



**Consumers
Power
Company**

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February 23, 1981

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Director, Nuclear Reactor Regulation
Att Mr Dennis M Crutchfield, Chief
Operating Reactors Branch No 5
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 -
PALISADES PLANT - RESPONSE TO ENVIRONMENTAL
QUALIFICATION OF SAFETY-RELATED EQUIPMENT

NRC's letter of February 10, 1981 concerning Environmental Qualification of Safety-Related Electrical Equipment at the Palisades Plant has been reviewed for the deficiencies which NRC has identified and the ramifications of those deficiencies. Based on our review, we have concluded that it is safe to continue operation of the Palisades Plant.

The basis for this conclusion is:

1. The NRC staff and the Franklin Research Center (FRC) did a complete review of all of the equipment for SEP plants. Based on their review, the staff placed no equipment into Category 4.1, "Equipment Requiring Immediate Corrective Action."
2. Consumers Power Company report, submitted by cover letter dated October 7, 1980, contained specific information on how (in our opinion) NRC Guidelines for Qualifications were met. In cases where Guidelines were not met, the report contained rationale on why Plant operation could continue pending rectification of the deficiencies. The NRC February 10, 1981 letter took no specific exceptions to any of these statements.

Based on our review of the material attached to the NRC February 10, 1981 letter, we have the following observations:

1. The cover to the attachment states that it is a partial review. It is not clear from the body of the document in what sense it is a partial review.
2. The document starts with Section 3.0, "Staff Evaluation." The implication is that Sections 1.0 and 2.0 are missing.

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February 23, 1981
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Palisades Plant

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3. At various points within the report, a requirement for action by the licensee is noted. Since the cover letter does not mention these, we assume action by us on these items is not required at this time.
4. Lists in Appendices B and C of the report appear to be incomplete in that certain equipment does not appear on either list.

Additional "more specific" comments are included in Attachment 1 of this letter.

A handwritten signature in black ink, appearing to read "David P. Hoffman", with a long horizontal flourish extending to the right.

David P Hoffman
Nuclear Licensing Administrator

CC Director, Region III, USNRC
NRC Resident Inspector-Palisades

CONSUMERS POWER COMPANY
Palisades Plant

Environmental Qualification of Safety-Related Electrical Equipment
Docket 50-255
License DPR-20

At the request of the Commission and pursuant to the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974, as amended, and the Commission's Rules and Regulations thereunder, Consumers Power Company submits our response to the NRC's letter dated February 10, 1981, "Environmental Qualification of Safety-Related Equipment."

CONSUMERS POWER COMPANY

By

R B DeWitt 2/23

R B DeWitt, Vice President
of Nuclear Operations

Sworn and subscribed to before me this 23rd day of February 1981.

Linda K. Carstens

Linda K Carstens, Notary Public
Jackson County, Michigan

My commission expires June 10, 1981.

(SEAL)

ATTACHMENT 1COMMENTS ON NRC PARTIAL REVIEW OF
ENVIRONMENTAL QUALIFICATION OF ELECTRICAL EQUIPMENT
DATED FEBRUARY 10, 1981

1. Page 3, Paragraph 1:

"In Paragraph 4.1.1 of the Technical Evaluation Report (TER), FRC has pointed out that valve position indicating switches should be reviewed, if failure of a limit switch degrades the safety circuit or provides false information to the operator, qualification should be addressed. The Licensee should provide resolution of this concern."

Qualification of position switches was specifically omitted (with concurrence of NRC staff) for the October 7, 1980 submittal.

2. Page 4, Paragraph 1:

"The Staff assumed and requires that the Licensee verifies, that the containment spray system is not subjected to a disabling single component failure and therefore satisfies the DOR Guidelines requirements of Section 4.2.1."

The DOR Guidelines did not say that the licensee had to perform (and affirm under oath) a single failure analysis for the containment spray system. It appears that this paragraph now requires such analysis and affirmation. In many cases, Consumers Power's submittal, Sheet 3 response for DOR Guideline Requirement (DORGR) 2A, does in fact state that Palisades' containment spray system is automatic and redundant.

3. Page 4, Paragraphs 2 and 3:

"The Staff has concluded that the minimum temperature profile for equipment qualification purposes should include a margin to account for higher than average temperatures in the upper regions of the containment that can exist due to stratification especially following a postulated MSLB. Use of the steam saturation temperature corresponding to the total building pressure (partial pressure of steam plus partial pressure of air) versus time will provide an acceptable margin for either a postulated LOCA or MSLB, whichever is controlling as to potential adverse environment effects on equipment.

"The Licensee's specified temperature (service condition) of 278°F for LOCA does not satisfy the above requirement. A saturation temperature corresponding to the pressure profile (298°F peak temperature at 51 psig) should be used instead. The Licensee should update his equipment summary tables to reflect this change. If there is any equipment that does not meet the staff position, the Licensee must provide either justification

that the equipment will perform its intended function under the specified conditions or propose corrective action."

This is a new requirement that only became known after issuance of the February 10, 1981 letter.

Consumers Power has serious reservations concerning both the method of imposition of this new requirement and its technical validity.

