

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-266/84-20; 50-301/84-18

Docket No. 50-266; 50-301

Licenses No. DPR-24; DPR-27

Licensee: Wisconsin Electric Power Company
231 West Michigan
Milwaukee, Wisconsin 53202

Facility Name: Point Beach, Units 1 & 2

Inspection At: Two Creeks, Wisconsin

Inspection Conducted: November 29-30 and December 5-7, 1984

Inspector: *R. Mendez*
R. Mendez

Approved By: *C. C. Williams*
C. C. Williams, Chief
Plant Systems Section

1/16/95
Date

Inspection Summary

Inspection on November 29-30 and December 5-7, 1984 (Report No. 50-266/84-20; 50-301/84-18(DRS))

Areas Inspected: Special, unannounced inspection to review the as-built electrical construction activities against design requirements regarding post-TMI modifications. The areas of electrical construction inspected were cable terminations and cable pulls, panel installations, review of calibration records and review of the licensee's interim 120V AC bus arrangement. This inspection involved a total of 40 inspector-hours onsite by one NRC inspector, including 6 inspector-hours during off-shifts.

Results: Of the areas inspected, no items of noncompliance were identified.

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DETAILS

1. Persons Contacted

Wisconsin Electric Power Company

- *J. J. Zack, Plant Manager
- *J. C. Reisenbueckler, Superintendent, Technical Services
- *N. L. Hoeffert, Modifications Engineer
- *K. P. Crowley, QA Engineer
- *F. A. Flentje, Supervisor, Staff Services

The inspector also contacted and interviewed other licensee and contractor employees.

*Denotes those attending the exit interview on December 7, 1984.

2. Functional or Program Areas Inspected

a. Review of the Licensee's Interim Bus Arrangement

The inspector reviewed the interim instrument bus supply arrangement of the licensee's 120V AC distribution system. The interim bus arrangement was implemented by the licensee because they were experiencing delays in obtaining equipment and components necessary to implement post-TMI commitments to NUREG-0737, "Clarification of TMI Action Plan Requirements". The licensee was required per their Technical Specifications to have all the post-TMI instrumentation and the related instrument buses energized on January 1, 1985.

In addition to the licensee's commitment to NUREG-0737 which included the Auxiliary Safety Instrument Panel (ASIP) and associated instrumentation, the licensee also proposed changes to increase the capacity of the 120V AC distribution system. Although not required by NUREG-0737, the licensee added two sets of batteries, six inverters, three battery chargers, and eight new instrument buses to the existing distribution system.

As a result of several design and shipping delays of the ASIP panels and the ventilation equipment for the batteries, the licensee was unable to meet their commitment date of January 1, 1985. The licensee proposed changes to their Technical Specifications, specifically Section 15.3.7, which requires the new batteries to be operable by midnight January 1, 1985 or go to hot shutdown in six hours. In addition, the licensee asked that a period for checkout and systematic startup of the new system be provided in order to prevent the six new inverters from damaging the newly installed instrumentation. The licensee cited Westinghouse letter dated October 4, 1984 and other problems with inverters in the initial startup as a result of moisture accumulation in the inverter capacitors.

In order for the licensee to provide on an interim basis a more reliable power source to some of the new instrument buses, the licensee decided to connect the buses to existing red, blue or yellow distribution sources. Special Order PBNP 84-03 was issued by the licensee to implement changes and modify the bus arrangement to the following interim configuration by January 1, 1985.

<u>Unit</u>	<u>Bus</u>	<u>Channel</u>	<u>Normal Feed</u>	<u>Alternate Feed</u>
1	1Y101	Red	Inverter 1DY01	Inverter DY0A
1	1Y102	Blue	Inverter 1DY02	Inverter DY0B
1	1Y103	White	Bus 1Y102	None
1	1Y104	Yellow	MG Set 1GY04	None
2	2Y101	Red	Inverter 2DY01	Inverter DY0A
2	2Y102	Blue	Inverter 2DY02	Inverter DY0B
2	2Y103	White	Bus 2Y102	None
2	2Y104	Yellow	MG Set 2GY04	None

The licensee has committed to having the following permanent bus arrangement by March 1, 1985.

