10 CFR 50.73

BOSTON EDISON
Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360

April 12 , 1993
BECo Ltr. 93-50

E. T. Boulette, PhD
Senior Vice President – Nuclear

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) 93-004-00, "Automatic Scram Resulting From Load Rejection at 100 Percent Power and Subsequent Loss of Preferred Offsite Power", 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.

ET Boulette

E. T. Boulette

DWE/bal

Enclosure: LER 93-004-00

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Standard BECo LER Distribution

NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Pilgrim Nuclear Power Station	05000 293	1 OF 22

TITLE (4) Automatic Scram Resulting From Load Rejection at 100 Percent Reactor Power

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	05000
03	13	93	93	-- 004 --	00	4	12	93	N/A	05000

OPERATING MODE (9): N
POWER LEVEL (10): 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	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)	X	50.73(a)(2)(vii) B		OTHER
	20.405(a)(1)(iii)	X	50.73(a)(2)(i) B		50.73(a)(2)(viii)(A)		(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)
Douglas W. Ellis - Senior Compliance Engineer	(508) 747-8160

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
X	EA	SWGR	G080	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

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

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 13, 1993, at 1628 hours, an automatic scram resulting from a load rejection occurred during a severe coastal storm while at 100 percent reactor power. The load rejection included a trip of the Turbine-Generator, transfer of station electrical loads, and brief opening of one Main Steam relief valve. The 120 VAC safeguards Buses 'A' and 'B' de-energized. The Reactor Vessel (RV) pressure-temperature (P-T) limit was exceeded during subsequent cooldown.

The load rejection was caused by 345 KV switchyard insulator flashovers due to wind packed snow deposited during blizzard conditions. Corrective actions taken included an inspection of the switchyard and insulators The cause of exceeding the P-T limit was a RV pressure increase that occurred after the HPCI System, that was being used for RV pressure control, was removed from service due to high Suppression Pool water level. The P-T condition was evaluated. The evaluation concluded the RV did not exceed the allowable limits of ASME sections III and XI. The cause of the de-energized safeguards buses was trip settings that were too low. The trip settings were subsequently increased. Other corrective or preventive actions were taken or are planned. The unit returned to commercial service at 0459 hours on March 17, 1993.

This event occurred near the end of the fuel cycle during power operation with the reactor mode selector switch in the RUN position. The RV pressure was 1025 psig with RV water temperature at 525 degrees Fahrenheit.

BACKGROUND

A period of sustained easterly onshore winds began on March 12, 1993, and continued through March 15, 1993. The winds were due to a severe coastal storm. The winds were accompanied by snow until the early evening on March 13, 1993, when a change to sleet, later followed by a change to heavy rains, occurred. Snow accumulations quickly increased with distance from the coast. Intermittent electrical power outages occurred in some offsite transmission systems and offsite emergency conditions were declared by Commonwealth of Massachusetts officials due to some coastal flooding and snow-related effects of the storm.

Seaweed was transported to the Intake Structure as a result of the winds and unusually high tides. Operation of the traveling screens that are part of the Circulating Water System was necessary because of the seaweed.

Just prior to the event, plant operating conditions included the following. The reactor mode selector switch was in the RUN position. The reactor was at 100 percent power and near the end of the fuel cycle. The Reactor Vessel (RV) pressure was 1025 psig with the RV water temperature at approximately 525 degrees Fahrenheit. The RV water level was approximately +27 inches.

The Recirculation System motor-generator sets/pumps 'A' and 'B' were in service with each loop in the local manual control mode. Reactor core flow was approximately 70 million pounds per hour. The Condensate System and Feedwater System pumps were all in service. The Feedwater Level Control System was in the three element control mode. The Salt Service Water (SSW) System Loops 'A' and 'B' were in service with one pump operating in each loop. The Reactor Building Closed Cooling Water (RBCCW) System Loops 'A' and 'B' were in service with one pump operating in each loop.

The 345 KV transmission lines 342 and 355 were in service. The Startup Transformer (SUT) was in standby service with ACBs 102 and 103 closed. The 345 KV switchyard ring bus was energized with ACBs 104 and 105 closed. The Emergency Diesel Generators (EDGs) 'A' and 'B' were in standby service. The 4160 VAC Auxiliary Power Distribution System (APDS) was energized from the Unit Auxiliary Transformer (UAT). The Shutdown Transformer was in standby service with the 23 KV distribution system energized. Located at the end of this report is a figure depicting a simplified, single line diagram of the switchyard, including the ACBs and 345 KV transmission lines.

The Main Turbine auxiliary oil pumps 'A' and 'B' were in standby service.

EVENT DESCRIPTION

On March 13, 1993, at 1628 hours, an automatic Reactor Protection System (RPS) scram signal and scram occurred while at 100 percent reactor power. The scram signal occurred as a result of a load rejection. The event was initiated when ACBs 104 and 105 automatically opened, thereby isolating the Main Transformer from the switchyard. The opening of ACBs 104 and 105 resulted in an automatic trip signal to the 4160 VAC Buses and Generator load rejection.

The source of 4160 VAC power for the APDS automatically fast-transferred from the UAT to the SUT. Except for nonsafety-related 4160 VAC Bus A3, the transfer occurred as designed. Nonsafety-related Bus A3 became de-energized because switchgear breaker 152-303, that was closed and powering Bus A3 from the UAT at the time of the event, opened automatically for the transfer but switchgear breaker 152-304, that feeds Bus A3 from the SUT, did not close. The de-energization of Bus A3 resulted in the following designed responses:

- The drive motor of the Recirculation System Loop 'A' motor-generator (MG) set de-energized. Meanwhile, the Loop 'B' MG set/pump automatically ran back to minimum flow and continued forced circulation in the RV.
- The motor of the Circulating Water System Train 'A' pump de-energized.
- The 480 VAC Bus B3 and related loads including RPS Bus 'A' de-energized.
- The loss of power to the circuit breaker that powers the motor of the Main Turbine auxiliary oil pump 'A'.

