



**Consumers
Power
Company**

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March 2, 1981

COPY

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

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - RESPONSE
TO ENVIRONMENTAL QUALIFICATION
OF SAFETY-RELATED EQUIPMENT

NRC letter dated February 13, 1981 concerning Environmental Qualification of Safety-Related Electrical Equipment at the Big Rock Point Plant has been reviewed for the deficiencies identified therein and the ramifications of those deficiencies. Based on our review, we have concluded that it is safe to continue operation of the Big Rock Point 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 31, 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. NRC letter dated February 13, 1981 took no specific exceptions to any of these statements.

Based on our review of the material attached to the NRC letter dated February 13, 1981, 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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Dennis M Crutchfield
March 2, 1981
Big Rock Point 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.

As requested by NRC letter dated February 13, 1981, this response is being submitted within ten days of receipt. Delayed receipt of your request until February 20, 1981 was identified to Mr W Paulson of your staff.

Gregory C Withrow (Signed)

Gregory C Withrow
Senior Licensing Engineer

CC Director, Region III, USNRC
NRC Resident Inspector-Big Rock Point

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CONSUMERS POWER COMPANY
Big Rock Point Plant
Environmental Qualification of Safety-Related Electrical Equipment

Response to NRC Letter Dated February 13, 1981
Docket 50-155
License DPR-6

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 letter dated February 13, 1981, "Environmental Qualification of Safety-Related Equipment." Consumers Power Company's response is dated March 2, 1981.

CONSUMERS POWER COMPANY

By R B DeWitt (Signed)
R B DeWitt, Vice President
of Nuclear Operations

Sworn and subscribed to before me this 2nd day of March 1981.

Dorothy Bartkus. (Signed)
Dorothy Bartkus, Notary Public
Jackson County, Michigan
My commission expires March 26, 1983.

(SEAL)

ATTACHMENT 1
Consumers Power Company (CP Co) Comments on:

PARTIAL REVIEW

Equipment Evaluation Report by the
Office of Nuclear Reactor Regulation

For Consumers Power Company
Big Rock Point Nuclear Power Station
Docket No 50-155

Environmental Qualification of Safety-Related
Electrical Equipment

1. NRC Statement

Page 2, Paragraph 1

"FRC has identified certain items that the Licensee has deleted from the equipment list as not requiring qualification. (Reference Appendix K of the TER.) FRC has evaluated the Licensee's position and, in certain cases, does not agree. The Licensee should provide additional information to resolve the concern or provide adequate qualification."

CP Co Comment

It is Consumers Power Company's opinion that the determination of what equipment is needed for safe shutdown of the Big Rock Point Plant would more appropriately be the responsibility of the NRC staff (rather than FRC) and Consumers Power Company. At this time, Consumers Power Company cannot determine which items FRC disagrees with since the referenced Appendix K of the TER is not a part of the NRC letter dated February 13, 1981.

2. NRC Statement

Page 3, Paragraph 3

"On this basis the staff has assumed, unless otherwise noted, that the analysis for developing the environmental envelopes for Big Rock Point relative to the temperature, pressure, and the containment spray caustics, have been performed in accordance with the above stated requirements. For this review the staff reviewed the qualification documentation to ensure that the qualification specifications envelope the conditions established by the Licensee. During this review the staff assumed that for plants, designed and equipped with an automatic containment spray system, which satisfies the single failure criterion, the main steam line break environmental conditions are enveloped by the large break LOCA

"environmental conditions. 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 Guideline requirements of Section 4.2.1."

CP Co Comment

In August 1980, Consumers Power Company recognized that the containment temperature resulting from a steam line break could exceed that of the LOCA event. Both NRC and FRC were informed of this conclusion prior to the October 31, 1980 submittal. They were further informed that the temperature to be used for the purposes of EEQ for steam line breaks inside containment should be the same as the LOCA event because modifications would be made to assure that the temperature/pressure envelope for LOCA events was maintained for MSLB events. During the 1980 refueling outage, the necessary modifications were made to the containment spray systems as proposed by Consumers Power Company and found acceptable by NRC. (Reference Amendment No 37 to the Facility Operating License, DPR-6, dated January 13, 1981.)

3. NRC Statement

Page 4, Paragraphs 2, 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 environmental effects on equipment.

"The Licensee's specified temperature (service condition) of 235°F does not satisfy the above requirement. A saturation temperature corresponding to the pressure profile (270°F peak temperature at 27 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."

CP Co Comment

This is a new requirement that only became known after issuance of the NRC letter dated February 13, 1981. Consumers Power has serious reservations concerning the method of imposition of this requirement and its technical validity.

Since it is not conceivable that all the air in containment would be somehow expelled after a large LOCA or MSLB, it does not appear that the NRC position is an appropriate 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 ability to maintain containment temperature at $\leq 235^{\circ}\text{F}$ for small LOCA or steam line breaks using the automatic and remote manual containment spray system has been adequately addressed and accepted by NRC. (Reference Amendment No 37 to the Facility Operating License, DPR-6, dated January 13, 1981.)

4. NRC Statement

Page 5, Paragraph 1

"The Licensee has provided the temperature pressure, humidity and applicable environmental values associated with a HELB outside containment in the following plant areas:

1. Pipe Tunnel
2. Electrical Penetration Room
3. Sphere Ventilating Room
4. Core Spray Room

"The Licensee has used 210°F and 2.2 psig conditions in the pipe tunnel due to the HELB outside containment. The staff considers saturation temperature at the peak pressure resulting from a HELB as the minimum level for acceptance. The Licensee should update his summary tables to reflect this change. If there is any equipment that does not meet the staff position, the Licensee must provide justification that the equipment will perform its intended function under saturated conditions, or propose corrective action."

