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SUBJECT: Forwards "Environ Qualification of Electrical Equipment
 IE Bulletin 79-01B Aging Study."

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 TITLE: Response to NUREG -0737/NUREG-0660 TMI Action Plan Rgmts (OL's)

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WISCONSIN PUBLIC SERVICE CORPORATION



P.O. Box 1200, Green Bay, Wisconsin 54305

April 1, 1982

Mr. Steven A. Varga, Chief
 Operating Reactors Branch #1
 Division of Licensing
 U. S. Nuclear Regulatory Commission
 Washington, D. C. 20555



Dear Mr. Varga:

Docket 50-305
 Operating License DPR-43
 Kewaunee Nuclear Power Plant
Environmental Qualification of Safety-Related Electrical Equipment

- References:
1. Letter to E. R. Mathews of WPSC from S. A. Varga of the NRC dated June 18, 1981
 2. Letter to S. A. Varga of the NRC from E. R. Mathews of WPSC dated September 21, 1981.
 3. Letter to S. A. Varga of the NRC from E. R. Mathews of WPSC dated November 2, 1981
 4. Letter to S. A. Varga of the NRC from E. R. Mathews of WPSC dated March 18, 1982

Reference 1 transmitted the NRC's Safety Evaluation Report of the Environmental Qualification of Safety-Related Electrical Equipment at the Kewaunee Nuclear Power Plant. Reference 2, which conveyed our response to Reference 1, delineated a schedule for four (4) subsequent submittals. A portion of that schedule dealing with the discussion of the NRC listed deficiencies was revised by Reference 3. This letter includes a detailed response to the NRC Evaluation and also transmits the fourth of these submittals which deals with aging effects on electrical equipment. It should be noted that the attached submittal incorporates the most recent data for all components identified in our earlier submittals in response to IE Bulletin 79-01B.

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DISCUSSION

Aging

Our September, 1981 letter (Reference 2) indicated that this phase of our response would be submitted on this date (April 1, 1982). The review of the thermal aging effects on electrical equipment has been completed. The component evaluation sheets contained herein now reflect the evaluation of existing equipment in accordance with Section 7 of the DOR Guidelines. Aging evaluation methods consisted of identifying all age susceptible materials and establishing a qualified life based on current test and material data using the Arrhenius technique. In cases where insufficient material data was available (i.e. Marathon Motors used for the RHR pump pit fan coil units) the equipment will be replaced. (1)

We are also establishing a comprehensive preventative maintenance and surveillance program to detect and correct age related degradation. The program will insure that the required level of qualification will be maintained.

The objectives of this effort are to:

1. Establish procedures to identify and detail all maintenance, inspection and replacement schedules to insure the qualification of required safety-related equipment.
2. Supplement existing procedures to insure that an ongoing program is established to review surveillance and maintenance records for identification of potential age-related degradation.

Training of personnel in these efforts will be provided as the program is established. In this program, as in any other new program, involved personnel must know and understand the purpose, scope, intent and their individual role in order to be effective in carrying out the overall plan. Therefore, an emphasis will be placed on training.

SPECIFIC ISSUES ADDRESSED IN SER

Submergence

1. Various power and instrumentation cable has been tested for submergence. Of the 5 items of cable listed, (2) all have been tested satisfactorily for submergence or are not located below the submergence elevation (599.88 ft.). See the individual component sheets for details and test references.

(1) Letter to S. A. Varga (NRC) from E. R. Mathews (WPSC) dated March 23, 1982.
(2) See page B-1 SER Response Appendix B.

2. Limit Switches on letdown orifice isolation valves (CV-31231, CV-31232 and CV-31233,⁽¹⁾ were reported via LER 80-41 and are environmentally qualified components. Conax seals will be installed during the spring outage of 1982. To our knowledge, submergence tests have not been performed on these limit switches. The location of these valves is such that containment isolation will have occurred prior to submergence. LOCA procedures do not require using letdown during mitigation of the accident. Therefore, there is no need to open the valves after containment isolation is reset.
3. Accumulator Isolation Valve (MV-32091)⁽²⁾ -- Its breaker is locked open to prevent inadvertent closure in accordance with Technical Specification 3.3.a.F.2. Since the valve cannot change position, submergence of the valve will not mislead the operator or adversely affect any safety function.
4. Steam Generator Blowdown Isolation Valves (MW-32077 and MW-32079)⁽³⁾ -- The location of these valves is such that containment isolation will have occurred prior to having reached flood level. Additionally, the other train of Blowdown Isolation Valves (MW-32078 and MV-32080) are located outside of containment and are qualified for their environment.
5. RHR Pump Pit Sump level switches (16638, 16639, 1669301, 1669302, 1669401 and 1669402)⁽⁴⁾ -- As indicated on the component sheets in this submittal, these items are qualified for submergence.

HELB Submergence

Submergence due to HELB outside containment was reported in our HELB submittal previously.⁽⁵⁾ Flooding from a HELB would not reach a level sufficient to endanger any equipment required for accident mitigation and no potential equipment damage was determined due to water cascading between floors.

Chemical Spray

All components inside the containment, with exception of the D. G. O'Brien electrical penetrations and the Magnetrol level indicators, have been tested for

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- (1) See page A-1 and B-6 SER Response Appendix A and B respectively.
 - (2) See page B-15 SER Response Appendix B.
 - (3) See page B-11 SER Response Appendix B.
 - (4) See page B-14 & 15 SER Response Appendix B.
 - (5) Letter to S. A. Varga (NRC) from E. R. Mathews (WPSC) dated December 15, 1981.

chemical spray. These exceptions have been analyzed and are not degraded to any significant degree from the effects of the spray as indicated on their respective sheets.

The results of the chemical spray study were transmitted to you previously.⁽¹⁾ The attached updated component sheets reflect the qualification of this equipment to undergo chemical spray and perform its designated function for the accident.

Radiation (Inside and Outside Containment)

Radiation doses specified on the component data sheets indicate the predicted post-accident dose levels for the specified individual equipment. Beta and gamma dose levels are specified for equipment located inside containment; doses for equipment located outside of containment have only a gamma contribution.

Service Conditions Inside Containment

For the purposes of this evaluation, the steam saturation temperature corresponding to the peak profile (293°F peak temperature at 46 psig) was used as recommended by the NRC staff in their SER Response⁽²⁾. Peaks of temperature, pressure and humidity levels are provided for each component located in containment. It should be noted that the containment spray system is not subject to a disabling single component failure.

Service Conditions Outside Containment

Calculations have been performed to determine the environmental service conditions for all areas outside of containment that are subject to a potential HELB. The environmental conditions which result from a rupture were calculated using the computer program Contempt 4/Mod 2. Peak temperature, pressure and humidity levels are provided with the evaluation sheets for each component located in an area subject to a potential HELB. The HELB study was provided previously in an earlier submittal.⁽³⁾

Components not qualified for their environmental service conditions have been designated for resolution as shown on the component evaluation sheets prior to the June 30, 1982, deadline. In addition, the programs described herein are being developed and will be implemented as soon as practicable.

Very truly yours,



E. R. Mathews, Senior Vice President
Power Supply & Engineering

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Attach.

cc - Mr. Robert Nelson, NRC Resident Inspector
RR #1, Box 999, Kewaunee, WI 54216

- (1) Letter to S. A. Varga (NRC) from E. R. Mathews (WPSC) dated January 29, 1982.
- (2) Letter to E. R. Mathews (WPSC) from S. A. Varga (NRC) dated June 18, 1981.
- (3) Letter to S. A. Varga (NRC) from E. R. Mathews (WPSC) dated Dec. 15, 1981.