The Generator load rejection resulted in the opening of the Generator field breaker, acceleration of the Turbine-Generator, and trip of the acceleration relay. The trip included the following responses:

- Loss of oil pressure to pressure switches (PS-37/38/39/40) that resulted in the RPS scram signal (control valve fast closure due to load reject).
- Automatic closing of the Turbine Stop Valves and Combined Intermediate Valves, and the trip of the Turbine lockout relay (286-2).
- Automatic closing of the four Turbine Control Valves.
- The three hydraulically-operated Turbine Bypass Valves gradually closed because the Main Turbine shaft driven oil pump pressure gradually decreased and the Turbine auxiliary oil pump 'A' could not start. Pump 'B' did not start because of its interlock with pump 'A'.

NRC FORM 366 (5-92) — U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

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 required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Pilgrim Nuclear Power Station	05000 293	1 OF 22

TITLE (4): Automatic Scram Resulting From Load Rejection at 100 Percent Reactor Power

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
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									N/A	05000
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POWER LEVEL (10): 100

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The load rejection was caused by 345 KV switchyard insulator flashovers due to wind packed snow deposited during blizzard conditions. Corrective actions taken included an inspection of the switchyard and insulators. The cause of exceeding the P-T limit was a RV pressure increase that occurred after the HPCI System, that was being used for RV pressure control, was removed from service due to high Suppression Pool water level. The P-T condition was evaluated. The evaluation concluded the RV did not exceed the allowable limits of ASME sections III and XI. The cause of the de-energized safeguards buses was trip settings that were too low. The trip settings were subsequently increased. Other corrective or preventive actions were taken or are planned. The unit returned to commercial service at 0459 hours on March 17, 1993.

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REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 -- FACILITY NAME 8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

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

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Seaweed was transported to the Intake Structure as a result of the winds and unusually high tides. Operation of the traveling screens that are part of the Circulating Water System was necessary because of the seaweed.

Just prior to the event, plant operating conditions included the following. The reactor mode selector switch was in the RUN position. The reactor was at 100 percent power and near the end of the fuel cycle. The Reactor Vessel (RV) pressure was 1025 psig with the RV water temperature at approximately 525 degrees Fahrenheit. The RV water level was approximately +27 inches.

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The 345 KV transmission lines 342 and 355 were in service. The Startup Transformer (SUT) was in standby service with ACBs 102 and 103 closed. The 345 KV switchyard ring bus was energized with ACBs 104 and 105 closed. The Emergency Diesel Generators (EDGs) 'A' and 'B' were in standby service. The 4160 VAC Auxiliary Power Distribution System (APDS) was energized from the Unit Auxiliary Transformer (UAT). The Shutdown Transformer was in standby service with the 23 KV distribution system energized. Located at the end of this report is a figure depicting a simplified, single line diagram of the switchyard, including the ACBs and 345 KV transmission lines.

The Main Turbine auxiliary oil pumps 'A' and 'B' were in standby service.

EVENT DESCRIPTION

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The source of 4160 VAC power for the APDS automatically fast-transferred from the UAT to the SUT. Except for nonsafety-related 4160 VAC Bus A3, the transfer occurred as designed. Nonsafety-related Bus A3 became de-energized because switchgear breaker 152-303, that was closed and powering Bus A3 from the UAT at the time of the event, opened automatically for the transfer but switchgear breaker 152-304, that feeds Bus A3 from the SUT, did not close. The de-energization of Bus A3 resulted in the following designed responses:

- The drive motor of the Recirculation System Loop 'A' motor-generator (MG) set de-energized. Meanwhile, the Loop 'B' MG set/pump automatically ran back to minimum flow and continued forced circulation in the RV.
- The motor of the Circulating Water System Train 'A' pump de-energized.
- The 480 VAC Bus B3 and related loads including RPS Bus 'A' de-energized.
- The loss of power to the circuit breaker that powers the motor of the Main Turbine auxiliary oil pump 'A'.

The Generator load rejection resulted in the opening of the Generator field breaker, acceleration of the Turbine-Generator, and trip of the acceleration relay. The trip included the following responses:

- Loss of oil pressure to pressure switches (PS-37/38/39/40) that resulted in the RPS scram signal (control valve fast closure due to load reject).
- Automatic closing of the Turbine Stop Valves and Combined Intermediate Valves, and the trip of the Turbine lockout relay (286-2).
- Automatic closing of the four Turbine Control Valves.
- The three hydraulically-operated Turbine Bypass Valves gradually closed because the Main Turbine shaft driven oil pump pressure gradually decreased and the Turbine auxiliary oil pump 'A' could not start. Pump 'B' did not start because of its interlock with pump 'A'.

The Main Steam/RV pressure increased because the Turbine Bypass Valves were closed. The pressure increase caused the Target Rock two-stage Main Steam relief valve RV-203-3A (pilot s/n 1049) to briefly lift for pressure relief.

The 120 VAC safeguards Bus 'A' Panel Y3/31 and Bus 'B' Panel Y4/41 became de-energized during the event. The loss of power from Panels Y3 and Y4 resulted in the de-energization of related equipment including some normally energized relays that are part of the Primary Containment Isolation Control System (PCIS) and Reactor Building Isolation Control System (RBIS).

Meanwhile, the RV water level decreased in response to the scram and RV pressure increase that resulted in a decrease in the void fraction in the RV water. The RV water level eventually decreased to approximately -20 inches. The decrease in RV water level to less than the low RV water level setpoint (calibrated at approximately +12 inches) resulted in trip signals to the portions of the PCIS and RBIS that had already actuated. EOP-01 (Rev. 1), "RPV Control", was entered because the RV water level was less than +9 inches.

The PCIS actuation resulted in the following designed responses:

- Automatic closing of the inboard and outboard Primary Containment System (PCS)/Reactor Water Sample isolation valves AO-220-44 and -45.

- Automatic closing of the inboard and outboard PCS Group 2 (two) isolation valves that were open.

- The PCS Group 3/Residual Heat Removal (RHR) System Shutdown Cooling suction piping isolation valves MO-1001-47 and -50 remained closed.

