Entergy

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J. F. Alexander
Director
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10 CFR 50.73

January 10, 2001
ENGC Ltr. 2.01.002

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) 2000-003-00, "125V DC Swing Bus Automatic Transfer Switch Degraded Performance," is submitted in accordance with 10 CFR 50.73.

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

Sincerely,

J. F. Alexander

WGL/
Enclosure: LER 2000-003-00

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

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NRC Form 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/200

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.

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TITLE (4) 125V DC Swing Bus Automatic Transfer Switch Degraded Performance

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
12	11	2000	2000	003	00	01		2001	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)	100	20.2201 (b)	20.2203(a)(2)(v)	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)	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)	x 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)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Walter G. Lobo - Senior Engineer	(508) 830-7940

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
X	EJ	83	A610	Y					

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE(15)	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE)	NO		04	15	2001

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

On December 21, 2000, a monthly surveillance of the transfer switch 83-1 (Y10) SE relay was performed. The SE relay failed the surveillance by not operating immediately. The surveillance was then repeated several times without any discrepancies. Initially, the relay was considered operable based upon Engineering Evaluation 00-075. However, past surveillance results, as recent as December 11, 2000, indicated that the SE relay had been experiencing degraded performance for some time.

Pilgrim declared LPCI inoperable on December 21, 2000 and a 7-day LCO was entered pending the replacement of the SE relay in Y10. The SE relay was replaced by a temporary modification on December 24, 2000, and the LCO was terminated. Prior to December 21, 2000, the LPCI system could have been inoperable due to the degraded performance of the SE relay. A root cause analysis will be completed and the results of the root cause analysis and approved corrective actions will be reported in a supplement to this report.

This event occurred at 100 percent reactor power with the reactor mode selector switch in the RUN position. The reactor vessel pressure was about 1030 psig with the water temperature at the saturation temperature for that pressure. This event 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 125V DC Swing Bus Automatic Transfer Switch 83-1 (Y10) was installed in the 1970's. This transfer switch was manufactured by ASCO: ATS Y-10, ASCO 906, Catalog No. X906126CLIA, Serial No. 91895X. The function of the automatic transfer switch Y10 is to ensure either A or B train power is provided to 125V DC distribution panel D6. Panel D6 powers non-safety and safety-related components including control power to safety-related 480V AC swing bus B6 transfer breakers. Bus B6 is powered from either Bus B1 or B2. It is normally aligned to Bus B1.

125V DC Bus A (D16) provides the preferred power feed to panel D6. 125V DC Bus B (D17) provides alternate power to D6. In the event that power from D16 is lost, transfer switch Y10 relay functions to detect the undervoltage condition, de-energize and automatically transfer the source of power from D16 to D17. This automatic transfer scheme is designed to provide a highly reliable power to panel D6.

The 125V DC swing bus automatic transfer switch 83-1 (Y10) is safety-related. The swing bus is designed to provide power to non-safety-related and safety-related loads, including control power to safety-related 480V AC swing Bus B6 transfer breakers. Bus B6 provides power loads including RHR/LPCI injection valves.

The LPCI system is designed to provide low-pressure reactor core cooling in the event of a loss of coolant accident.

Technical Specification (TS) 3.5.A.4 requires the LPCI system to be operable when irradiated fuel is in the reactor vessel and specifies a seven-day LCO for the loss of LPCI function.

EVENT DESCRIPTION

On December 11, 2000, a monthly surveillance of the transfer switch 83-1 (Y10) SE relay was performed in accordance with procedure 3.M.3-45, Attachment 4. The SE relay failed the surveillance because it dropped out after a delay of 45 seconds. The relay should drop out immediately. The relay was subsequently manipulated and electrically energized and de-energized. The surveillance was then repeated on the relay several times without any discrepancies. Operability Evaluation 00-057 was approved based upon Engineering Evaluation 00-069, which required increased surveillance testing. Problem Report (PR) 00.9497 documented the problem with the SE relay.

