Entergy

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Michael A. Balduzzi
Site Vice President

June 13, 2005

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

Subject: Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket No.: 50-293
License No.: DPR-35

Licensee Event Report 2005-002-00

Letter Number: 2.05.043

Dear Sir:

The enclosed Licensee Event Report (LER) 2005-002-00, "One Less Than the Technical Specifications Required Minimum Number of Operable Drywell Pressure Instrument Channels due to Licensed Operator Error," is submitted in accordance with 10 CFR 50.73

This letter contains no commitments.

Please feel free to contact Bryan Ford, 508-830-8403, for any questions regarding this subject.

Sincerely,

Michael A. Balduzzi

DWE/dm

Enclosure: LER 2005-002-00

cc: Mr. Samuel J. Collins
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INPO Records

Senior NRC Resident Inspector

IE22

NRC Form 366 U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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.

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TITLE (4)

One Less Than the Technical Specifications Required Minimum Number of Operable Drywell Pressure Instrument Channels Due to Licensed Operator Error

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
04	14	2005	2005	002	00	06	13	2005	FACILITY NAME: N/A	DOCKET NUMBER: 05000

OPERATING MODE (9)	N
POWER LEVEL (10)	87

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

	20.2201(b)		22.2203(a)(3)(i)		50.73(a)(2)(i)(C)		50.73(a)(2)(vii)
	22.2202(d)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(A)
	20.2203(a)(1)		20.2203(a)(4)		50.73(a)(2)(ii)(B)		50.73(a)(2)(viii)(B)
	20.2203(a)(2)(i)		50.36(3)(1)(i)(A)		50.73(a)(2)(iii)		50.73(a)(2)(ix)(A)
	20.2203(a)(2)(ii)		50.36(3)(1)(ii)(A)		50.73(a)(2)(iv)(A)		50.73(a)(2)(x)
	20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(v)(A)		73.71(a)(4)
	20.2203(a)(2)(iv)		50.46(a)(3)(ii)		50.73(a)(2)(v)(B)		73.71(a)(5)
	20.2203(a)(2)(v)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(C)		OTHER
	20.2203(a)(2)(vi)	X	50.73(a)(2)(i)(B)		50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Bryan Ford – Licensing Manager	(508) 830-8403

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)			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 April 16, 2005 at 0955 hours, one drywell pressure transmitter was found isolated (valved out of service) and therefore, inoperable. The transmitter is part of one of two Division 'B' instrument channels that function to initiate safety systems in the event of a high-pressure condition inside the drywell. The transmitter was mistakenly isolated at 0905 hours on April 14, 2005. The Division 'A' pressure transmitters and related instrument channels that provide a similar function were not impacted. The condition existed during reactor power operation for a period longer than allowed by technical specifications.

The root cause of the condition was licensed operator error. The operator mistakenly closed the isolation valve of the pressure transmitter instead of another valve. The error was the result of inadequate use of human performance error prevention tools, i.e. self-checking and a questioning attitude. Corrective actions taken included opening the isolation valve and walk-downs to ensure other instrumentation was correctly configured.

The condition 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 safety objective of the core standby cooling systems (CSCS), in conjunction with other engineered safeguards systems, is to limit the release of radioactive materials to the environs during postulated accident conditions so that resulting radiation exposures are within guideline values in published regulations.

The safety objective of the primary containment system (PCS) is to provide the capability in conjunction with other safety features, to limit the release of fission products in the event of a postulated design basis accident so that offsite doses would not exceed 10 CFR 100 limits. The PCS consists of a drywell, a pressure suppression chamber (torus) which stores a large volume of water, a connecting vent system between the drywell and torus, isolation valves, vacuum relief system, and other service equipment.

The drywell atmosphere pressure is monitored by instrumentation that includes pressure transmitters that are part of the analog trip system (ATS). In addition to the pressure transmitters, the ATS includes master trip units and slave trip units. Each pressure transmitter (e.g. PT-1001-89B) has a master trip unit (e.g. PIS-1001-89B) and may have one or more associated slave trip units. The transmitter and respective trip unit(s) are part of an instrument channel(s) to the trip and control circuit(s) of a safety system(s). Typically, a master trip unit provides an indication of the monitored parameter (e.g. drywell pressure) and a trip function to the respective trip circuit of a safety system(s). A slave trip unit provides a trip function to the respective trip circuit of a safety system(s) but does not provide an indication of the monitored parameter (e.g. drywell pressure).

