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INDIANA
MICHIGAN
POWER

November 10, 2000

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Operating Licenses DPR-58 and DPR-74
Docket Nos. 50-315 and 50-316

Document Control Manager:

In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Report System, the following report is being submitted:

LER 315/99-003-01, "Control Room Pressurization System Surveillance Test Does Not Test System In Normal Operating Condition"

The following commitment is identified in this submittal:

- The appropriate design basis documentation will be revised to clearly identify that the affected doors are part of the control room pressure boundary design basis and emphasize the distinction between the Unit 1 and Unit 2 control room pressure envelopes. This action will be completed by February 28, 2001.

Should you have any questions regarding this correspondence, please contact Mr. Wayne J. Kropp, Director Regulatory Affairs, at 616/697-5056.

Sincerely,

Lawrence Weber

Lawrence J. Weber
Acting Plant Manager

/bwo
Attachment

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IE22

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

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND 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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Donald C. Cook Nuclear Plant Unit 1	05000-315	1 of 4

TITLE (4)

Control Room Pressurization System Surveillance Test Does Not Test System In Normal Operating Condition

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: Cook Plant Unit 2	DOCKET NUMBER: 05000-316
01	07	1999	1999	-- 003 --	01	11	10	2000	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
			20.2201 (b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
POWER LEVEL (10)	0%		20.2203(a)(1)		20.2203(a)(3)(i)	X	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)		50.73(a)(2)(v)		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)
Ms. Brenda W. O'Rourke, Compliance Engineer	(616) 465-5901, x2604

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 January 7, 1999, it was identified that the Control Room Emergency Ventilation System's (CREVS) Technical Specification (TS) surveillance procedure did not test the control room pressurization system in the normal operating control room pressure boundary configuration. Control room pressure boundary door 12DR-AUX415, which is part of the pressure boundary for both the Unit 1 and 2 control rooms, was normally in the open position during operation, but was closed prior to performance of the surveillance test. Since the pressure boundary door was closed prior to performing the test, which was not the plant configuration that would have existed in the event of a postulated accident since the door was maintained opened, verification of the system's ability to perform it's safety function was not accomplished. On February 24, 1999, LER 315/99-003-00 was submitted in accordance with 10CFR50.73(a)(2)(i)(B) for a condition prohibited by plant TS. Because the plant operated with door 12DR-AUX415 in the open position, this condition is also reportable under 10CFR50.73(a)(2)(ii)(B), for the plant being outside it's design basis. Information regarding safety significance and corrective/preventive actions is being provided in this LER supplement based on the completed root cause evaluation. The cause was inadequate control of the CREVS design basis. Failure to recognize door 12DR-AUX415 as part of both unit's control room pressure boundary resulted in the door being maintained open since initial plant start-up. Results of the 1999 Unit 1 and 2 CREVS tracer gas tests concluded that the amount of unfiltered inleakage is not highly dependent on control room pressurization and the dose consequences of having door 12DR-AUX415 open during an accident would remain within 10 CFR 50 Appendix A, GDC 19 allowable limits. Therefore, this condition had minimal safety significance. On January 25, 1999, door 12DR-AUX415 was placed in the closed position. Permanent labels were placed on the door to identify it as a control room pressure boundary door and that it must remain closed at all times, except during periods of ingress and egress by plant personnel. Other doors which serve as pressure boundaries between the Unit 1 and Unit 2 control rooms were walked down and found to be in the closed position.

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)					PAGE (3)
		YEAR	SEQUENTIAL NUMBER			REVISION NUMBER	
Donald C. Cook Nuclear Plant Unit 1	05000-315	1999	--	003	--	01	2 of 4

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

Conditions Prior to Event

Unit 1 was in Mode 5, Cold Shutdown, depressurized
Unit 2 was in Mode 5, Cold Shutdown, depressurized

Description of Event

On January 7, 1999, Engineering identified that Technical Specification (TS) surveillance procedure 12 EHP 4030 STP.229, "Control Room Emergency Ventilation Test," did not test the control room pressurization system in the normal operating control room pressure boundary configuration. Investigation identified that control room pressure boundary door 12DR-AUX415, which is part of the pressure boundary for both the Unit 1 and Unit 2 control rooms, was normally in the open position during operation, but was closed prior to performance of the TS surveillance test. Door 12DR-AUX415 is equipped with an electrical release mechanism which automatically signals the door to close in the event of a fire, but has no automatic closure signal that would cause the door to close in the event of a control room pressurization system actuation. Investigation determined that the door had been maintained in the open position since initial plant start-up.