- The PCS Group 3/RHR System Low Pressure Coolant Injection mode valves MO-1001-29A/B remained closed.

- The PCS Group 6 (six)/Reactor Water Cleanup (RWCU) System isolation valves closed automatically.

The RBIS actuation resulted in the automatic closing of the Reactor Building/Secondary Containment System (SCS) Trains 'A' and 'B' supply and exhaust ventilation dampers and automatic start of the SCS/Standby Gas Treatment System (SGTS) Trains 'A' and 'B'.

Initial Control Room operator response was orderly and included the following. The reactor mode selector switch was moved to the SHUTDOWN position in accordance with procedure 2.1.6, "Reactor Scram". The insertion of the control rods was verified. Indications of the de-energizing of Bus A3 and Panels Y3 and Y4 were noted.

At 1635 hours, the High Pressure Coolant Injection (HPCI) System was put into service in the flow test mode for RV pressure control. This action was taken in accordance with EOP-01 because the Turbine Bypass Valves, that would normally operate to provide a pathway from the Main Steam piping to the Main Condenser, were closed. At 1637 hours, an RHR System Loop 'A' pump was put into service in the Suppression Pool Cooling (SPC) mode because of the expected addition of heat from the HPCI turbine exhaust steam.

At 1640 hours, ACB 102 opened automatically and the 345 KV transmission line 355 de-energized. The opening of ACB 102 removed line 355 as a source of power to the SUT.

At 1650 hours, Bus A3 was re-energized from the SUT via switchgear breaker 152-304. The Turbine auxiliary oil pump 'A' was started after Bus A3 was re-energized. The start of pump 'A' provided hydraulic oil pressure to the Turbine Bypass Valves. The Turbine Bypass Valves re-opened and provided a steam path to the Main Condenser.

At 1654 hours, the HPCI System was returned to standby service because the Turbine Bypass Valves were controlling RV/Main Steam pressure.

At 1655 hours, the Emergency Diesel Generators (EDGs) 'A' and 'B' were manually started and loaded onto 4160 VAC Emergency Buses A5 and A6, respectively. This precautionary action was taken in accordance with procedure 2.4.144, "Degraded Voltage". A potential transformer (PT) fuse failure alarm occurred while starting EDG 'B'. The alarm was not caused by a PT fuse failure and the loading of EDG 'B' was not affected. Subsequent investigation revealed the alarm was caused by the EDG 'B' voltage balance relay 160-609 auxiliary relay 'XA'.

At 1656 hours, Panels Y4/Y41 were re-energized in accordance with procedure 5.3.19 (Rev. 9), "Loss of 120 VAC Safeguards Buses Y4 and Y41". Panels Y3/Y31 were re-energized in accordance with procedure 5.3.18 (Rev. 9), "Loss of 120 VAC Safeguards Buses Y3 and Y31", at 1657 hours.

At 1700 hours, RPS Bus 'A' was re-energized via the standby RPS transformer that was powered from Bus A5 via 480 VAC Buses B1/B6 and MCC-B10. This precautionary action was taken to preclude the closing of the Main Steam Isolation Valves (MSIVs) if RPS Buses 'A' and 'B' were to become de-energized.

At 1705 hours, the RPS was reset.

At 1710 hours, ACB 103 opened automatically and 345 KV transmission line 342 de-energized. The opening of ACB 103 removed line 342 as a source of offsite power to the SUT. The opening of ACB 103 in conjunction with the previous opening of ACB 102, resulted in the loss of power to the SUT. The nonsafety-related 4160 VAC Buses A1, A2, A3, and A4 became de-energized as a result of the loss of power to the SUT. Emergency 4160 VAC Buses A5 and A6 and related loads remained energized via EDGs 'A' and 'B'. The loss of power to Bus A1 and A2 de-energized the motors of the Condensate and Feedwater Systems pumps and resulted in a loss of feedwater flow to the RV. The loss of power to Bus A3 and A4 de-energized equipment including:

- The motors of the Turbine auxiliary oil pumps. This resulted in the loss of oil pressure to and closing of the Turbine Bypass Valves.

- The drive motors of the Recirculation System loop 'A' and 'B' motor-generator sets. This resulted in the loss of Recirculation System Loop 'B' flow and, in conjunction with the previous loss of Loop 'A' flow, resulted in the loss of forced circulation in the RV.

- The motors of the Circulating Water System Train 'A' and 'B' pumps. This resulted in a loss of seawater flow to the Main Condenser and the heat sink function of the Main Condenser.

- 480 VAC Buses B3 and B4 and related electrical loads including RPS Bus 'B'. RPS Bus 'A' remained energized via the standby RPS transformer. The MSIVs remained open as designed.

At 1711 hours, the Reactor Core Isolation Cooling (RCIC) System was put into service in the injection mode for RV water level control. At 1712 hours, the HPCI System was put into service in the flow test mode for RV pressure control because the Turbine Bypass Valves were closed. These actions were in accordance with EOP-01.

At 1715 hours, the RV pressure and water temperature began to decrease because of the continued removal of steam via HPCI turbine and RCIC turbine operation. Procedure 2.1.7 (Rev. 27), "RPV Temperature and Pressure Checklist", was initiated.

At 1730 hours, the MSIVs were closed in accordance with procedure 2.4.49 for a loss of condensate flow. The outboard Main Steam line 'B' MSIV AO-203-2B exhibited a dual position indication (open/closed). The in-series MSIV AO-203-1B was tagged closed in accordance with Technical Specification 3.7.A.2.b. Followup investigation revealed the valve was closed. The indicated position was due to a limit switch that was later aligned.

At 1739 hours, an RHR System Loop 'B' pump was put into service in the SPC mode for increased Suppression Pool cooling.

At 1742 hours, EOP-03 (Rev. 1), "Primary Containment Control", was entered because the Suppression Pool temperature was greater than 80 degrees Fahrenheit. The temperature ultimately reached 95 degrees Fahrenheit.