<u>Unit</u>	<u>Bus</u>	<u>Channel</u>	<u>Normal Feed</u>	<u>Alternate Feed</u>
1	1Y101	Red	Inverter 1DY01	Inverter DY0A
1	1Y102	Blue	Inverter 1DY02	Inverter DY0B
1	1Y103	White	Bus 1Y203	Bus Y203
1	1Y104	Yellow	Bus 1Y204	Bus Y204
2	2Y101	Red	Inverter 2DY01	Inverter DY0A
2	2Y102	Blue	Inverter 2DY02	Inverter DY0B
2	2Y103	White	Bus 2Y203	Bus Y203
2	2Y104	Yellow	Bus 2Y204	Bus Y204

The basic differences in the two bus arrangements above, is that the white and yellow channels for Units 1 and 2 will have permanent normal and alternate feeds by March 1, 1985. It should be noted that the licensee will not meet their commitments to NUREG-0737 to have independent electrical channels from January 1 to March 1, 1985. NUREG-0737 requires that redundant or diverse channels be independently energized from station Class 1E power sources. In the above table (for the interim bus arrangement), the two yellow channels are fed from non-1E sources and do not have an alternate feed. Additionally, the white channel is not electrically independent since it is fed from the blue channel. Furthermore, the white channel has no alternate feed.

On December 12, 1984, the Regional staff issued an SER allowing the requested delay in implementing Section 15.3.7 of the licensee's Technical Specifications to March 1, 1985. The staff cited the licensee's safety records for fourteen years without the post-TMI modification. Additionally, the licensee has committed to having all the required TMI instrumentation energized by December 31, 1984.

b. Observation of As-Built Installation

The inspector observed the as-built installation of post-TMI required equipment and other equipment committed to by the licensee. Components were verified to be installed in accordance (where applicable) with design, construction specification and work procedures. Components were observed to be at the correct location, configuration and orientation; specified materials were used; bolts, anchors and supports were as specified and properly mounted and secured; and equipment maintained physical and electrical separation. The inspector observed the as-built installation of the following equipment.

- (1) Inverters identified as 1DY04, 2DY03 and 2DY04 were installed in accordance with Stone and Webster drawing number 13754.16-SK-S(B)019, Revision 3, and Stone and Webster's Engineering and Design Coordination Report Number PS-0423.
- (2) Condensate storage water tank level transmitters identified as LT-4038 and LT-4040 were installed in accordance with Stone and Webster drawing number 13754.23-SK-1087-2, Revision 1.
- (3) AC panel switch board identified as 1Y103, 1Y104, 2Y103 2Y104 were installed in accordance with Stone and Webster drawing number 13754.16-E-97-3.
- (4) AC panel boards identified as 1Y101, 1Y102, 2Y101 and 2Y102 were installed in accordance with Stone and Webster drawing number 13754.16-94-3.

No problems were identified in this area.

c. Observation of Electrical Terminations

The inspector observed and reviewed a selected number of cable terminations of safety-related cables installed as part of the post-TMI modifications. The following cables were observed to be installed in accordance with their respective wiring diagram:

Panel 1C1713A

WN1I420V
WN1IC008J
WN1I971C
NNIK5002A

Panel 1C171A

WL1K5001A
WL1I498C
WL1I450J
WL1I970C

Panel 1C170

WK11451Q
WK11451I
WK11407I
WK115003A

Controller Panel 1B391

ZE2391C
ZE1391D
ZE1391C

Controller Panel 1B491

ZF2491D
ZF1491C
ZF2491C

The inspector verified the following:

