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NPL 2000-0143

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10 CFR 50.73

Document Control Desk
U.S. NUCLEAR REGULATORY COMMISSION
Mail Station P1-137
Washington, DC 20555

Ladies/Gentlemen:

DOCKET NOS 50-266 AND 50-301
LICENSEE EVENT REPORT 2000-003-00
INADEQUATE CONTROL OF CABLE SPREADING ROOM
HIGH ENERGY LINE BREAK BARRIER
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

Enclosed is Licensee Event Report 2000-003-00 for Point Beach Nuclear Plant, Unit 1 and 2. This report is provided in accordance with 10 CFR 50.73(a)(2)(ii)(B) for the discovery of an, "event or condition that resulted in the nuclear power plant being:...(B) In a condition that was outside the design basis of the plant." This report discusses the identification of a temporary use barrier penetration in the cable spreading room wall which was not adequately controlled to protect that location from the potential effects of a high energy line break in the PBNP turbine hall.

Corrective action commitments within this report are indicated in italics.

Please contact us if you require additional information.

Sincerely,

Mark E. Reddemann
Site Vice President
Point Beach Nuclear Plant

Enclosure

CWK/tat

cc: NRC Resident Inspector
NRC Regional Administrator
NRC Project Manager
PSCW
INPO Support Services

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS 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

FACILITY NAME (1)

Point Beach Nuclear Plant, Unit 1

DOCKET NUMBER (2)

05000266

PAGE (3)

1 of 4

TITLE (4)

Inadequate Control of Cable Spreading Room High Energy Line Break Barrier

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	
02	16	2000	2000	003	- 00	03	16	2000	Unit 2	05000301	
									FACILITY NAME	DOCKET NUMBER	
										05000	
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
N		20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)		50.73(a)(2)(viii)	
POWER LEVEL (10)		20.2203(a)(1)			20.2203(a)(3)(i)			X 50.73(a)(2)(ii)		50.73(a)(2)(x)	
100		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
Charles Wm. Krause, Senior Regulatory Compliance Engineer

TELEPHONE NUMBER (Include Area Code)
(920) 755-6809

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)

YES (If yes, complete EXPECTED SUBMISSION DATE). X NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

This event identified inadequate controls on a temporary use penetration through the wall of the cable spreading room (CSR) at the Point Beach Nuclear Plant (PBNP) which could have, in the event of a worst case high energy line break (HELB) in the PBNP turbine hall, resulted in the potential for exceeding the design basis temperature limitations for equipment located in the CSR. PBNP procedure NP 8.4.16, "PBNP High Energy Line Break Barriers," has been changed to incorporate more positive administrative and compensatory controls on barrier penetrations susceptible to HELB conditions. Due to the relatively short duration of the degraded condition of this penetration and the low probability of the initiating event, the safety significance of this condition was minimal. A root cause evaluation and an assessment of the plant for extent of this condition will be completed.

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TEXT CONTINUATION

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Point Beach Nuclear Plant, Unit 1	05000266	2000	- 003	- 00	2 OF 4

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

Event Description:

On February 15, 2000, while conducting a routine walk through of the cable spreading room, an engineer with the licensee's organizational assessment group observed cables running through a penetration (M-5-3-25-S48) installed on the south wall of the cable spreading room. The cable spreading room (CSR) is located on the 26 foot elevation of the control building directly beneath the Point Beach Nuclear Plant (PBNP) Unit 1 and 2 common control room. The CSR contains numerous safety related components and cables and is maintained as a mild environment for environmental qualification purposes. The CSR is enclosed by a three hour fire barrier which also serves to protect the CSR from the temperature and pressure conditions that could result from a high energy line break (HELB) in the adjacent PBNP turbine halls. The identified penetration is installed to allow temporary use of welding cables, extension cords, or air lines to pass through from the Unit 1 turbine hall to support testing and maintenance of components located in the CSR. It is a 4.5 inch diameter pipe sleeve that is normally capped at both ends with steel caps. On February 15 the penetration was in use to permit post maintenance testing of the DYOB Blue Channel Instrument Bus Static Inverter in accordance with procedure RMP 9036-4. The RMP calls for setting up two 1500W heaters to load test the inverter for 100 hrs. Due to CSR heat loading concerns, the heaters are set up outside the CSR and connected via cables through this penetration to the inverter. A Fire Barrier Permit was issued to allow use of this penetration to support the maintenance testing in accordance with procedure NP 8.4.11, "Penetrating Barriers." This permit directed that the penetration be packed with a fire retardant material (Kaowool) while the penetration end caps were removed. The engineer questioned whether this compensatory measure would be adequate to compensate for degradation of the HELB barrier. A Condition Report was written (CR 00-0543) and an engineering evaluation was initiated to address the condition.