At 1755 hours, procedure 2.1.5 (Rev. 41) Section E, "Maneuvering to Cold Shutdown with MSIVs Closed", was entered.

At 1815 hours, the Post Accident Sampling System Hydrogen-Oxygen Trains 'A' and 'B' were put into service in accordance with EOP-03.

At 2005 hours, the SGTS Train 'A' was put into service to reduce Torus atmosphere pressure and maintain the Drywell-to-Torus atmosphere differential pressure. Train 'A' was returned to standby service at 2112 hours.

At 2155 hours, 345 KV line 342 was re-energized and ACB 103 was reclosed in accordance with regional power authority (REMVEC) direction. The closing of ACB 103 re-energized the SUT.

At 2208 hours, Bus A3 was re-energized from the SUT and Bus A4 was subsequently re-energized from the SUT. The Turbine auxiliary oil pumps 'A' and 'B' were started at 2212 hours.

At 2227 hours, the RPS Bus 'B' motor-generator set was started and related circuitry including RPS Channel 'B' was re-energized. The source of power for RPS Bus 'A' was transferred from MCC-B10 to the RPS Bus 'A' motor-generator set at 2233 hours.

At 2235 hours, 345KV ACB 104 was closed per REMVEC direction.

At 2237 hours, the RCIC System was returned to standby service.

At 2244 hours, the RPS was reset.

At 2255 hours, 345KV ACB 105 was closed per REMVEC direction.

At 2300 hours, the HPCI System, in the full flow test mode for RV pressure control, was returned to standby service. This action was taken because the HPCI pump supply valves MO-2301-35 and -36 in the suction piping from the Suppression Pool opened. The valves opened because the Suppression Pool level had increased to approximately +3.5 inches. As a result of the opening of the valves, the HPCI pump supply valve MO-2301-6 in the suction piping from the Condensate Storage System closed and the HPCI test valves MO-2301-10 and -15 closed. The closing of valves MO-2301-10/-15 eliminated the use of the HPCI System in the flow test mode for RV pressure control. The HPCI System injection function was not affected.

The RV pressure began to increase approximately 10 psi per minute because the RV was isolated.

By 2303 hours, activities were completed to return the Radwaste System to service. The letdown of Suppression Pool inventory to the Radwaste System was initiated via the RHR System SPC mode.

At 2320 hours, the RV pressure was 510 psig while the RV bottom head metal temperature was 110 degrees Fahrenheit. This condition was later identified as having exceeded the Technical Specification Figure 3.6.2 pressure-temperature limit. The condition was identified on March 19, 1993.

At 2326 hours, Buses A1 and A2 were re-energized and the RWCU System put into service for RV water rejection to the Main Condenser.

At 2330 hours, the RV water level was approximately +48 inches. The level was greater than the high RV water level trip settings of the HPCI System, and RCIC System, and PCIS Group 1 (MSIVs). Consequently, the RCIC and HPCI Systems were not available for service and the MSIVs could not be opened.

At 2336 hours, an automatic RPS scram signal occurred when the RV pressure reached the scram setpoint (calibrated at approximately 572 psig) while the MSIVs were closed.

At 2338 hours, the Group 6/RWCU isolation valve MO-1201-2 closed automatically. This nonsafety-related isolation occurred because of a sensed high water temperature at the outlet of the RWCU System non-regenerative heat exchanger.

By 2344 hours, the Suppression Pool water level had been lowered sufficiently to allow the use of the HPCI/RCIC System for RV pressure control.

At 2355 hours, the Group 6 portion of the PCIS was reset and the RWCU System was put into service for RV water rejection to the Main Condenser.

At 2348 hours, the Condensate System pump 'C' was started as part of preparations for returning the Main Condenser to service as a heat sink.

On March 14, 1993, at approximately 0015 hours, the shift Nuclear Watch Engineer and Chief Operating Engineer discussed the use of the Main Steam relief valves to resume the RV cooldown and lower the RV water level. This use of the relief valves is allowed by EOP-01. The relief valves were not used at that time because of the following considerations:

- The RV heatup rate was controlled.

- RWCU System letdown operation might reduce the RV water level to less than +48 inches prior to exceeding the high RV pressure scram setpoint and EOP-01 pressure limit of 1085 psig, thereby precluding the use of the relief valves.

- The RV pressure had stabilized at approximately 660 psig. The opening of a relief valve could possibly result in a rapid RV depressurization cooldown.

Consequently, the decision was made to monitor RV pressure and level, and determine if HPCI/RCIC System operation and/or the opening of the MSIVs could reduce RV pressure/water level and thereby preclude the opening of a relief valve. The RV water level and pressure were monitored. By 0050 hours, monitoring indicated that RWCU letdown operation was not sufficient to preclude the use of the relief valves and the RV pressure had gradually increased to approximately 820 psig.

At approximately 0100 hours, the Main Steam relief valves RV-203-3B/C/D/A were individually opened to reduce RV pressure and RV water level in accordance with EOP-01. The last relief valve was reclosed at approximately 0105 hours. This reduced the RV pressure to approximately 650 psig and reduced the RV water level to less than the high RV water level trip settings of the HPCI and RCIC Systems, and the high RV water level isolation trip setting of the MSIVs.

At 0111 hours, the Group 2 portion of the PCIS and the RBIS were reset. The SGTS was returned to standby service and the Reactor Building ventilation system was returned to service. Meanwhile, the Main Steam relief valve RV-203-3B was opened and RV pressure (then 700 psig) decreased to approximately 600 psig.

At 0121 hours, the HPCI System was put into service for RV pressure control. The RCIC System was put into service for RV water level control.

By 0140 hours, the RV pressure was 450 psig and the HPCI System was returned to standby service.

At 0202 hours, the RCIC turbine barometric condenser condensate pump P-221 overload alarm occurred while the RCIC System was in the flow test mode for RV pressure control. Actions taken were in accordance with alarm response procedure ARP-904L and RCIC System procedure 2.2.22. The alarm did not affect the operability of the RCIC System.

At 0205 hours, the HPCI System was put into service for RV pressure control.