The drywell pressure transmitters include PT-1001-89A/B/C/D. Transmitters PT-1001-89A/C (Division 'A') and PT-1001-89B/D (Division 'B') are part of the CSCS (i.e. ECCS) drywell pressure instrument channels. These channels input to the actuation logic of the automatic depressurization system (ADS), the core spray system (CS), the residual heat removal system (RHR), the emergency diesel generators (EDGs) and related load shedding, the high-pressure coolant injection system (HPCI), and the HPCI turbine steam exhaust vacuum breakers. With the inoperability of a single ECCS Division 'A' or Division 'B' drywell pressure transmitter and/or related instrument channel(s), these systems will still actuate if a high drywell pressure condition occurs.

Technical Specifications (TS) Table 3.2.B governs the instrumentation that functions to initiate and control the core and containment cooling systems. Table 3.2.B specifies limiting conditions for operation for the parameters and functions listed in the table. Table 3.2.B identifies that whenever any CSCS subsystem is required by TS 3.5 to be operable, that there be two operable trip systems, and if the minimum number of operable instrument channels cannot be met for one of the trip systems, that system shall be repaired or the reactor placed in the Cold Shutdown condition within 24 hours after that trip system is made or found to be inoperable.

EVENT DESCRIPTION

At 0905 hours on April 14, 2005, drywell pressure transmitter PT-1001-89B was mistakenly valved out of service (isolated) by a utility licensed operator. This action resulted in the inoperability of one of the two Division 'B' high drywell pressure instrument channels.

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

At 1944 hours on April 14th, the drywell pressure indication on master trip unit PIS-1001-89B (from PT-1001-89B) was checked in accordance with TS Table 4.2.B as part of a routine tour, by a different licensed operator (tour operator). The indicated pressure was recorded at 1.30 psig.

On the next day, April 15th at 2020 hours, the same tour operator checked the drywell pressure indication on PIS-1001-89B and identified that the indication was downscale (i.e. at or near zero psig). The tour operator reported the indication to the shift control room superintendent (CRS). The CRS initiated troubleshooting activities.

As part of the troubleshooting, a calibration of PIS-1001-89B was performed with satisfactory results. The indication on PIS-1001-89B remained downscale after the calibration. Further investigation, at about 0955 hours on April 16th, found the isolation valve of PT-1001-89B to be closed. Immediate action taken was to open the isolation valve of PT-1001-89B, restoring to operable status PT-1001-89B and the related instrument channels. From the time of discovery, at 2020 hours on April 15th, the instrument and related channels were inoperable for about 13 hours and 35 minutes. This was within the 24 hour time period allowed by the Technical Specifications for the instrument channels to be inoperable, and continued plant operation.

Subsequent investigation identified the incorrect isolation of PT-1001-89B and that the condition had existed since 0905 hours on April 14th. This meant the condition existed for a period of about 49 hours, which was greater than the 24 hour timeframe specified by Table 3.2.B.

The condition existed near the end of the fuel cycle, in coast-down, at about 87 percent reactor power with the reactor mode switch in the RUN position. The reactor vessel pressure was about 1035 psig with the reactor water at the saturation temperature for that pressure.

CAUSE

The direct cause of the condition was the closing of the PT-1001-89B isolation valve, 2-1001-89B. The root cause was a human performance error by a utility licensed operator. The operator mistakenly closed valve 2-1001-89B instead of valve HO-C2206A-1. The error was the direct result of inadequate use of human performance tools, i.e. self-checking and a questioning attitude.

This condition began on April 14th when the operator who mistakenly closed isolation valve 2-1001-89B was supposed to verify that valve HO-C2206A-1 was closed. These valves and check valve CK-2206A-1 are located on instrument rack C2206. Valve HO-C2206-A1 is a hand-operated valve equipped with a T-type handle and is located about four and one-half feet above floor level. The isolation valve, 2-1001-89B, of PT-1001-89B is a hand-operated valve equipped with a round handle and is located about two feet and nine inches above floor level in the same area of the rack. Attached to and hanging below each of these valves is an equipment label that identifies the valve by identification number and functional description. The equipment label of check valve CK-2206A-1 is directly above the handle of isolation valve 2-1001-89B.

Circumstantial evidence indicates the operator misread the labels and closed isolation valve 2-1001-89B instead of the intended valve, HO-C2206A-1.