Technical Specification surveillance requirement 4.7.5.1.e.3 is intended to verify that the Control Room Emergency Ventilation System (CREVS) will maintain a positive control room pressure greater than or equal to 1/16 inch water gage (WG) relative to the outside atmosphere at a pressurization system flow rate of 6000 cubic feet per minute. However, since the surveillance test was conducted with the control room pressure boundary door closed, which was not the plant condition that would have existed in the event of a postulated accident since the door was maintained opened, verification of the system's ability to perform its intended safety function was not accomplished. On February 24, 1999, LER 315/99-003-00 was submitted in accordance with 10CFR50.73(a)(2)(i)(B) for a condition prohibited by plant TS, since the control room pressurization system's safety function was not verified as required by TS surveillance requirement 4.7.5.1.e.3. Because the plant operated with door 12DR-AUX415 in the open position, this condition is also reportable under 10CFR50.73(a)(2)(ii)(B), for the plant being outside its design basis. Information regarding safety significance and corrective/preventive actions is being provided in this LER supplement based on completion of the root cause evaluation.

Cause of Event

The cause for the identified condition was inadequate control of the CREVS design basis. Failure to recognize door 12DR-AUX415 as part of both unit's control room pressure boundary design basis resulted in the door being maintained open since initial plant start-up.

Analysis of Event

The Unit 1 and Unit 2 control rooms are located adjacent to each other. The control rooms are accessed through common security doors but are divided into separate, independent control room pressure boundaries. The Unit 1 control room pressure boundary consists of the control room, plant computer room, an equipment room, and kitchen. The Unit 2 control room pressure boundary consists of the control room, plant computer room, an equipment room, and the toilet facilities. Three doors are common to both pressure boundaries; door 12DR-AUX437, which separates the Unit 1 and Unit 2 equipment rooms, door 12DR-AUX492, which separates the Unit 1 and 2 plant computer rooms, and door 12DR-AUX415, which separates the Unit 1 and 2 control room pressure boundaries.

Each control room has two independent, full capacity air conditioning systems. Two fresh-air intakes are provided for each control room. Both air conditioning units share one intake. Each fresh-air intake is fitted with a motor-operated isolation damper for control room isolation. Normally, a fixed portion of the room air and outside air is supplied to the control room through one of the two air-handling units. Continuous pressurization of the control room is normally provided by the air

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)					PAGE (3)
		YEAR	SEQUENTIAL NUMBER			REVISION NUMBER	
Donald C. Cook Nuclear Plant Unit 1	05000-315	1999	--	003	--	01	3 of 4

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

conditioning system to prevent the entry of dust and dirt. A separate intake is provided for emergency filtration and pressurization by a separate air-handler with roughing filters, high efficiency particulate air filters and charcoal adsorbers. The control room emergency filtration and pressurization unit is normally not in operation.

In the event of a safety injection (SI) signal or a high radiation signal, the fresh-air intake damper in the air conditioning system isolates and the isolation damper in the emergency filtration and pressurization intake goes to a minimum position to pressurize its respective control room to a positive 1/16 inch WG pressure, with respect to outside atmosphere. The pressurization air passes through a high efficiency particulate air filter and a charcoal filter before discharging into the control room. This is to remove radioactive particulates and iodines that may be released during a postulated accident to preclude control room doses from exceeding 10 CFR Part 50 Appendix A, General Design Criteria (GDC) 19 limits.

To determine the radiological consequences resulting from door 12DR-AUX415 being open during an accident, two operating scenarios for both units were evaluated. In the first scenario, both units are in either Modes 1 through 4, and a loss-of-coolant-accident (LOCA) occurs in one unit. Because an SI signal from either unit would start the emergency filtration and pressurization system, both the Unit 1 and Unit 2 control room pressure boundaries would be pressurized. Even if the opposite control room is not in its pressurization mode, the normal air conditioning system is designed to maintain a similar positive pressurization. The normal and pressurization systems are designed for a nominal makeup air flow rate of 800 cfm. Therefore, there is little driving force for air flow from one control room to another and the amount of air exchanged through the doorway would be very small. As a result, the dose consequences of having door 12DR-AUX415 open would be minimal, since the pressurization of either control room would not be compromised.