At 0236 hours, the RCIC System was put into service for RV water level control and was returned to standby service at 0242 hours.

At 0245 hours, the RV P-T limit was no longer exceeded because the RV pressure was 320 psig with the RV bottom head temperature at 92 degrees Fahrenheit.

At 0300 hours, the RWCU System was removed from service. At 0305 hours, the SGTS Train 'B' was put into service and Train 'A' was subsequently put into service. The actions were taken as part of preparations for the subsequent transfer of power supplies.

At 0320 hours, 480 VAC transfer Bus B6 was transferred from Bus B1 to Bus B2. The source of power to Bus A5, which is the source of power to Bus B1, was transferred from EDG 'A' to the SUT at 0322 hours. EDG 'A' was returned to standby service at 0331 hours and Bus B6 was transferred from Bus B2 to Bus B1. The source of power to Bus A6, which is the source of power to Bus B2, was transferred from EDG 'B' to the SUT at 0345 hours. EDG 'B' was returned to standby service at 0357 hours.

At 0404 hours, the RPS was reset.

At 0415 hours, the SGTS Trains 'A' and 'B' were returned to standby service.

At 0430 hours, the Post Accident Sampling System/Hydrogen-Oxygen System was put into service in accordance with EOP-03.

At 0448 hours, the MSIVs in the Main Steam lines 'A', 'C', and 'D' were opened.

At 0522 hours, the RWCU System was put into service.

At 0857 hours, EOP-01 and EOP-03 were exited and the Hydrogen-Oxygen System was returned to standby service.

At 0858 hours, the RHR System was secured from the SPC mode of operation and returned to standby service.

At 0905 hours, the SGTS Train 'B' was put into service to reduce the Torus atmosphere pressure and was returned to standby service at 1030 hours.

At 1035 hours, an RHR Loop 'B' pump was started in the SPC mode to reduce the Suppression Pool level and was returned to standby service at 1050 hours.

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

At 1051 hours, a sensed high RWCU System flow condition resulted in a PCIS Group 6/RWCU System isolation. The isolation occurred while adjusting the position of the RWCU valve MO-1201-85 to increase the flow from the RV bottom head drain piping. The event is separately reported in LER 93-005-00. The PCIS Group 6 circuitry was reset and the RWCU System was returned to service at 1100 hours.

At 1444 hours, the RHR Loop 'A' was started in the Shutdown Cooling (SDC) mode with one pump in service.

Cold shutdown was achieved on March 14, 1993, at approximately 1522 hours, when the RV water temperature was less than 212 degrees Fahrenheit. The RV head vent valves were subsequently opened at 1530 hours.

Problem Report (PR) 93.9082 was written to document the event. The NRC Operations Center was notified in accordance with 10 CFR 50.72 at 1900 hours on March 13, 1993.

PR 93.9083 was written regarding the Bus A3 transfer problem. PR 93.9084 was written regarding the de-energization of Panels Y3 and Y4. PR 93.9086 was written regarding the position indication of MSIV AO-203-2B. PR 93.9089 was written regarding the EDG 'B' fuse alarm. Other problem reports were written to document other observations or occurrences related to the shut down.

A post trip review of the event was initiated in accordance with procedure 1.3.37, "Post Trip Reviews".

On March 19, 1993, the RV P-T relationship was identified as having exceeded Technical Specification Figure 3.6.2 during the March 13-14, 1993 cooldown. PR 93.9098 was written to document the discovery.

A followup notification to the NRC Operations Center was made at 1341 hours on March 29, 1993, to update the March 13, 1993, notification regarding the loss of power from Panels Y3 and Y4.

CAUSE

The cause of the load rejection at 1628 hours was the environmental effects of the storm (wind driven snow packing against the 345 KV switchyard insulators). A storm-induced fault on ACB 105 phase 'C' resulted in the automatic opening of ACBs 104 and 105 and consequent load rejection.

The opening of ACB 102 and line 355 de-energization at 1640 hours was due to a flashover on the energized side of ACB 105. The flashover initiated the Line 355 Primary Ground Fault Detection Relay 67N and ACB 105 Column Fault Overcurrent Relay 64/5. Relay 67N initiated the opening of ACB 102. Relay 64/5 initiated the ACB 105 lockout relay 86/5 which initiated a trip signal to ACB 102 and a transfer trip signal to switching devices at the remote end of line 355. These protective relay operations caused the opening of ACB 102 and de-energization of line 355.

The opening of ACB 103 at 1710 hours was due to a flashover on the energized side of ACB 102. The flashover initiated the ACB 102 Column Fault Overcurrent Relay 64/2. Relay 64/2 operation initiated the ACB 102 lockout relay 86/2 that initiated a trip signal to ACB 103 and transfer trip signal to switching devices at the remote end of line 342. These protective relay operations caused the opening of ACB 103 and de-energization of line 342 and, together with the previous operation of protective relays that opened ACB 102, resulted in the loss of power to the SUT. At the approximate same time of the opening of ACB 103, the ACB 103 stuck breaker circuit operated that initiated the operation of the ACB 103 lockout relay 86/3. The affect of the ACB 103 stuck breaker circuit operation was negligible because ACBs 102, 103, 104, and 105 were open.