- a. The purpose of the October 7, 1980 Consumers Power submittal was to respond to the September 19, 1980 Commission Order, requiring submittal of information to show compliance with the "DOR Guidelines." The "DOR Guidelines" explicitly state that in Section 4.2.1 that "...equipment qualified for a LOCA environment is considered qualified for an MSLB accident environment in plant with automatic spray systems not subject to disabling single component failures." In Consumers Power Company's October 7, 1980 submittal, it was stated that the Palisades Plant has an automatic and redundant containment spray system, thus meeting the DOR Guidelines and allowing the use of the LOCA profile. The requirement to meet a 298°F temperature envelope is obviously beyond the requirements of the "DOR Guidelines."
- b. The supposed reason for this new requirement is for margin to account for higher than average temperatures in the upper regions of containment due to potential stratification. Palisades does not have any safety-related electrical equipment in this area of containment. Therefore, the basis for the NRC concern does not apply to the Palisades Plant.
- c. Since it is not conceivable that all the air in containment would be somehow expelled after a LOCA or MSLB, it does not appear that the NRC position is a rational way to determine margin. The criteria of IEE-323-1974, together with the margin inherent in the analyses arriving at containment conditions, serve as ample assurance of the determination of conservative environmental conditions.

The above arguments should be explicitly addressed by the NRC in making a determination of the required environmental conditions for the Palisades Plant.

4. Page 5, Paragraph 1:

"FRC notes that for the EEQ review the accidents which were used to evaluate equipment were the LOCA inside containment. As stated in paragraph 3.2 of this report this plant is equipped with automatic containment spray system, however, the temperature for the MSLB inside containment exceeds the LOCA profile by 100°F and would be the limiting condition if reanalysis does not result in reduction of the temperature conditions following a MSLB inside containment. FRC further notes that the equipment evaluated on the basis of the LOCA profile would require reevaluation to MSLB conditions if either temperature or pressure from MSLB exceeds the

LOCA conditions by a significant amount. The Licensee should provide the necessary information to resolve this concern."

The concern of the higher (in containment) temperature due to an MSLB was addressed in the submittal on Sheet 3, DORGR 2A. Palisades' equipment generally falls into one of the following categories:

- a. The equipment is inside containment and is subjected to an MSLB. However, the equipment is only needed to mitigate a LOCA.
- b. The equipment is needed to mitigate an MSLB, but the use of LOCA conditions is acceptable since Consumers Power and NUREG-0458 recognize that, although the peak temperature and pressure for an MSLB inside containment is greater than that for a LOCA, the duration is short and the effect will be minimal.
- c. Palisades Plant has an automatic redundant containment spray system, thus meeting the DOR Guidelines allowing use of the LOCA profile.
- d. Some of the equipment was tested to a higher temperature than required for LOCA, thus the difference between an MSLB peak temperature and the test temperature is less than 100°F and is not significant.
- e. No documentation exists for some equipment, but a commitment was made to replace or test such equipment by June 1982.

5. Page 6, Paragraph 1:

"The maximum submergence levels have been established and assessed by the Licensee. The staff assumed for this review, unless, otherwise noted, that the methodology employed by the Licensee is in accordance with the appropriate criteria as established by the Commission Memorandum and Order (CLI-80-21) dated May 23, 1980. The Licensee's value for maximum submergence is 6 feet above basement floor (elev 596 feet). The Licensee has not identified any equipment below this level."

Contrary to the concluding statement above, the submittal did identify submerged equipment. Appendix B of the NRC's February 10, 1981 letter indicates submergence as a deficiency.

6. Page 6, Paragraph 2:

"The Licensee's FSAR value for the chemical concentration is 1750-2000 PPM boron; and hydrazine 50 to 100 PPM plus manually added sodium hydroxide solution to control pH between 7.0 and 8.3. The exact volume percent used by the vendors for qualification testing should be verified by the Licensee. Therefore, for the purpose of this review, the effects of chemical spray will be considered unresolved."

In most cases, the vendor specified the volume percent of chemicals used in the test spray and these values were provided to FRC. When the volume

percent was not given by the vendor, an engineering evaluation was made for the equipment in question (this is allowed by DOR Guidelines). Note that the DOR Guidelines do not require documentation as to exact volume percent of chemicals.

7. Page 6, Paragraph 3, and Page 7, Paragraphs 2, 3 and 4

"The DOR Guidelines, Section 7, do not require a qualified life to be established for all safety related electrical equipment, however the following actions are required:

1. Detailed comparison of existing equipment to the materials identified in Appendix C of the DOR guidelines. The first supplement to IEB-79-01B requires the Licensees to utilize the table and identify any additional materials as a result of their effort.
2. Establish an ongoing program to review surveillance and maintenance records to identify potential age related degradations.
3. Establish components maintenance and replacement schedules which include considerations of aging characteristics of the installed components.

"For this review the staff requires that the Licensee submit supplemental information to verify and identify their degree of conformance to the above requirements. The response should be inclusive of all the equipment identified as required to maintain their functional operability in harsh environments."

SEP plants were specifically excluded from IEB-79-01B. Aging studies were done by Wyle Laboratories. In addition, reference literature on aging was located and used.

8. Appendix B

- a. Many of the deficiencies are annotated with the legend QI which means "Qualification Information Being Developed." This statement is confusing since Consumers Power's submittal did not include such a statement.
- b. The equipment listed cannot be cross-referenced to Plant ID number or to Consumers Power's submittal. It is very difficult (or impossible in some cases) to identify positively which piece of equipment is considered deficient.
- c. Equipment of the same manufacturer and model, located in the same harsh area, is shown to be deficient in Appendix B and is also shown to be acceptable in Appendix C.

Examples: (1) Fisher Controls Model E/P-546
(2) Rosemount Model 104-VCX