In the second scenario, with a single unit in Mode 1 through 4, and the other unit's control room ventilation system inoperable, the open position of door 12DR-AUX415 could potentially challenge the ability of the pressurization system to maintain a positive control room pressure of 1/16 inch WG during an accident (e.g., LOCA, fuel handling accident, waste gas tank rupture). As a result, a greater amount of unfiltered air infiltration to the control room could occur.

In 1999, control room envelope inleakage tracer gas tests were performed to assess the amount of unfiltered air inleakage into the Unit 1 and 2 control room envelopes. Unfiltered air inleakage into each control room envelope was measured, via separate tests, with one unit's control room ventilation system operating in the pressurization mode and the opposite unit operating in the normal ventilation mode. During performance of the Unit 1 tracer gas test, the control room failed to pressurize to the TS required value of 1/16 inch WG. During the Unit 2 tracer gas test, the control room was successfully pressurized. However, the air inleakage rates for both units were similar which demonstrates that unfiltered inleakage is not highly dependent on control room pressurization. In conclusion, the results support the argument that if door 12DR-AUX415 is open (i.e., the control room is not pressurized), unfiltered inleakage into the operating unit's control room would not be significantly greater than with the door closed.

Because the control room atmosphere is monitored following an accident as part of the Donald C. Cook (CNP) Nuclear Plant emergency plan, if an accident were to occur with door 12DR-AUX415 open, actions could be taken to preclude exceeding allowable dose limits. For example, the LOCA dose analysis performed in February 2000, calculated accumulated dose to personnel in the control room 24 hours into the event to be less than half of the 10 CFR 50 Appendix A, GDC 19 limit. Dose rates would significantly decrease over the remaining 30 day duration that personnel are assumed to remain in the control room following an accident. Even with a degraded control room ventilation system, instantaneous excessive dose consequences would not result. Dose consequences would only become significant with prolonged exposure to the control room environment.

Based on the results of the tracer gas test, the amount of unfiltered inleakage is not highly dependent on pressurization and the dose consequences of having door 12DR-AUX415 open during a postulated accident would remain within 10 CFR 50 Appendix A, GDC 19 allowable limits. Therefore, this condition has minimal safety significance.

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)					PAGE (3)
		YEAR	SEQUENTIAL NUMBER			REVISION NUMBER	
Donald C. Cook Nuclear Plant Unit 1	05000-315	1999	--	003	--	01	4 of 4

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

Corrective Actions

On January 25, 1999, door 12DR-AUX415 was placed in the closed position. Permanent labels were placed on the door to identify it as a control room pressure boundary door and that it must remain closed at all times, except during periods of ingress and egress by plant personnel.

On February 17, 1999, an extent of condition evaluation was performed to determine if other doors which serve as pressure boundaries between the Unit 1 and Unit 2 control rooms were in the closed position and appropriately labeled. All doors were found in the closed position. However, doors 12DR-AUX436, 12DR-AUX437 and 12DR-AUX492, which are normally closed fire doors, were not labeled as being part of the control room pressure boundary. Permanent labels have subsequently been placed on the affected doors.

The appropriate design basis documentation will be revised to clearly identify that the affected doors are part of the control room pressure boundary design basis and emphasize the distinction between the Unit 1 and Unit 2 control room pressure envelopes. This action will be completed by February 28, 2001.

As part of the Unit 2 Restart effort, system and programmatic assessments were performed during the Expanded System Readiness Reviews to reestablish and document the plant's design and licensing basis. In CNP's March 19, 1999, response to NRC letter "Enforcement Actions 98-150, 98-151, 98-152 and 98-186 Reply to Notice Of Violation October 13, 1998," which identified programmatic weaknesses in the control of the CNP design and licensing basis, an Engineering Leadership Plan was established to develop a design basis authority within the Engineering department and a new design control process that encompassed design input and verification, design document control, and vendor technical information. These plans, in whole, will help to preclude similar events from occurring in the future.

Previous Similar Events

None