The cause of the loss of power to Bus A3 could not be determined with certainty. Bus A3 is designed to transfer to the SUT. The Bus A3 fast transfer function was enabled at the time of the event. The switchgear breaker 152-303 contact 52BB, that is part of the circuitry that provides a permissive function to close breaker 152-304, was found to be misaligned. The 52BB contact is connected in parallel with contact 52B. Therefore, even with the misalignment of contact 52BB, breaker 152-304 should have closed automatically after breaker 152-303 opened. Contact 52BB was adjusted and no other circuitry problem was found during troubleshooting. Breaker 152-303 was manufactured by the General Electric Company, type AM-4.16-250-8H, serial number 0209A2839-016.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

The cause of Panels Y3/31 and Y4/41 becoming de-energized was the trip of the main input breakers of the voltage regulating transformers X-55 and X-56, respectively. The transformers with the main input breakers, that are inside the transformers' cabinets, were installed during the last mid-cycle outage (MCO 92) via PDC 91-59A. The previously installed fixed-tap transformers were not regulating type transformers and did not have an internal input circuit breaker. The trip of the input circuit breakers was caused by low instantaneous trip settings. The as-found nominal settings of the breakers was '2' (900 amperes) and '3' (1000 amperes), respectively. The trip settings were set at '5' (1200 amperes) and tested at the supplier's facility in accordance with the approved dedication plan test instructions. Supplier test documents indicate the settings were left at '5'. The receipt inspection of X55 and X56 included documentation, physical damage, identification and/or marking, protective covers and seals, cleanliness and electrical tests. The receipt inspection did not include a requirement to check or verify the trip settings. After installation, X55 and X56 were pre-operationally tested (TP 92-58). The testing included voltage regulation, input breaker contact resistance, current leakage, initial startup and energization, transformer ratio, relay and alarm functional tests. The testing did not include a requirement to check or verify the trip settings since there were no installation or testing activities that would have caused the settings to be changed. The root cause analysis concluded the most likely cause of the low trip settings was an unauthorized change to the trip settings. The root cause analysis could not determine when the change occurred. Based on root cause analysis findings and review of Pilgrim Station corrective action program documents and LERs, the unauthorized change is believed to be an isolated occurrence. Transformers X55 and X56 were manufactured by Rapid Power Technologies, Incorporated (model number PWTAB015120E). The transformers were supplied by EcoTech/RAM-Q, numbers E/R-2163-15-1 (X55) and E/R-2163-15-2 (X56).

The cause of not conducting an engineering evaluation of the RV P-T condition prior to the subsequent startup was that the condition was not identified until after the startup.

The cause of not identifying the RV P-T condition during the post trip review had not been identified with certainty when this report was prepared. When this report was prepared, the focus of the root cause analysis was the post trip review procedure [illegible]37 that did not require a comparison of the RV P-T relationship during cooldown [illegible] P-T limit.

CORRECTIVE ACTION

After the storm winds and rain subsided, the switchyard was walked down for evidence of flashover. Evidence of arcing was found at an ACB 102 phase 'A' current transformer bushing and at an ACB 105 stack #1 (Phase 'C') insulator. No cleaning or other corrective actions were necessary as a result of the findings. A washdown of switchyard insulators was not necessary because of the heavy rains that followed the snow and sleet.

The trip settings of the main input circuit breakers for voltage regulating transformers X55 and X56 were increased. The change was implemented via FRN 93-02-03 on March 15, 1993. The new trip settings include additional margin and will preclude a recurrence. The original design trip setting ('5') was sufficient to prevent an unnecessary trip of the input breakers.

The unit returned to commercial service at 0459 hours on March 17, 1993.

Visual inspections of selected electrical equipment will be conducted. The purpose of the inspections is to provide additional assurance that the unauthorized change of the trip settings was an isolated occurrence. This report will be supplemented if significant corrective action is necessary as a result of the inspections.

Previous scram reports have been reviewed. The review focused on events involving RV pressurization with no forced circulation. The review identified no previous event or condition involving a pressurization with no forced circulation in the RV.

Operations Section procedures 2.1.7 (currently Rev 27) and 2.4.24 (currently Rev. 8), "Reactor Vessel Cold Water Stratification", are being evaluated for improvement. The focus of the evaluation is to provide additional operator guidance to preclude a recurrence of exceeding a RV pressure-temperature limit. Procedure 1.3.37 (currently Rev. 27) will be revised. The focus of the revision is to specify a check of transitory parameters governed by applicable Technical Specifications.

PREVENTIVE ACTION

A switchyard events recorder to monitor voltages, currents, and ACB positions will be installed. The recorder will aid in troubleshooting if a switchyard event occurs in the future. This action was previously identified and is being tracked via LER 92-016-00. This is the third plant trip caused by flashover since the insulators were treated with a Sylgard coating in the Summer of 1987. An evaluation of switchyard performance was previously identified and is being tracked via LER 92-016-00.

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

Appropriate nuclear organization personnel have been made aware of the root cause of the trip of the input circuit breakers that de-energized Panels Y3/31 and Y4/41. In addition, to heighten the awareness of personnel to the potential for mis-adjustment of adjustable trip settings, engineering personnel have been reminded to include in-process verification of adjustable trip settings, when appropriate.

SAFETY CONSEQUENCES

The events and RV P-T condition posed no threat to public health and safety.

The load rejection with subsequent loss of bypass experienced during this event is bounded by the transient analysis described in the Updated Final Safety Analysis Report section 14.4.3, "Generator Load Rejection Without Bypass". The opening of some or all of the Main Steam two-stage relief valves is an expected response to a load rejection with bypass at greater than 45 percent power. For this event, relief valve RV-203-3A (pilot s/n 1049) opened. The other relief valves RV-203-3B (pilot s/n 1040)/-3C (pilot s/n 1025)/-3D (pilot s/n 1207) did not lift because RV-203-3A lifted and reduced the RV/Main Steam pressure before the pressure could increase to the setpoint of the other valves.

The Technical Specification 3.6.D.1 setting for the Main Steam System/Pressure Relief System (PRS) relief valves is 1095 to 1115 psig with a tolerance of +/- 11 psi. The setpoint of the relief valves is 1115 psig. Therefore, the setpoint range of the relief valves including tolerance is 1104 psig to 1126 psig. During the event, the highest RV/Main Steam System pressure that occurred was approximately 1118 psig.

The Technical Specification 3.6.D.1 setting for the Main Steam/PRS safety valves is 1240 +/- 13 psi. During the event, the highest RV pressure that occurred was approximately 122 psig less than the safety valves' setpoint of 1240 psig.

The scram signal was the designed response to a load rejection with the Turbine first stage pressure at approximately 735 psig which is greater than the scram bypass setpoint (calibrated at 108 psig +/- 3 psig) corresponding to 25 percent of the normal first stage pressure. The maximum turbine speed that occurred was approximately 1863 RPM and was less than the speed corresponding to the emergency trip setting of approximately 1980 RPM.

