Wisconsin Electric
A WISCONSIN ENERGY COMPANY

Point Beach Nuclear Plant
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NPL 2000-0064

February 2, 2000 10 CFR 50.73

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

Ladies/Gentlemen:

DOCKET NO. 50-301
LICENSEE EVENT REPORT 301/2000-001-00
REPLACEMENT OF CHARGING PUMP CONTROL POWER FUSE
OUTSIDE APPENDIX R DESIGN BASIS
POINT BEACH NUCLEAR PLANT UNIT 2

Enclosed is Licensee Event Report 301/2000-001-00 for the Point Beach Nuclear Plant Unit 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 during an Appendix R safe shutdown fire event, replacement of a control power fuse may be necessary to preserve the availability of one Unit 2 charging pump. This activity is not permitted to meet Appendix R safe shutdown performance goals.

New commitments are identified in the corrective action section of this report by italics.

Please contact us if you require additional information.

Sincerely,

A. J. Cavia
Manager,
Regulatory Services & Licensing

Enclosure

CWK/tja

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

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

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TITLE (4)

Replacement of Charging Pump Control Power Fuse Outside Appendix R Design Basis

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
										05000
01	03	2000	2000	- 001 -	00	02	02	2000	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)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	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)
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)**

On January 2, 2000, while evaluating Appendix R safe shutdown analyses and fire scenarios, Wisconsin Electric engineering personnel identified that the PBNP Unit 2 2P-2C charging pump may require replacement of a control circuit fuse for the pump to be available following a postulated fire event in either of Fire Zones 142 or 187. Replacement of a fuse or fuses, per guidance from the NRC, is considered a maintenance activity. Maintenance activities are not permitted to meet the Appendix R hot safe shutdown performance goals. Corrective actions will be taken to maintain the availability of the 2P-2C charging pump independent of the status of the control power fuse. Due to the availability of alternate means for RCS inventory control, the safety significance of this event was minimal. This event was reported in accordance with 10 CFR 50.72 as a condition outside the Appendix R design basis for the plant.

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

Event Description:

Wisconsin Electric, licensee for the Point Beach Nuclear Plant (PBNP), is conducting a rebaselining project to verify conformance with the plant's 10 CFR 50 Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," programs. This project includes reviews and revalidation of the bases and assumptions for the Appendix R Safe Shutdown analyses and fire scenario evaluations as described in the PBNP Fire Protection Evaluation Report (FPER). While conducting this reassessment, licensee's engineers identified that the PBNP Unit 2 Charging Pump 2P-2C may require replacement of a control circuit fuse for the pump to be available following a postulated Appendix R Fire event in either of Fire Zones (FZ) 142 (Component Cooling Water Pump Room) or 187 (Elevation 26, Central area of the Primary Auxiliary Building). The 2P-2C Charging Pump is an Appendix R Hot Shutdown component which is relied upon for Unit 2 Appendix R safe hot shutdown for a fire in either of these FZ's. As discussed in the following, the Charging Pump 2P-2C Control circuit is susceptible to damage which could result in the failure of the fuse supplying the control circuit in the DC controller cabinet 2D-3C.

Appendix R requires that at least one Charging Pump must be available to maintain the RCS inventory within the Appendix R performance goals. We have determined that a fault on the ZD2B28AC cable could cause the 120V three Ampere fuse supplying the control circuit in the 2D-3C Cabinet to fail open. This cable is routed from the 2N-11 control cabinet located in the U2 Charging Pump Area to the Main Control Board Panel 2C-04 in the Control Room. The only Fire Zones (FZ) in the route of the cable where the operability of the 2P-2C pump is relied upon are FZ 142 or 187. The 2P-2C Pump must be running at the time of the event for the fault on the cable to cause the fuse to open. Switching the LOCAL/REMOTE Switch on the 2N-11 cabinet to LOCAL will isolate the cable. If the transfer is made prior to the fuse opening, the circuit will remain operational. However, if the fuse is already blown, the DC contactor for the pump motor cannot be closed to start the pump or maintained closed if the pump is running. Once the transfer is made to LOCAL the fuse can be replaced and the pump restarted.

Under this scenario, the other two Unit 2 charging pumps will not be available due to the potential for fire damage to their power and/or control cables. Thus, for this Appendix R fire event, one must assume that the 2P-2C Pump will be an operating pump at the time of the event and as a result of the fire, the 120V control power fuse will open due to fire damage on the ZD2B28AC cable. The pump will then be unavailable until the fuse is replaced with the LOCAL/REMOTE switch in LOCAL. The NRC has provided specific guidance in Information Notice 85-09 which states that replacement of fuses for Appendix R hot shutdown components is considered maintenance and is not allowed. Accordingly, the pump must be considered unavailable for these fire events. The result would be a total loss of charging capability for Unit 2. A loss of all charging capability for greater than 30 minutes will impair the ability to maintain the Appendix R performance goals for safe shutdown of the unit.

