inches for "A" and "B" MSIVs respectively. The pressure in the outboard steam lines increased only slightly. When the NWE opened the "C" inboard MSIV a misunderstood communication occurred. The NWE misunderstood the announced steam line pressure as the RV water level and did not close the "C" inboard MSIV. RV water swelled from approximately +26 inches to approximately +48 inches and thereby resulted in the event.

CONTRIBUTING CAUSE

Failure to follow Procedure 2.2.92 by lowering the reactor water level to 26" vice 24" to account for "swell" during opening of the MSIVs.

When the next shift crew performed a review of the main steam lineup, the steam supply valve (HO-170) to the electrolytic compression modules and the SJAE Regulator Bypass valve (HO-160) were found in the open position. In addition, the "A" primary jet steam supply valve was frozen in the open position. Failure to isolate these valves prevented steam pressure from building up in the outboard steam lines.

CORRECTIVE ACTION

On May 29, 1993 the Group 1 isolation was reset per Procedure 2.2.125.1 Reset Of Primary And Secondary Isolations, water level was restored and downstream steam auxiliary valves were closed allowing downstream piping to pressurize.

Procedure 2.2.92 will be revised to ensure that applicable valves are checked in the event outboard steam pressure does not build up.

A discussion was held between the Operations Section Manager, the Chief Operating Engineer and the applicable Nuclear Watch Engineer to stress the importance of procedural adherence and clear communications.

This event will be reviewed with all operating crews during Licensed Operator Requalification training.

SAFETY CONSEQUENCES

This event posed no threat to the health and safety of the public.

The purpose of the RV high water level isolation is to protect against rapid depressurization due to malfunction of the pressure regulator system during startup when RV pressure is below 880 psig.

The high RV water level trip signal resulted from the swell (expansion) of RV water that occurred when the Main Steam line 'C' outboard MSIV was opened. The closing of the Group 1 (one) isolation valves was the designed response to the high RV water level.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(iv) because the closing of isolation valves, although a designed response, was not planned.

SIMILARITY TO PREVIOUS EVENTS

A review was conducted of Pilgrim Station Licensee Event Reports (LERs) submitted since January 1984. The review was focused to LERs submitted in accordance with 10 CFR 50.73(a)(2)(iv) that involved a similar event resulting from a high RV water level. The review identified events reported in LERs 50-293/89-007-00 and 92-004-00.

For LER 92-004-00, three Group 1 isolations occurred during a shutdown on March 26-27, 1992. The second isolation occurred on March 26, 1992, at 2129 hours, after the PCIS Group 1 circuitry was reset and while opening the MSIVs with the RV pressure at 82 psig and RV water level at +29 inches. The cause was high RV water level due to swell. Prior to opening MSIV AO-203-1D, the Main Steam header pressure and RV pressure was equalized within 50 psig in accordance with procedure 2.2.92 (Rev. 24) section 7.1. However, the RV water level (+29 inches) was greater than the desired level for opening an MSIV with the RV pressurized. Corrective action taken included revising Procedure 2.2.92 (to Rev. 25) to maintain a lower initial RV water level in the "Low End" of the normal operating range at less than 24" prior to opening an MSIV with the RV pressurized to account for swell.

For LER 89-007-00, a Group 1 isolation occurred during the power ascension program on February 11, 1989, at 0936 hours. At the time of the event, the reactor power level was 0.8 percent, the reactor mode selector switch was in the STARTUP position, the RV pressure was 278 psig, and the RV water level was approximately +34 inches. The inboard MSIVs AO-203-1A/B/C/D were in the open position with the outboard MSIVs AO-203 2A/B/D in the closed position. The outboard MSIV AO-203-2C was being opened with differential pressure of approximately 150 psid in accordance with Procedure TP 87-219 (Rev. 3), "MSIV Opening Test", step 10.5. The isolation was the result of a high RV water level (+48 inches) due to swell that occurred while opening the MSIV. The cause of the event included a procedure weakness in that the procedure did not indicate a high RV water level could occur as a result of the test and did not specify or recommend an initial RV water level for the test. Procedure TP 87-219 was subsequently retired.

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

COMPONENTS	CODES
Valve, isolation (MSIV)	ISV
SYSTEMS	
Containment Isolation Control System (PCIS)	JM
Engineered Safety Features Actuation System (PCIS)	JE
Main Steam System	SB