The decrease in the RV water level was the expected response to the scram and accompanying shrink in the RV water. The PCIS and RBIS actuations were initiated by the de-energization of normally energized relays powered from Panels Y3 and Y4. The actuations are also the expected designed responses to a low RV water level condition (i.e., less than +12 inches).

The Technical Specification 2.1.I limiting safety system setting for actuation of the Core Standby Cooling Systems (CSCS) is -49 inches. During the event, the lowest RV water level that occurred (-20 inches) was approximately 26 inches above the CSCS setpoint. In addition, the level was approximately 107.5 inches above the level that corresponds to the top of the active fuel zone.

The CSCS consists of the HPCI System, Automatic Depressurization System (ADS), Core Spray System, and RHR/LPCI mode. Although not part of the CSCS, the RCIC System is capable of providing water to the RV for high pressure core cooling, similar to the HPCI System. The ADS is a backup to the HPCI System and functions to reduce RV pressure to enable low pressure core cooling provided independently by the Core Spray System and the RHR/LPCI mode. The CSCS and RCIC System were operable.

The RCIC overload alarm that occurred while the RCIC System was in service did not affect the operability of the RCIC System. The device that senses an overload condition provides an alarm function only and does not provide a trip function to pump P-221.

The lowest RV water level that occurred was greater than the setpoint (calibrated at approximately -46 inches) that initiates the ATWS System functions for a Recirculation Pump Trip (RPT) and Alternate Rod Insertion (ARI). The highest RV pressure that occurred was less than the setpoint (calibrated at approximately 1175 psig) that initiates the ATWS System RPT and ARI trip functions and the setpoint (calibrated at approximately 1400 psig) that initiates the ATWS System function for a Feedpump Trip.

The highest RV water level that occurred was approximately +65 inches. The level was less than the level (approximately 112 inches) corresponding to the bottom of the Main Steam piping.

The highest Suppression Pool bulk water temperature that occurred was approximately 95 degrees Fahrenheit. The temperature was less than the maximum water temperature (120 degrees Fahrenheit) specified by Technical Specification 3.7.A.1.h during RV isolation conditions.

Technical Specification 3.7.A.1.m specifies the Suppression Pool/Chamber be maintained between -6 to -3 inches which corresponds to a downcomer submergence of 3.00 and 3.25 feet, respectively. The highest Suppression Pool water level that occurred was approximately +3.5 inches (136.5 inches on LI/LR-1001-604A/B). The level was less than the level corresponding to the maximum Suppression Pool volume of 94,000 cubic feet specified by Technical Specification 3.7.A.1.b. A Suppression Pool volume of 94,200 cubic feet corresponds to a level of +6 inches (LR-5038/5049) or 139 inches (LI-1001-604A/B). The level was equal to the settings of level switches LS-2351A/B that control the Suppression Pool/HPCI pump suction valves. The automatic transfer of the HPCI pump suction from the Condensate Storage System to the Suppression Pool occurred as designed.

The safeguards Panels Y3/31 and Y4/41 were de-energized for approximately 28 minutes. The source of power to Panel Y3/31 is Bus A5 via load center Bus B1 and MCC-B17. The source of power to Y4/41 is Bus A6 via load center Bus B2 and MCC-B18. The source of power to Buses A5 and A6 consist of the UAT (during power operation), the SUT, EDG 'A' (Bus A5) and 'B' (Bus A6), the Shutdown Transformer, or Station Blackout Diesel Generator (Bus A5 or A6). The Pilgrim Station electrical design includes the re-energization of Bus A5/A6 within approximately 13 seconds if a loss of offsite power and a design basis loss of coolant accident occurs. During the extra period of time Panels Y3 and Y4 were de-energized, the SSW System Loop 'A' and 'B' pumps and RBCCW System Loop 'A' and 'B' pumps would not have been capable of automatically starting as assumed in the design. The manual start function of the pumps was not affected while the panels were de-energized. The significance of the simultaneous tripping of the input breakers to transformers X55 and X56 was assessed. The assessment concluded the loss of power to Panels Y3/31 and/or Y4/41 is detectable, the actions to re-energize the panels is proceduralized, immediate safety functions are not adversely affected, and the Panels Y3/31 and/or Y4/41 can be repowered in sufficient time to support longer term safety functions.

Technical Specification Figure 3.6.2 identifies the RV P-T limits for subcritical heatup and cooldown. The P-T limit was exceeded during the cooldown on March 13-14, 1993. The effects of exceeding the limit was evaluated. The evaluation concluded the RV did not exceed ASME section III structural limits nor did the RV exceed ASME section XI fracture toughness limits.

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

Technical Specification 3.6.A.1 specifies the thermal and pressurization limit shall not exceed 100 degrees Fahrenheit per hour when averaged over a one hour period except when the RV temperatures are above 450 degrees Fahrenheit. The limit was neither exceeded when the temperature was greater than nor was it exceeded when the temperature was less than 450 degrees Fahrenheit. Moreover, the specification also specifies the RV flange to adjacent RV shell temperature differential shall not exceed 145 degrees Fahrenheit. The limit was not exceeded.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(iv) because the actuation of the RPS, although an expected designed response to the load rejection at 100 percent reactor power, was not planned. This report is also submitted in accordance with subpart (a)(2)(iv) because the PCIS and RBIS actuation, although a designed response to the de-energizing of relays energized from Panels Y3 and Y4, was not planned.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(i)(B) because an engineering evaluation for exceeding the RV P-T limits was not conducted prior to the subsequent plant startup.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B) because the de-energization of safeguards buses 'A' and 'B' for greater than approximately 13 seconds is a condition that is outside the Pilgrim Station design bases. This report is also submitted in accordance with subpart (a)(2)(vii)(B) because the de-energization of 120 VAC safeguards Panels Y3 and Y4 affected the automatic pump start function of Loops 'A' and 'B' of the SSW and RBCCW Systems.

