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 AUTH. NAME AUTHOR AFFILIATION
 NELSON, R.L. Wisconsin Public Service Corp.
 SCHROCK, C.A. Wisconsin Public Service Corp.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-001-01: on 920110, significant number of MCCBs w/out-of-tolerance trip values identified while testing Westinghouse Type EB. Caused by out-of-tolerance trips. EB MCCBs installed at plant replaced. W/921109 ltr.

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WISCONSIN PUBLIC SERVICE CORPORATION

600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

November 9, 1992

10 CFR 50.73

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

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Reportable Occurrence 92-001-01

In accordance with the requirements of 10 CFR 50.73, "Licensee Event Report System," the attached Licensee Event Report for reportable occurrence 92-001-01 is being submitted. This revision documents the corrective actions completed to date, and provides the results of additional testing that was performed.

This submittal supersedes LER 92-001-00, previously submitted on 2/10/92, in its entirety.

Sincerely,

C. A. Schrock
Manager-Nuclear Engineering

TJW\jac

Attach.

cc - INPO Records Center
Mr. Patrick Castleman, US NRC
US NRC, Region III

100050
9211160405 921109
PDR ADOCK 05000305
S PDR

Handwritten initials or signature, possibly "JES" or similar, with a vertical line to the right.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Kewaunee Nuclear Power Plant	DOCKET NUMBER (2) 0 5 0 0 0 3 0 5	PAGE (3) 1 OF 0 5
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TITLE (4) Trip Testing of Westinghouse Type EB Molded Case Circuit Breaker Reveals High Rate of Out-of-Tolerance Trip Values

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (5)																																					
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)																																			
0 1	1 0	9 2	9 2	0 0 1	0 1	1 1	0 9	9 2	N/A		0 5 0 0 0																																			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9) N</td> <td colspan="11">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="5">POWER LEVEL (10) 1 0 0</td> <td>20.402(b)</td> <td>20.408(a)</td> <td>80.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td>20.408(a)(1)(i)</td> <td>80.38(c)(1)</td> <td>80.73(a)(2)(v)</td> <td>73.71(c)</td> </tr> <tr> <td>20.408(a)(1)(ii)</td> <td>80.38(c)(2)</td> <td>80.73(a)(2)(vi)</td> <td rowspan="3">X OTHER (Specify in Abstract below and in Text, NRC Form 365A) Potential Generic Interest</td> </tr> <tr> <td>20.408(a)(1)(iii)</td> <td>80.73(a)(2)(i)</td> <td>80.73(a)(2)(viii)(A)</td> </tr> <tr> <td>20.408(a)(1)(iv)</td> <td>80.73(a)(2)(ii)</td> <td>80.73(a)(2)(viii)(B)</td> </tr> <tr> <td>20.408(a)(1)(v)</td> <td>80.73(a)(2)(iii)</td> <td>80.73(a)(2)(ix)</td> <td></td> </tr> </table>												OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)											POWER LEVEL (10) 1 0 0	20.402(b)	20.408(a)	80.73(a)(2)(iv)	73.71(b)	20.408(a)(1)(i)	80.38(c)(1)	80.73(a)(2)(v)	73.71(c)	20.408(a)(1)(ii)	80.38(c)(2)	80.73(a)(2)(vi)	X OTHER (Specify in Abstract below and in Text, NRC Form 365A) Potential Generic Interest	20.408(a)(1)(iii)	80.73(a)(2)(i)	80.73(a)(2)(viii)(A)	20.408(a)(1)(iv)	80.73(a)(2)(ii)	80.73(a)(2)(viii)(B)	20.408(a)(1)(v)	80.73(a)(2)(iii)	80.73(a)(2)(ix)	
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LICENSEE CONTACT FOR THIS LER (12)

NAME Robert L. Nelson Nuclear Consultant - Special Projects	TELEPHONE NUMBER AREA CODE 4 1 4 3 8 8 - 2 5 6 0
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS
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SUPPLEMENTAL REPORT EXPECTED (14)

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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (18)

On January 10, 1992, with the plant at 100% power, a management review of molded case circuit breaker (MCCB) test results found that a significant number of MCCBs with out-of-tolerance trip values were identified while testing Westinghouse Type EB MCCBs. The testing involved two trip tests, 1) to determine the time required for thermal tripping at 300% of rated current, and 2) the multiple of rated current required for magnetic tripping in less than 0.1 seconds. Thirty-five spare breakers were selected for testing, of these 10 were found to have out-of-tolerance (long) thermal tripping, and 1 of the 10 had an out-of-tolerance (high) current multiple for magnetic tripping. The magnetic trip was not tested on 2 of the 10 due to the inability to reset the breakers after the thermal trip.

