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NOV 29 1982

Docket No. 50-358

Mr. Earl A. Borgmann  
 Senior Vice President, Engineering  
 The Cincinnati Gas & Electric Company  
 Post Office Box 960  
 Cincinnati, Ohio 45201

Dear Mr. Borgmann:

Subject: Requests for Additional Information in Zimmer 1 Operating License Application

As a result of our continuing review of the operating license application for the William H. Zimmer Nuclear Power Station, Unit No. 1, we have developed the enclosed positions and requests for additional information.

Please amend your application to comply with the requirements listed in the Enclosure. Information provided in response to the Mechanical Engineering Branch should be a revision to the FSAR. Information provided in response to the Equipment Qualification Branch request should be a revision to the Environmental Qualification Report transmitted July 16, 1982. Our review schedule is based on the assumption that the additional information will be available for our review by December 31, 1982. If you wish clarification of the requests or if you cannot meet these dates, please telephone the Licensing Project Manager, L. Kintner, within seven days after receipt of this letter.

Sincerely,

Original signed by:  
 B. J. Youngblood

B. J. Youngblood, Chief  
 Licensing Branch No. 1  
 Division of Licensing

Enclosures:  
 Requests for Additional  
 Information

cc w/enclosures:  
 See next page

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ENCLOSURE

REQUESTS FOR ADDITIONAL INFORMATION IN THE SAFETY REVIEW

WILLIAM H. ZIMMER NUCLEAR POWER STATION, UNIT NO. 1

DOCKET NO. 50-358

Requests by the following branches in NRC are included in this enclosure. Requests and pages are numbered sequentially with respect to previously transmitted requests.

<u>Branch</u>	<u>Question No.</u>
Mechanical Engineering Branch	423.42
Equipment Qualification Branch	1-10

ENCLOSURE

Request for Additional Information  
William H. Zimmer Nuclear Power Station

423.42  
(14.1)

MECHANICAL ENGINEERING BRANCH

In your response to Position 423.41 (14.1) provided in revision 87 to the FSAR (September 1982), it was stated that, "when simplified evaluation methods are used, there will be sufficient conservatisms in the methods to account for the factor of safety and the 1.3 factor will not be applied." The staff does not accept the use of a higher stress allowable (i.e. 10,000 psi for carbon steel with UTS  $\leq$  80 ksi) based on the inherent conservatisms in the methodology. The staff does find the proposed stress levels to be acceptable for steady-state vibration (i.e. 7,690 psi for carbon steel with UTS  $\leq$  80 ksi and 12,000 psi for stainless steels). Provide assurance that stress levels acceptable to the staff will not be exceeded for steady-state vibration tests by either (a) using proposed stress levels without relying on the conservatisms in the methodology or (b) removing the excess conservatisms in the methodology and providing adequate justification that proposed stress levels will not be exceeded.

Equipment Qualification Branch  
Request for Additional Information  
William H. Zimmer Nuclear Power Station, Unit 1  
"Environmental Qualification Report  
for Class 1E Equipment"  
(Transmitted by letter dated July 16, 1982)

1. Based on the information in your program, we are unable to determine if all of the systems and components requiring qualification have been identified. Provide the following additional information for our review:
  - a. A comparison of the systems in Table 3.2-1 of the FSAR with the systems containing equipment in a harsh environment in the July 13, 1982 submittal. Justification should be provided for the exclusion of safety-related systems in Table 3.2-1 from the environmental qualification program (e.g., not required for accident mitigation, all components located in a mild environment, etc.). Indicate the Class 1E function(s) performed by each system.
  - b. A list of the TMI Action Plan equipment currently in your program and its equipment I.D. number. If not in your program, describe the qualification status or your plans for qualification, including the schedule for completion of qualification in accordance with NUREG-0588.
2. Normal and accident environmental conditions must be defined for areas of the plant which experience a significant change in environment as a result of a LOCA or HELB. The following is required to adequately define the environmental conditions:
  - a. A commitment to use the drywell pressure/temperature profile previously defined in Table 3.11-1 of the FSAR (3 hours at 340°F, 6 hours at 320°F, etc.) or justification for use of a less severe profile in the evaluation of equipment qualifications. If Table 3.11-1 is not utilized, a revised profile should be provided and should specify pressures and temperatures for the duration of the accidents. In the wetwell, a 24 hour constant profile with a saturation temperature of 250°F is conservative and should be utilized for qualification of equipment.
  - b. Confirmation that all high energy line breaks in the FSAR line break analysis have been considered in the development of environments outside of the primary containment.
3. The elevation of suppression pool swell following a LOCA should be defined and its effects on equipment evaluated. Describe the method of qualification for the Gordon temperature elements in the suppression pool.