- Cable identification was preserved and located where specified
 - Bending radius was as required
 - Segregation was maintained
 - There was no evidence of damage to cable
 - Terminations were properly located and were of the correct type
 - Cable supports were provided and appeared adequate
 - Tightness of connections appeared acceptable
 - Documentation of completed installation and inspection activities were properly and timely completed
 - Unterminated ends were observed to be properly protected
 - Crimping tools and torque wrenches were verified to have current calibration due dates
- (1) During review of cable terminations, the inspector observed numerous apparent separation violations inside the auxiliary racks. NUREG-0737 requires that redundant channels be electrically independent and separated in accordance with Regulatory Guide 1.75 up to and including the isolation device. Regulatory Guide 1.75 requires a six inch physical separation or barriers

be maintained between safety and non-safety related cables. The inspector observed that that six inch separation was not maintained inside auxiliary panel 1C170, e.g., non-safety cables XK1K4301H, XK11460J and XK11460K come in contact with safety-related cables WK114510, WK114511 and WK114701 before entering the panel.

Similarly, non-safety related cables XL1I4042B, XL1K4307A and XL1I420S inside panel 1C171A were separated by less than six inches from safety-related cables 2L1I4200, 2L1Y10306A and 2L1Y10307A.

The licensee has not previously committed to IEEE 384 which delineates separation requirements for electrical circuits, and it is unclear whether the separation requirements of NUREG-0737 apply in all respects. This item is unresolved pending further review (266/84-20-01A; 301/84-18-01A).

- (2) An additional concern regarding separation involves the installation of recently installed redundant cables. The licensee has committed to installing redundant channels (which feed TMI instruments) in accordance with NUREG-0737. NUREG-0737 states that redundant or diverse channels should be electrically independent. The licensee had installed in some of the safeguards panels, cables which belong to redundant divisions. Presently, TMI required cables for instruments are routed in their respective channel, e.g., new channel I cables are routed in the existing channel I raceways. However, previously installed cables are mixed in panels with other redundant divisions. The concern is that a short or fire in a redundant division cables may affect newly installed (TMI) cables in another division. The licensee stated that they never intended to rework any of their existing cable installation. This matter is unresolved pending further review to determine licensee commitments to NUREG-0737 (266/84-20-01B; 301/84-18-01B).
- (3) The third concern involved separation of redundant indicating instruments on the ASIP panels. Presently, there is no separation between channel I, II, III and IV channels on the ASIP panels. The licensee indicated that the manufacturer had analyzed for the effects of less than apparently required separation between redundant channels. This issue is unresolved pending review of the analysis (266/84-20-01C; 301/84-18-01C).

d. Review of Cable Pulling Activities

During observation of cable terminations, the inspector attempted to review records pertaining to licensee's control of cable pulling activities. It appears the licensee did not monitor cable pulls to determine the actual pulling tensions of their safety-related cables during their recent TMI modification program. The licensee's

procedure Quality Assurance Inspection Plan (QIP) 302 designates precautions and requirements when pulling safety-related cables. The procedure allows cable pulls by hand as long as four equivalent ninety degree bends are not exceeded. However, records which would indicate whether the four ninety degree bends or the maximum allowable pull tensions were exceeded were not available at the plant site. Additionally, records which would indicate expected pulling tensions of cables as a function of the manufacturer's maximum allowable tension through conduit or cable trays were also not available at the site. This matter is unresolved pending review of licensee records to determine whether maximum pull tensions were not exceeded. (266/84-20-02; 301/84-18-02).

e. Review of Distribution Panel Ratings

The inspector verified DC and AC breaker ratings for recently constructed switchgear panels. The inspector observed that the correct frame size, breaker size, service voltage and equipment feed were in accordance with Stone and Webster panel schedules. The following panel schedules were verified against the actual installed 125V DC or 120V AC panels:

Drawing No. DP-D03, issue 3, "Panel Schedule D03"
Drawing No. DP-D04, issue 3, "Panel Schedule D04"
Drawing No. DP-1Y102, issue 3, "Panel Schedule 1Y102"
Drawing No. DP-1Y101, issue 3, "Panel Schedule 1Y101"
Drawing No. DP-Y204, issue 3, "Panel Schedule Y204"
Drawing No. DP-1Y203, issue 3, "Panel Schedule 1Y203"
Drawing No. DP-2B39, issue 3, "Panel Schedule 2B39"