The cause of the out-of-tolerance trips is attributed to age related degradation and infrequent exercising of the breakers. Some of these breakers may not have been exercised since initial plant startup.

Actions have been initiated to address the concerns associated with the unexpected rate of out-of-tolerance trip values. These actions include: 1) 205 of the 230 Westinghouse Model EHB and EB MCCBs installed at the plant were replaced during the 1992 outage, 2) the remaining breakers are scheduled for replacement during the 1993 outage, and 3) developing a program for periodic exercising and testing of all safety-related molded case circuit breakers.

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

Description of Event

On January 10, 1992, with the plant at 100% power, a management review of inolded case circuit breaker [52] (MCCB) test results found that a significant number of MCCBs with out-of-tolerance trip values were identified while testing Westinghouse Type EB molded case circuit breakers [52] (MCCBs). The testing involved two trip tests: 1) to determine the time required for thermal tripping at 300% of rated current, and 2) the multiple of rated current required for magnetic tripping in less than 0.1 seconds. Thirty five spare MCCBs were selected for testing, the test results were:

OUT OF TOLERANCE

<u>NUMBER TESTED</u>	<u>TYPE</u>	<u>300%</u>	<u>< 0.1 SEC.</u>
19	EB-1020	3	0*
9	EB-1030	3	0
4	EB-1050**	3	1
2	EB-1070**	1	0
1	EB-1100	0	0

* Two of the breakers which failed the 300% test could not be reset for this test.

** The EB-1050 and EB-1070 MCCBs are not used in safety-related circuits.

Markings on the MCCBs indicate that they were manufactured during the time period of 1968-1973.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

Cause of The Event

The cause of the out-of-tolerance trips is attributed age related degradation and the infrequent exercising of the breakers. It was noted that in some instances if the initial thermal time delay test was not within tolerance an acceptable retest would be obtained after manual exercising. It is possible that some of the breakers had not been exercised since initial plant startup.

Analysis of Event

Although this event is not reportable in accordance with 10 CFR 50.73, this event is being reported as an item of potential generic interest.

On January 15, 1992, Engineering Support Request (ESR) No. 92-012 was initiated and assigned to the Nuclear Engineering Group for evaluation of the test results and to provide recommendations as deemed necessary. The evaluation determined that the MCCBs are experiencing age related degradation, and because there is no practical method of breaker refurbishment, replacement was recommended.

A representative number of MCCBs removed during the 1992 outage were subjected to the previously described testing, the test results were:

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		9 2	- 0 0 1	- 0 1	0 4	OF	0 5

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

OUT OF TOLERANCE

<u>NUMBER TESTED</u>	<u>TYPE</u>	<u>300%</u>	<u>< 0.1 SEC.</u>
15	EHB-1015	2	2
11	EB-1020	4	2
2	EB-1030	0	0
2	EB-1070	1	0
1	EB-1100	0	0

The percentage of out of tolerance MCCBs is similar to that found during the previous testing. The test results confirm that MCCB age related degradation does occur and a periodic testing program is necessary.

Corrective Actions

- Design Change Request No. 2588 was initiated to implement the ESR recommendation to replace the Type EB and EHB MCCBs used in safety-related and Appendix R applications. The replacement effort began during the scheduled 1992 refueling outage.

The changeout is prioritized as follows:

Priority 1: Breakers that serve as a safety related to non-safety related isolation device.

Priority 2: Breakers which are assumed to function for an Appendix R fire.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 2	- 0 0 1	- 0 1	0 5	OF	0 5

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

Priority 3: Safety related breakers that do not serve as isolation devices for non-safety related loads, non-safety related breakers, and spare breakers will be replaced as equipment becomes available.

During the 1992 outage, 205 of the 230 Westinghouse EB and EHB MCCBs installed at the plant were replaced. All the priority 1 and 2 breakers and the majority of priority 3 breakers were replaced. The remaining priority 3 breakers are currently scheduled for replacement during the 1993 refueling outage.

2. A program is being developed to periodically exercise and test safety-related MCCBs. An approved program is expected to be in place prior to the 1993 scheduled refueling outage.

Additional Information

Equipment Failures: Westinghouse molded case circuit breakers Models EHB and EB.

Similar Events: None.