The surveillance was performed again on December 21, 2000. The SE relay again failed the surveillance by dropping out after a delay of 10 seconds. The relay was manipulated and electrically energized and de-energized. The surveillance was subsequently repeated on the relay several times without any discrepancies. Initially, the relay was considered operable based upon Engineering Evaluation 00-075. However, the December 11 and past surveillance results (PR 97.9172, 99.1133, 99.9524, 00.2553, 00.9497, 00.9514, and 00.9517) indicated that the SE relay had been experiencing degraded performance. Therefore, Pilgrim entered

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into a 7-day LPCI LCO at 1100 on December 21, 2000, to modify the transfer switch Y10.

A temporary modification TM00-053 was completed on December 23, and LCO was terminated at 0300 hours on December 24, 2000.

The degraded performance exhibited by the SE relay during the past surveillance tests and the adequacy of Engineering Evaluations 00-069 and 00-075, are now under review in light of the subsequent test failure.

The degraded performance of the SE relay and its potential impact on Buses D6 and B6 transfer breakers suggests that LPCI could have been inoperable in the past.

This event occurred at 100 percent reactor power with the reactor mode selector switch in the RUN position. The reactor vessel pressure was about 1030 psig with the water temperature at the saturation temperature for that pressure.

CAUSE

A preliminary review of problem reports indicates degraded performance of the SE relay since at least 1997. A root cause is being performed and the results of the root cause analysis together with corrective actions will be provided in a supplement to this report.

EXTENT OF THE PROBLEM

There are two DC SE relay applications at Pilgrim. Both applications are part of the D6 transfer scheme, one SE relay is located in Y10 and the other in D32. The SE relay in Y10 has demonstrated degraded performance. However, historically, the SE relay in D32 has not experienced the same degraded performance. An extent review has been initiated to determine whether similar problem(s) exists with other site bus transfer system relays.

CORRECTIVE ACTION

Corrective action taken includes the following:

A temporary modification TM00-053 was completed on December 24, 2000. The modification replaced the SE relay in Y10 with two parallel safety-related Joslyn-Clark 125V DC relays. The replacement relays have been tested and verified to perform the design function. This modification ensures the current operability of the transfer switch.

Corrective action planned includes the following:

The root cause analysis will identify corrective actions which will be described in a supplement to this report.

SAFETY CONSEQUENCES

The event posed no threat to public health and safety.

The core standby cooling system (CSCS) consists of the HPCI system, Automatic Depressurization system (ADS), Core Spray (CS) system, and the Residual Heat Removal (RHR) system in the low-pressure coolant injection (LPCI) mode.

The CS and LPCI systems function independently to provide low pressure core cooling. Of the electrical loads associated with D6, the most critical load is the control power for the 480V AC Bus B6 transfer scheme breakers. The LPCI injection valves MO-1001-28A/29A and 28B/29B are powered from motor control centers that are powered from B6. The CS system consists of two 100% capacity trains for low-pressure core cooling. The CS system, in conjunction with LPCI function, results in a total of three low-pressure core cooling trains, of which only two are necessary for low-pressure core cooling.

The CS pumps are powered from 4kv Bus A5 (train A) and A6 (train B), the CS control system is powered from 125V DC A (train A) and B (train B), the CS valves are powered from 480V AC Bus B1 (train A) and B2 (train B). The problem with Y10 could result in failure of D6 and B6, but would not affect B1 or B2. Therefore, two of the three low-pressure core cooling trains would not be affected by the problem associated with Y10 transfer switch.

For the identified condition, the most limiting case for Pilgrim is the loss of a single battery train, which would leave only one CS pump and two LPCI pumps for low-pressure cooling. If LPCI had been inoperable due to the SE relay during a design basis accident coincident with loss of the 125V DC Bus A due to battery A failure, the low-pressure core cooling capability would have been degraded.

REPORTABILITY

This report is submitted in accordance with 10 CFR 50.73(a)(2)(v)(D) because the automatic transfer switch 83-1(Y10) could have made LPCI inoperable during a design basis accident coincident with a loss of 125V DC Bus A (or 125V DC battery A).

SIMILARITY TO PREVIOUS EVENTS

A review was conducted of Pilgrim Station Licensee Event Reports (LERs) issued since 1995. The review identified no reports involving the automatic transfer switch 83-1 or D32.

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

COMPONENTS	CODES
Automatic Transfer Switch	83
Relay	83

SYSTEMS

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Low Pressure Coolant Injection (LPCI) system BO
DC Power system-Class 1E EJ