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The cause of the operator recording the drywell pressure indication of PIS-1001-89B to be 1.3 psig on April 14th while the plant computer indicates the pressure indication was 0.01 psig could not be determined, although past history indicates the meter on this type of indicator is susceptible to sticking. The cause could be attributed to operator error in reading the indication, a sticking meter needle on PIS-1001-89B, or static.

CORRECTIVE ACTION

Corrective actions taken include the following. Upon discovery, the isolation valve of PT-1001-89B was opened. Walk-downs were conducted to ensure other instrumentation was correctly configured. The licensed operator who mistakenly closed the isolation valve of PT-1001-89B received appropriate disciplinary action. The surveillance procedure that includes daily checks of instrumentation was revised to increase the frequency of required ATS instrumentation checks from once per day to once per shift, and to obtain readings from the plant computer in addition to meter checks.

SAFETY CONSEQUENCES

This condition posed no threat to public health and safety.

The Pilgrim Station analysis required by 10 CFR 50.46 and 10 CFR 50 Appendix K includes several assumptions. The analysis assumes ECCS (i.e. CSCS) initiates on high drywell pressure for all breaks inside containment (i.e. the drywell). The analysis assumes ECCS initiates on low reactor water level for breaks outside containment. The analysis assumes the reactor scrams on low reactor water level at time zero for small breaks inside containment. The condition described in this report did not affect the ability of the ECCS Division 'A' or Division 'B' low reactor water level instrumentation to initiate the safety systems.

The Pilgrim Station LOCA analysis identifies four significant single failures that challenge the capability of ECCS to prevent fuel damage during the postulated LOCA: failure of a single battery, failure of the selected LPCI injection valve, loss of one EDG, or HPCI failure. In all cases, the remaining ECCS resources are sufficient to prevent fuel peak clad temperature from exceeding 2200 degrees Fahrenheit and other criteria in 10 CFR 50.46 and Appendix K.

The drywell pressure transmitters include PT-1001-89A/B/C/D. Transmitters PT-1001-89A/C (Division 'A') and PT-1001-89B/D (Division 'B') are part of the CSCS (i.e. ECCS) drywell pressure instrument channels. These channels input to the actuation logic of ADS, CS, RHR, EDGs and related load shedding, HPCI, and HPCI turbine steam exhaust vacuum breakers. With the inoperability of a single ECCS Division 'A' or Division 'B' drywell pressure transmitter and/or related instrument channel(s), these systems will actuate if a high drywell pressure condition occurs. Moreover, and except for the HPCI turbine steam exhaust vacuum breakers, a low water level condition inputs to the actuation logic of these systems.

Other activities occurred while PT-1001-89B was isolated and the related high drywell pressure instrument channels were inoperable. These activities were conducted separately and resulted in the inoperability of a single system, train or component and did not in combination with the reported condition result in any loss of safety function. These activities were conducted to support plant operation or planned surveillance or planned maintenance, and were each completed well within the Pilgrim Technical Specifications allowed timeframes.

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The condition described in this report involved a reduction in the level of redundancy in the actuation logic for the ECCS (i.e. CSCS) functions described in this report. Previous analyses have been conducted for improvements to surveillance test intervals of ECCS actuation instrumentation. Among other findings, the analyses showed that safety system reliabilities are not dominated by logic system reliabilities, but are dominated by mechanical components (i.e. pumps and valves) that are more frequently tested. The condition described in this report did not involve the reliability of these mechanical components.

REPORTABILITY

This report was submitted in accordance with 10 CFR 50.73(a)(2)(i)(B) because there was less than the minimum number of operable high drywell pressure instrument channels specified in TS Table 3.2.B and the condition existed for greater than 24 hours.

SIMILARITY TO PREVIOUS EVENTS

A review for similarity was conducted of Pilgrim Station LERs submitted since 2002. The review focused on a similar event(s) and/or a condition(s) or cause. The review identified a personnel error described in LER 2003-002-00, "Unplanned Automatic Closing of the Main Steam Isolation Valves and Resultant Scram due to Licensed Operator Error During Startup."

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

COMPONENTS	CODE
Transmitter, Pressure (PT-1001-89B)	PT
Valve, isolation (2-1001-89B)	ISV
Valve (CK-2206A-1)	V

SYSTEMS

Emergency Onsite Power Supply System (EDG)	EK
High Pressure Coolant Injection System (HPCI)	BJ
Low Pressure Core Spray System (CS)	BM
Residual Heat Removal System (LPCI)	BO
Solid State Control System (ATS)	JG