SIMILARITY TO PREVIOUS EVENTS

A review was conducted of Pilgrim Station Licensee Event Reports (LERs) submitted since January 1984. The review focused on LERs submitted in accordance with 10 CFR 50.73(a)(2)(iv) that involved a load rejection or similar scram. The review identified similar events reported in LERs 50-293/85-025-00, 90-008-00, 91-024-00, and 92-016-00.

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

For LER 85-025-00, an automatic scram occurred on September 1, 1985, at 0521 hours, while at 32 percent reactor power. At the time of the event, the Main Condenser was being backwashed and a live washdown of the 345 KV switchyard insulators was being performed to reduce arcing due to salt from a coastal storm. A 345 KV phase 'B' insulator, located on the Main Transformer side of ACB 104, disintegrated and resulted in a load rejection. The scram was caused by high RV pressure that resulted from the load rejection. The cause of the event was due to the forces of nature (i.e., high winds and salt air). Please note the event occurred while at 32 percent reactor power. At that power level, the Turbine first stage pressure was approximately 200 psig. An RPS scram signal due to a Turbine Control Valves Fast Closure or Turbine Stop Valves closure would have occurred if the Turbine first stage pressure had been greater than 280 psig (i.e., the scram bypass setpoint for 45 percent of the normal first stage pressure). The scram bypass setpoint was changed from 280 psig to 108 psig via modification PDC 87-48 during RFO #7.

For LER 90-008-00, an automatic scram due to a load rejection occurred on May 13, 1990, at 1603 hours, while at 100 percent reactor power. The load rejection was caused by a momentary fault on the offsite 345 KV transmission system. The Generator's Loss Of Field Relay 240 detected the fault and immediately tripped the Generator without an expected 15 cycle time delay because one of it's components, the telephone relay coil, was defective. The relay had been calibrated and functionally tested on October 26, 1989. At that time, the operation of the coil was tested in accordance with the technical manual. The relay's time delay was built-in and not adjustable and was not required to be timed. The relay was installed during plant construction (c. 1972). The cause of the open coil was investigated and believed to be a random or age-related failure. The relay is the only one of its type (Westinghouse type KLF-1) installed at Pilgrim Station and was replaced with another type KLF-1 relay having an adjustable time delay. The relay's calibration sheet was revised to include a calibration of the adjustable time delay.

For LER 91-024-00, a loss of preferred offsite 345 KV power occurred while shut down on October 30, 1991, at 1942 hours. The event occurred during a severe coastal storm (i.e., a northeaster). The loss of preferred offsite power occurred about two and one-half hours after a shut down. The loss of preferred offsite power resulted in designed responses including automatic actuations of the RPS, PCIS, RBIS, and EDGs 'A' and 'B'. The cause of the loss of preferred offsite power was the flashover of a 345 KV switchyard ACB 104 insulator column and separate operation of a stuck breaker circuit. The flashover was the result of environmental conditions (i.e., salt deposited on the insulator) due to a period of sustained dry northeasterly onshore winds. The storm that produced the dry winds was rare but more noteworthy was the period of sustained dry northeasterly onshore winds. The flashover caused switchyard ACBs 103, 104 and 105 to open. ACB 102 opened about 1.4 seconds later and as a result of the actuation of the ACB 105 stuck breaker circuit even though ACB 105 opened as designed. The most probable cause of the stuck breaker circuit operation was 345 KV electrical noise coupled into the stuck breaker circuit. Corrective actions taken included a washdown of switchyard insulators and the installation of a high speed recorder to monitor the ACB 105 circuitry. A loss of the secondary source of offsite power occurred at 1953 hours and an Unusual Event was declared at 2003 hours. The cause of the loss of 23KV secondary offsite power was also storm related when a tree fell onto a 23 KV line. Preferred offsite power was restored at 2142 hours and the Unusual Event was terminated at 2230 hours.

For LER 92-016-00, an automatic scram due to a load rejection occurred on December 13, 1992, at 1723 hours, while at 48 percent reactor power. At the time of the event, the Main condenser was being backwashed because of seaweed transported to the Intake Structure as a result of severe coastal storm winds and lunar tides. The load rejection was caused by 345 KV switchyard flashovers due to salt deposited during the storm. A flashover on the portion of the 345 KV bus located between the Main Transformer and ACBs 104 and 105 was the most probable cause of the event. A walkdown of the switchyard for evidence of flashover revealed evidence of arcing on three bushings installed on the phase 'C' busbar located between ACBs 102 and 105. The bushings were hand cleaned. The salt deposits were removed from 345 KV switchyard insulators by washing. The unit was returned to commercial service at 1350 hours on December 18, 1992.

A review was also conducted of Pilgrim Station LERs submitted since 1984 involving an unauthorized change of a trip setting. The review identified no instance of a similar event/condition.

A review was also conducted of Pilgrim Station reports submitted since 1972 involving a RV pressure event with no forced circulation in the RV. The review identified no similar event or condition.

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

COMPONENTS	CODES
Circuit Breaker, AC	52
Insulator	INS
Switchgear	SWGR
Vessel, Reactor	RPV

SYSTEMS	
Closed/Component Cooling Water System (RBCCW)	CC
Condensate System	SD
Condenser System	SG
Containment Isolation Control System (PCIS, RBIS)	JM
Engineered Safety Features Actuation System (PCIS, RBIS, RPS)	JE
Feedwater System	SJ
High Pressure Coolant Injection System	BJ
Low-Voltage Power System (600V and less)	EC
Main Steam System	SB
Main Turbine System	TA
Medium-Voltage Power System	EA
Plant Protection System (RPS)	JC
Post Accident Monitoring System	IP
Reactor Core Isolation Cooling System	BN
Reactor Recirculation System	AD
Reactor Water Cleanup (RWCU) System	CE
Residual Heat Removal System (SPC, SDC Modes)	BO
Standby Gas Treatment System (SGTS)	BH
Switchyard System (345 KV)	FK
Ultimate Heat Sink System (SSW)	BS

NRC FORM 366A
(5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

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.

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