Wisconsin Electric
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NPL 2000-0146

March 20, 2000

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

10 CFR 50.73

Ladies/Gentlemen:

DOCKET NOS 50-266 AND 50-301
LICENSEE EVENT REPORT 2000-004-00
APPENDIX R DESIGN BASIS - POTENTIAL UNAVAILABILITY
OF PROCESS MONITORING INSTRUMENTATION
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

Enclosed is Licensee Event Report 266/2000-004-00 for the Point Beach Nuclear Plant (PBNP), Units 1 and 2. This report is provided in accordance with 10 CFR 50.73(a)(2)(ii)(B) as "any 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 describes the discovery that the 10 CFR Part 50, Appendix R requirements for maintaining redundant equipment free of fire damage would not be met for a postulated fire at the 21 foot elevation in the PBNP containment. A postulated fire in that location could cause a loss of several temperature elements and Steam Generator level instruments such that temperature and level indications from the same loop would not be available.

One new commitment is identified with italics in the Corrective Action Section of this report.

Please contact us if you require additional information.

Sincerely,

A. J. Cayia
Manager,
Regulatory Services & Licensing

Enclosure

CWK/tat

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

IE22

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

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

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Point Beach Nuclear Plant, Unit 1	05000266	1 of 4

TITLE (4)

Potential Loss of Process Monitoring Instrumentation Due to a Fire In Containment

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	17	2000	2000	- 004 -	00	03	20	2000	Unit 2	05000301
									FACILITY NAME	DOCKET NUMBER 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)**

	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(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)		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)
Charles Wm. Krause, Senior Regulatory Compliance Engineer	(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)			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)**

While conducting an evaluation of separation of cables inside containment for an ongoing Appendix R Rebaselining project, the licensee identified a potential fire location which could result in the failure to meet regulatory requirements. Title 10 CFR 50 Appendix R, Section III.G.2, specifically addresses containment equipment and requires that redundant equipment be maintained free of fire damage to support safe shutdown of the plant. This includes process monitoring instrumentation to maintain positive control of the cool down process with at least one steam generator Level Transmitter and one Temperature Element, each from the same reactor coolant system (RCS) loop, available. The fire location identified would leave one Level Transmitter and one Temperature element available, but, on opposite RCS Loops from each other. This condition does not meet the regulatory requirements and placed the plant outside the design basis for Appendix R. Plant modifications are planned to correct this condition. As a result of administrative controls which limit combustible materials in containment and alternate means to obtain cool down process information, the safety significance of this event is negligible.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Point Beach Nuclear Plant, Unit 1	05000266	2000	- 004	- 00	2 OF 4

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

Event Description:

While preparing a Generic Letter 86-10, "Implementation of Fire Protection Requirements," evaluation for separation of instrumentation in containment, the Point Beach Nuclear Plant (PBNP) fire protection engineers discovered that the 10 CFR Part 50, Appendix R requirements for maintaining redundant equipment free of fire damage would not be met for a postulated fire at the 21 foot elevation in either the PBNP Unit 1 or Unit 2 containment. This evaluation was initiated to support the ongoing PBNP Appendix R Rebaselining Project. The requirements for containment equipment is specifically addressed by Section III.G.2 of Appendix R. The regulation requires protection of equipment by 20 ft separation or radiant energy shields. Process monitoring is required to maintain positive control of the cool down process. At least one SG Level Transmitter and one Temperature Element is required for one of the two reactor coolant system (RCS) Loops and each of these operable instruments must be associated with the same Loop. Contrary to this requirement, we discovered the following:

For PBNP Unit 1: Cables for all four 'A' RCS Loop Temperature Element RTDs (1TE-450A, B, C & D), both 'B' RCS Loop Steam Generator (SG) Level Transmitters (1LT-470A & B) and two of the 'B' RCS Loop Temperature Elements (1TE451A & D) are located within 20 ft of each other on the 21' Elevation of the Northeast Corner of the containment with intervening combustibles present in the form of open cable trays. A postulated fire in the area could cause a loss of all of these instruments. Loss of these instruments would leave only the SG level indication (1LT-460A & B) available for the 'A' RCS Loop and two of the Temperature Elements (1TE-451B & C) for the 'B' RCS Loop.

For PBNP Unit 2: Cables for all four 'A' RCS Loop Temperature Elements RTD (2TE-450A, B, C & D), both 'B' RCS Loop SG Level Transmitters (2LT-470A & B), one 'A' RCS Loop SG Level Transmitter (2LT-460B) and two of the 'B' RCS Loop Temperature Elements (2TE451A & D) are located within 20 ft of each other on the 21' Elevation of the Southeast Corner of containment with intervening combustibles present in the form of open cable trays. A postulated fire in the area could cause a loss of all of these instruments. Loss of these instruments would leave only the SG level indication (2LT-460A) available for the 'A' RCS Loop and two of the Temperature Elements (2TE-451B & C) for the 'B' RCS Loop.