4. Zone A-7 in your program experiences a significant change in relative humidity during a HELB (from 60% R.H. during normal operation to 100% R.H. under accident conditions) and is therefore defined as a harsh environment. Essential equipment should be qualified for operation under these conditions and should be included in your harsh environment qualification program.
5. You have indicated that plant zones with radiation doses of less than  $10^4$  rads are considered to be mild environments. Equipment with solid-state electronics in environments with significant increases in radiation doses during an accident may experience common mode failures at doses of less than  $10^4$  rads. Describe the methods of qualification for equipment in this category in the affected plant areas.
6. The following omissions were noted in the equipment qualification data sheets (SCEW sheets):
  - a. Accuracy requirements were not specified for applicable equipment.
  - b. References for qualification were not specified.

The above information should be included in your submittal.

7. Describe in general terms the program to be utilized for detecting or preventing age-related degradation in equipment.
8. The description of the qualification program for safety-related mechanical equipment in Section 3.11 of the FSAR is not sufficient for demonstrating compliance with General Design Criteria 1 and 4 of Appendix A and Sections III, XI, and XVII of Appendix B to 10 CFR Part 50. Provide the following additional information for our review:
  - a. Confirmation that harsh environment mechanical components in the safety-related systems identified in your July 16, 1982 submittal for electrical equipment have been included in a design verification program.
  - b. The criteria utilized for demonstrating qualification of the equipment and their bases.
  - c. The current status of this equipment with respect to the above requirements. If qualification to the applicable criteria is complete, so indicate. If additional review and evaluation are required, describe the tasks to be performed and the schedule for their completion.

9. For each equipment item with incomplete qualification documentation two months prior to fuel load, provide an analysis to the staff to demonstrate that the plant can be operated safely pending completion of environmental qualification. These analyses shall include, as appropriate, consideration of:
- (a) Accomplishing the safety function by some designated alternative equipment if the principal equipment has not been demonstrated to be fully qualified.
  - (b) The validity of partial test data in support of the original qualification.
  - (c) Limited use of administrative controls over equipment that has not been demonstrated to be fully qualified.
  - (d) Completion of the safety function prior to exposure to the ensuing accident environment and the subsequent failure of the equipment does not degrade any safety function or mislead the operator.
  - (e) No significant degradation of any safety function or misleading of the operator as a result of failure of equipment under the accident environment.

The staff will review this information to determine if interim operation with this equipment will not degrade safety functions or inhibit accident mitigation systems or equipment in the unlikely event of an accident.

10. The staff will conduct an audit of the qualification files and installed equipment after determining that the required systems and components have been included in the program and are being qualified using appropriate environments and methods. In addition, a minimum of 85% of the equipment in a harsh environment shall have been reviewed and evaluated, and the following established before the audit:
- a) Equipment is fully qualified, or
  - b) Equipment is not fully qualified but deficiencies are identified and a commitment to qualification by retesting, replacement, relocation to a less harsh environment, or modification (such as radiation shielding) has been made. A schedule for completion must also be provided.

Mechanical and electrical equipment will be selected for audit. The criteria for electrical equipment qualification are described in SRP 3.11. Mechanical equipment will be evaluated against the criteria in General Design Criteria 1 and 4 and 10 CFR Part 50, Appendix B, Sections III, XI and XVII. Our review of mechanical equipment will concentrate on materials which are sensitive to environmental effects, for example, seals, gaskets, lubricants, fluids for hydraulic systems, diaphragms, etc.