CP Co Comment

The sphere ventilating room and core spray room are not affected by the outside containment MSLB event. The electrical penetration room suffers only increased humidity due to the outside containment MSLB event. (Reference Section II.A of our October 31, 1980 submittal.)

The equipment items requiring qualification in the pipe tunnel are the outside of containment isolation valves. This equipment is not needed to mitigate an MSLB, but rather a LOCA inside containment. Therefore, the equipment must endure the environmental conditions experienced in the pipe tunnel during a LOCA. The main steam isolation valve and feedwater check valves are located in containment and are not subject to an MSLB outside

containment. The statement that these valves are not required for MSLB outside containment is provided in the footnotes to the equipment summary sheets contained in our October 31, 1980 submittal. Whether the temperature is 210°F or 219°F (saturation temperature at 2.2 psig) in the pipe tunnel, therefore, is of no consequence.

5. NRC Statement

Page 6, Paragraph 2

"The containment spray system consists of two spray trains; one train is automatically started after a 15 minute delay and the other locked out of operation. The Licensee concluded that some form of containment spray is required immediately following an accident and that the existing design is not acceptable.^{1/} The Licensee has stated that the spray consists of water from the fire protection system and that no chemicals are required. The Licensee must provide additional information to address the spray parameter of qualification for affected equipment items."

CP Co Comment

Sentences 1 and 2 above are incorrect at this time as explained in detail in Amendment No 37 to the Facility Operating License. In our October 31, 1980 submittal, the spray parameter was discussed for affected equipment. It is not clear what additional information is required to address the spray parameter of qualification for affected equipment items.

6. NRC Statement

Page 7, Paragraph 6

Page 8, Paragraph 1

"The Licensee has provided values for radiation levels postulated to exist following a LOCA event. The application and methodology employed to determine these values have been presented to the Licensee as part of the NRC staff criteria contained in the DOR Guidelines, NUREG-0588 and the guidance provided in IEB-79-01B, Supplement 2. Therefore, for this review, the staff has assumed that the values provided, unless otherwise noted, have been determined in accordance with the prescribed criteria. The staff's review assessed that the values to which equipment was qualified, enveloped the requirements identified by the Licensee. The values established by the Licensee are 7.3×10^5 rads gamma and 1.3×10^7 rads beta for the integrated dose inside containment. The radiation service condition provided by the Licensee is lower than provided in the DOR Guidelines for gamma and beta radiation. The Licensee is requested to either provide justification for using the lower service condition or use the service condition provided in the DOR Guidelines for both gamma and beta radiation. If the former option is chosen then the analysis including the basis assumptions, and a sample calculation should be provided. A required value outside containment of 4×10^4 rads has been

"used by the Licensee to specify limiting radiation levels within the core spray room. This value does not appear to consider the radiation levels influenced by the source term methodology associated with post-LOCA recirculation fluid lines. The Licensee must correct this along with the associated equipment summary sheets."

CP Co Comment

In the documentation references supplied to FRC, was a report from J L Beer to R W Sinderman dated October 15, 1980. The subject of the report is "30-Day Integrated Radiation Doses for Electrical Equipment Qualification - Big Rock Point Plant." It is intended that this report provide the necessary justification for the lower radiation service conditions, including analyses, basis assumptions and tabular data. The report specifies that the radiation doses in the core spray room are due to recirculating fluids from the containment sump. Since the core spray room is detached from containment and is underground, it does not receive radiation dose from any source except recirculating fluids (reference Section II.A(4) of the October 31, 1980 submittal). The lines are shorter and smaller in diameter than exist in more recently licensed plants which have power levels 10 to 15 times higher than Big Rock Point. The proportionally larger containment also leads to more dilute fission products in the recirculation water and until recirculation occurs later (at least four hours), the dose is zero.

7. NRC Statement

Page 6, Paragraph 3

Page 7, Paragraphs 1, 2, 3, 4, 5

"The DOR Guidelines, Section 7, does 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 component 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.

"The staff will review the Licensees response, when submitted, and report its evaluation in a supplemental report."

CP Co Comment

SEP Plants were specifically excluded from IEB-79-01B. However, Appendix C of the DOR Guidelines, as well as other available literature on aging (referenced in our October 31, 1980 submittal), were used for aging studies. It was our understanding that the above were required only when operating experience was used as the qualification basis. The submittal identified our intent to place certain electrical equipment on a preventive maintenance program; therefore, it is unclear what response is necessary for Items 2 and 3 above regarding surveillance and maintenance program establishment and scheduling.

8. General CP Co Comments on Appendices B and C

- A. 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.
- B. Revisions to the October 31, 1980 submittal were submitted on January 30, 1981. These revisions were necessary due to plant modifications and also due to new information gained through the walk down inspection of equipment that was conducted during December 1980.
- C. TER Item 8, Yarway Model 4420C, is designated to be deficient with regard to submergence, although the October 31, 1980 submittal (Page 71) clearly indicates that it is not subject to submergence, as its measured elevation is 590'-6". At the time it is needed to function, the flood level is much below its maximum elevation of 590'-0".