The issue described above will leave one Level Transmitter and one Temperature Element RTD available, but, on opposite RCS Loops from each other. The instruments must be available from the same Loop to meet the requirements for Safe shutdown Equipment availability. This condition, therefore, is outside the Appendix R design basis for the plant. In accordance with 10 CFR 50.72(b)(1)(ii)(B), a one hour non-emergency notification was made to the NRC at 1030 CST (Event 36705) for the discovery of this condition.

Cause:

This event results from the licensee's failure to identify the vulnerability of these instrumentation devices and cables to a single fire location in containment. Previous evaluations of the Appendix R Safe Shutdown fire vulnerabilities were not conducted in sufficient detail to have uncovered this process instrumentation concern. The licensee has previously identified weaknesses in other areas of the original Appendix R analyses and had initiated a rebaselining of the evaluations which identified this concern (see Similar Occurrences).

Corrective Actions:

The 10CFR50 Appendix R requirement which needs to be met for the instrumentation is from Section III.G.2 for containment equipment, which states that redundant equipment must be separated by 20 ft or a radiant shield. A radiant shield is defined as a barrier with an equivalent rating of ½ hour equivalent protection from a fire. Therefore, the proposed corrective action for this condition is:

Modify the configuration for loop temperature and level instrumentation to either provide radiant shield protection or reroute the appropriate cables such that at least one level transmitter and one temperature element from the same RCS loop will remain available for a postulated in-containment fire. This corrective action is applicable to both PBNP Unit 1 and Unit 2.

Safety Assessment:

The redundant cables identified in this event report are located at the 21 ft level of containment within 20 ft of each other. All the required cables are routed in conduit. The only combustible sources in the area are open cable trays near the ceiling. The total amount of combustibles in the trays represents a fire severity of less than 10 minutes. The only equipment in the area is instrumentation including the required SG Level Transmitters for the 'B' RCS Loop. There is fire detection in the area and administrative controls prohibit leaving any transient combustibles in Containment while at power. In addition, a monthly containment inspection is preformed to identify any abnormal conditions.

The critical potential loss as a result of the as-found configuration is the LT-470A SG Level transmitters for the 'B' RCS Loop. These instruments are located at the floor level with their cable coming up through the floor to the transmitter located a short distance away and the sensing line running up the wall to the ceiling level. Assuming the cable trays do catch on fire, all hot gases would be primarily at the ceiling level which could potentially damage any cabling located near the ceiling and temporarily disable the level transmitter sensing line. None of the LT-470A cables are located at the ceiling level. Some burning debris could be expected to fall to the floor which could potentially come in contact with the transmitter or cable located at the floor level. However, the only possible way the cable trays could catch on fire would be due to cable failure resulting in a short circuit which could spark a fire. A check of the PBNP cable and raceway database (CARDS) shows that the cables installed in the trays of concern are all of a type which are qualified for the post accident Containment environmental conditions. Also, by design, any faults in the equipment fed by these cables would be interrupted by the associated protective device for the cable prior to cable damage. Thus, we conclude that it is highly unlikely that a cable failure could occur with these type cables.

An in-containment fire in this location cannot, by itself, cause a loss of offsite power, which would leave additional equipment available. Additionally, in the event of loss of RCS Cold leg temperature indication, operators have the capability to locally obtain steam generator secondary temperature measurements using hand held thermometers at special panels specifically designed to allow this. With these temperature values, and the use of steam tables available in the control room, operators, who are trained in the use of the tables, can obtain other parameters as needed. Since a containment fire at this location will primarily result in loss of instrumentation, the potential for spurious equipment operations will be minor, and the operators should have adequate time to use steam tables to infer the other parameters. While this is not considered acceptable for long term compliance, these backup provisions should allow operators to accomplish a safe shutdown of the unit.

Based on the above discussion, there is reasonable assurance that the equipment would remain available and ,if not, the operators would have alternate methods available to cope with potential fire induced failures. Accordingly, we have concluded that the safety significance of this condition is negligible and the health and safety of the public and plant staff were not impacted. This event is not considered to be a safety system functional failure.

System and Component Identifiers:

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

Component/System	Identifier
Fire Detection System	IC
Reactor Coolant System	AB
Reactor Containment Building	NH
Cable, Low Level Signal	CBL1
Transmitter, Indicating, Level	LIT
Transmitter, Indicating, Temperature	TIT
Indicator, Temperature	TI
Indicator, Level	LI
Conduit	CND
Tray, Cable	TY

Similar Occurrences:

A review of recent LERs (past two years) identified the following events which involved the Appendix R safe shutdown equipment design basis. These events have been identified during the licensee's Appendix R rebaselining program:

LER NUMBER	Title
266/1999-008-00	Postulated Fire Could Lead To Loss Of Redundant Trains Of Charging Capacity
266/1999-007-00	Cable Tray Fire Stops Do Not Meet Appendix R Exemption Requirements
266/1999-006-00	Postulated Fire and Inability to Isolate PORV Outside Appendix R Design Basis
266/1999-004-00	Fuel Oil Transfer Pump Cable in the AFW Pump Room Outside Appendix R Design Basis
301/1999-002-00	Red Channel of Steam Generator Pressure Indication Passes Through Fire Zone
266/98-030-00	Assumptions for Equipment Necessary To Maintain Hot Safe Shutdown Outside Appendix R Design Basis