No problems were identified in this area.

f. Review of Calibration Records

The inspector reviewed calibration records of selected TMI modification instruments and measuring and test equipment. Calibration records of the following instruments were reviewed:

Instrumentation

PT-968
PT-969
IL-4107
IL-958
LT-4107
LC-4107
IL-958
IL-960
IL-961
LI-4107
2L-960

Measuring and Test Equipment

TI-134
TI-135
TI-6
TI-90E
TI-90G
TI-90H
TI-90I
TI-179

The records indicate that the following calibration activities were performed:

- The latest revision of the applicable procedure was used by personnel performing the testing and calibration
- Properly identified, traceable, and calibrated measuring and test equipment were used
- Instruments were calibrated to obtain the tolerance specified
- Instruments were adequately identified as having been calibrated
- Calibration sheets identified technicians
- The as-found and as-left conditions were documented

During review of measuring and test equipment calibration records, the inspector observed that test instrument identified as TI-134 had been found out of calibration. Prior to its recalibration due date on November 18, 1983, the test instrument had been used to calibrate a containment wide range pressure transmitter. The test gauge had been found out of calibration at 15 psig, 22 psig and 30 psig which corresponded to errors of .05%, .05% and .25%, respectively, above the required tolerance. Similarly, during recalibration of test gauge TI-135, the as-found reading at 150 psig was determined to be below the required tolerance. This test gauge had been used to calibrate pressure transmitters PT-968 and PT-969. These pressure transmitters had not been recalibrated since their original calibration in October 1983. It was the inspector's concern that the as-found errors of the measuring and test equipment were not being evaluated as to how the errors would affect the accuracy of the calibrated transmitters. Although the above test gauges had not been reviewed to determine whether the errors affected calibration or whether accuracy requirements were met, the licensee has recently implemented a program to review out-of-calibration measuring and test equipment. This matter is open pending review of the licensee's program in this area. (266/84-20-04; 301/84-18-03)

g. Review of Receipt Inspections

- (1) Records indicate that the two Auxiliary Safety Instrument Panels were received onsite without shipping damage on July 19 (for Unit 1) and September 18, 1984 (for Unit 2). Receipt of the instrument panels are documented on Quality Assurance Reports QA-84-789 and QA 84-997, respectively.
- (2) The inspector attempted to further review other receipt inspection documents and storage level records of transmitters received during implementation of post-TMI requirements. The licensee informed the inspector that the transmitters had been stored in the plant's storeroom and that the receipt inspections were performed by storeroom personnel who were not qualified to ANSI N45.2.6, "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants." The licensee also stated that they were not committed to ANSI N45.2.2, "Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Plants", and their present receipt inspection program encompasses only that part of NUREG-0737, which recommends that Regulatory Guide 1.38 (which endorses ANSI N45.2.2, Regulatory Guide 1.58 and ANSI N45.2.6) be followed. Furthermore, Generic Letter 81-01 which pertains to qualification of inspection, examination and audit personnel was issued on May 4, 1981 to all licensees of operating plants. The letter requests that the licensees commit to Regulatory Guide 1.58 and the planned date for doing so; or describe an alternative method of complying with 10 CFR Part 50, Appendix B, regarding qualification of nuclear power plant inspection personnel and the schedule for implementing the alternative method. The licensee indicated they were developing a Quality Assurance Program in this area. Pending review of this area by the Region's Quality Assurance Section, this item is unresolved (266/84-20-04; 301/84-18-04).

3. Open Items

Open items are matters which have been discussed with the applicant, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or applicant or both. An open item disclosed during this inspection is discussed in paragraph 2.f.

4. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance or deviations. Unresolved items disclosed during the inspection are discussed in Paragraphs 2.c, 2.d, and 2.g.

5. Exit Interview

The inspector met with licensee representatives (denoted under Persons Contacted) at the conclusion of the inspection on December 7, 1984. The inspector summarized the scope and findings of the inspection. The licensee acknowledged the information.