The engineering evaluation determined that although this temporary penetration is adequately protected from direct impingement of steam during a postulated HELB, the overall post HELB pressure in the turbine hall in the vicinity of the penetration (approximately 0.6 psig) would cause the Kaowool to be pushed out of the penetration. Steam leakage could then occur into the CSR through this degraded barrier. A preliminary evaluation concluded that under these circumstances it is possible that, in the event of a HELB, the temperature in the CSR would increase and could exceed the design basis temperature for equipment in that location. A one hour ENS notification was made at 1819 CST in accordance with 10 CFR 50.72(b)(1)(ii)(B) for the discovery of a condition which is potentially outside the design basis of the plant. The electrical cord through the penetration was removed and the penetration pipe sleeve caps were reinstalled. The penetration was restored to full operability at 1836 CST.

Cause:

The cause of this event was the failure to consider the temporary use of this penetration as a degradation of the CSR HELB barrier, due to the unsupported assumptions that the packing of fire retardant material in the penetration would provide a suitable pressure boundary and/or that the small size of the penetration would not result in the potential for an unacceptable temperature in the CSR after a postulated HELB. PBNP has a procedure, NP 8.4.16, "PBNP High Energy Line Break Barriers," which provides guidance for the maintenance, modification, or replacement of HELB barriers. This document also identifies HELB barriers covered by the procedure.

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

Although the procedure specifically addresses doors and hatches as HELB barriers, it does not identify specific penetrations. An allowed out of service time of 24 hours is permitted by the procedure for doors and hatches; however, compensatory measures for specific penetrations were not addressed. In this event, the penetration steel cap had been removed for a period of less than 10 days while conducting maintenance and testing of the instrument bus static inverters.

Corrective Actions:

1. After the determination that this penetration would not satisfy the requirements for an effective HELB barrier, the electrical cord was removed from the penetration and the steel end caps at each end of the penetration were reinstalled.
2. A temporary procedure change was completed (TCN 2000-0127) to NP 8.4.16 to describe the criteria for acceptance of replacement HELB barriers. This temporary change will be made permanent at the next revision of the procedure.
3. A Root Cause Evaluation will be conducted to determine why this penetration was not previously identified as a HELB concern.
4. An extent of condition evaluation will be completed to identify whether other penetrations are sensitive to HELB concerns and should be controlled under NP 8.4.16.

Safety Assessment:

The evaluation of this event assumed that the penetration through the south wall of the cable spreading room could have provided a path from the turbine hall to the interior of the CSR. If a high energy line break of sufficient duration had occurred during the period when this penetration was in use, an evaluation concluded that the assumed design basis maximum temperature for equipment located in the CSR (the most sensitive equipment being the instrument bus inverters) would have eventually been exceeded. Although we have not completed an evaluation of all equipment failures that could result from elevated temperatures in the CSR, in general, the consequences from exceeding the design temperatures for equipment in the room would result in the functional failures of some of that equipment. This qualitative assessment assumes the worst case HELB, the assumption that one of the main steam isolation valves does not shut to minimize the duration of the energy release from the break (and therefore the temperature transient in the CSR), a loss of offsite AC power and; therefore, air conditioning in the CSR, and the conservative assumption that the equipment in the room fails immediately after the design temperature is exceeded. We have conservatively calculated that the probability of an HELB and a loss of AC power occurring during the interval that this barrier penetration was in use was on the order of 3E-06. Accordingly, there was negligible impact on the health and safety of public and the plant staff as a result of the condition identified in this event report and the safety significance of this event was minimal. We have also determined that this event is not a Safety Significant Functional Failure since the event condition of a degraded barrier, by itself, could not have prevented the fulfillment of the safety function of structures or systems.

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

System and Component Identifiers:

The Energy Industry Identification System component function identifier for each component/system referred to in this report are as follows:

<u>Component/System</u>	<u>Identifier</u>
Penetration	PEN
Cable	CBL
Heater, Electric Resistance	EHTR
Control Building	NA

Similar Occurrences:

A review of recent LERs (past two years) identified the following events which evaluated a design basis concern for the cable spreading room:

<u>LER NUMBER</u>	<u>Title</u>
200/1999-009-00	Design Basis for Control Room/Cable Spreading Room Fire Barrier Not Fully Implemented