Following the discovery of this condition, a condition report (CR 00-0022) was written and compensatory fire watches initiated. In accordance with the requirements of procedure OM 3.27, "Appendix R Safe Shutdown Equipment Compensatory Measures," twice per shift fire rounds were initiated in Fire Zones 142 and 187 pending further corrective actions. An NRC ENS one hour notification was made pursuant to 10 CFR 50.72(b)(1)(ii)(B) at 1133 CST on January 3, 2000, based on the reporting of a condition outside the Appendix R design basis for the plant.

Cause:

The cause of this event was the failure to previously identify the susceptibility of the 2P-2C charging pump control circuit to possible fire related damage that could lead to the unavailability of that pump. Wisconsin Electric 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:

As an interim measure, a suitable 120V three Amp replacement fuse has been pre-staged in the 2D-3C cabinet to facilitate a timely repair of the control power circuit should that action become necessary.

An evaluation is underway to determine the most efficient option to correct this Appendix R design basis discrepancy. Options being examined include modifications to the 2P-2C control circuit to ensure that when the Local/Remote Transfer Switch is utilized the pump will remain available independent of the status of the control power fuse. This action will be tracked under the licensee's corrective actions program.

Component and System Description:

The charging pumps are components of the Chemical and Volume Control System (CVCS). This system and its components are discussed in Section 9.3 of the PBNP FSAR. The CVCS provides a means for injection of the neutron control chemical in the form of boric acid solution, chemical additions for corrosion control, and reactor coolant cleanup and degasification. This system also adds makeup water to the reactor coolant system (RCS), reprocesses water letdown from the RCS, and provides seal water injection to the reactor coolant pump seals. The charging pumps, three per unit, are positive displacement pumps with variable speed motor drives. The speed of each pump can be controlled manually or automatically with a maximum charging capacity for each pump of 60 gpm. Each pump is designed to provide full charging flow to the RCS and the reactor coolant pump seal water supply during normal seal leakage. The normal operation of the charging pumps is for two pumps to be running with the third pump secured in standby. The specific pump in standby is typically rotated to give equal wear on the pumps. Temporary loss of charging is acceptable as long as charging can be restored within 30 minutes with full speed capability.

The PBNP Appendix R design basis requires that at least one charging pump must be available for a postulated fire event in order to safely shut down the unit. In order to accomplish this, at least one train of charging must remain free of fire damage in order to meet the Appendix R Alternate and Dedicated Shutdown Capability performance goals specified in 10 CFR 50, Appendix R, Section III.L.1(b) to maintain reactor coolant inventory. The concern identified in this event report is not applicable to PBNP Unit 1. The speed control mechanisms for all but the 2P-2C charging pump are AC vari-drives. The speed control for 2P-2C is a DC direct drive.

Safety Assessment:

The defense-in-depth approach to PBNP's Fire Protection Program, which includes full area fire detection and suppression in FZ 142 and full area detection in FZ 187, would

mitigate the significance of this condition and provide a high likelihood that postulated in plant fires would be prevented or controlled adequately and the safe shutdown equipment would remain available. While the Appendix R Hot Safe Shutdown evaluation cannot take credit for replacement of the charging pump control fuse to meet the Appendix R performance goals, this activity can be readily accomplished should the pump not start in the LOCAL control mode. Procedure OI-15, "Charging Pump Local Control Station Operation," specifically directs checking the control fuse should the 2P-2C Pump not start in the LOCAL mode. The required three amp fuse is a common type fuse readily available for replacement. A replacement fuse has been pre-staged in the 2D-3C cabinet in an easily accessible location. Thus, it is reasonable to assume that the operator can get the fuse replaced and the pump restored to operation within 30 minutes. Replacement of this fuse; however, is considered to be a maintenance activity. Although this activity may not be considered as an acceptable action for maintaining the Appendix R performance goals, this action would still facilitate a safe shutdown of the unit.

In addition to these considerations, both redundant train Safety Injection (SI) pumps will remain functional for a fire in these FZs to provide any needed make-up water for the RCS should normal charging capability actually be lost for an extended period of time. The use of SI will not allow the Appendix R performance goals to be maintained, but will also allow a safe shutdown of the unit.

In conclusion, there is reasonable assurance that a charging pump can be restored for a postulated fire event in these FZs. Should the charging pumps actually be unavailable for an extended period, then the SI Pumps are available to support safe shutdown of the plant. The safety significance of this event is concluded to be minimal and the health and safety of the public and plant personnel is not impacted by this event. This event does not constitute 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
Chemical and Volume Control Makeup System	CB
High Pressure Safety Injection System	BQ
Auxiliary Building	NF
Cable, Low Level Signal	CBL1
Pump	P
Fuse	FU

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

Similar Occurrences:

A review of recent LERs (past two years) identified the following events which involved Appendix R safe shutdown equipment. Each of these issues was identified during the Appendix R rebaselining project.

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
266/1998-030-00	Assumptions for Equipment Necessary To Maintain Hot Safe Shutdown Outside Appendix R Design Basis