



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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NRC PDR

Docket Nos. 50-502
and 50-503

OCT 24 1978

Mr. Sol Burstein
Executive Vice President
Wisconsin Electric Power Company
231 West Michigan Street
Milwaukee, Wisconsin 53201

Dear Mr. Burstein:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION CONCERNING HAVEN NUCLEAR
PLANT, UNITS 1 AND 2

As a result of our review of the Haven Nuclear Plant, Units 1 & 2, we forwarded requests for additional information via letters dated July 18, 1978 and August 3, 1978. These requests represented questions on the majority of the review areas.

The enclosed request for additional information is based on the review by the Electrical Instrumentation and Control Systems and the Mechanical Systems Branches. Also, additional information is requested in the Geology/Seismology area, based on the new information presented in Amendment 18, Appendix 2M, of the Haven Site Addendum concerning the faulting in Lake Michigan.

While our review schedule of the Haven Nuclear Plant has not been approved, pending resolution of a one or two unit review, we are proceeding on the assumption that the additional information will be available for our review by December 1, 1978. If you cannot meet this date, please inform us within seven days after receipt of this letter.

Please contact us if you desire any discussion or clarification of the enclosed requests.

Sincerely,

Olan D. Parr
Olan D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management

Enclosure:
- Request for Additional Information

cc w/enclosure:
See next page

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Mr. Sol Burstein

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ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION

PART I - WISCONSIN UTILITIES PROJECT PSAR

110.0 MECHANICAL ENGINEERING BRANCH

110.17 In your response to item D.15 of our Qualification Review
(APP. B) letter of April 5, 1978, you state that Westinghouse supplied
Class 1E electrical equipment will be seismically qualified
in accordance with the methods described in WCAP 8587, Rev-
ision 1 and Supplement 1 to WCAP 8587. The NRC informed
Westinghouse via our letter from J. Stolz to C. Eicheidinger
of January 9, 1978 that WCAP 8587 Revision 1 was not approved
as a reference for licensing applications. Therefore, we
require that you modify your response to provide a commitment
that all Westinghouse supplied Class 1E electrical equipment
will be seismically qualified in accordance with the same
requirements as your Balance of Plant Class 1E electrical
equipment. You state that this BOP equipment will be qualified
in accordance with Regulatory Guide 1.100 Revision 1.

221.0 INSTRUMENTATION AND CONTROL SYSTEMS BRANCH

221.47 In response to Item D.14 of our Qualification Review letter
(App. B) of April 5, 1978, you express conformance with the recommendations
of Regulatory Guide 1.97, but include comments and exceptions. We
interpret the comments to be explanations of how the recommendations
of the Regulatory Guide will be met. The exceptions are summarized
as follows:

- (1) The Battelle-Columbus Laboratories Report BMI-X-647,
April 9, 1973, will not be used as a guide for position C.1.
 - (2) The recommendations of position C.3. will not be implemented.
- We request that you verify that our interpretation of the comments
and our summary of the exceptions are all inclusive and correct.

Also, your response states that "these recorders will not be
qualified to function during the postulated seismic event.
Following the event, the recorders will regain an operating
status." Clarify this statement to indicate that the recorders
will regain an operating status within acceptable operating
limits. These operating limits should also be specified.

221.48
(App. B)

In response, to Item D.17 of our Qualification Review letter of April 5, 1978, you express conformance with the recommendations of Regulatory Guide 1.105, but include comments and exceptions. We find your exceptions unacceptable in the following areas:

- (1) You state, "The need for qualification testing will be evaluated and justified on a case basis." This statement indicates that some instruments may not be subjected to a qualification program to demonstrate that they will perform their design requirements. Modify your response to show that this equipment will satisfy IEEE Std. 323-1974 and the recommendations of Regulatory Guide 1.89.
- (2) You take exception to our recommendation that a securing device be provided on setpoint adjusting mechanisms. We therefore, require a preliminary but detailed description of each method that will be used to assure that the required setpoint accuracy will be maintained and to minimize setpoint changes.

Identify and justify any other exceptions taken to the recommendations of Regulatory Guide 1.105.

221.49
(App B)

We have reviewed your response to item D.47 of our Qualification Review letter and find your response unacceptable. It was pointed out in our Qualification Review letter of April 5, 1978, that we would be rereviewing certain categories of items. Item D.47 is one of these items identified as Category D.(3) in that letter. Our concern is that the implementation of the design criteria for the Haven Plant may not satisfy all requirements specified in IEEE Standard 323-1974. Therefore, we require that the information outlined in Attachment 'A' be provided.

Your commitment to provide the information for items 1 through 5 of Attachment 'A' prior to the application for the operating license will be acceptable. The information requested in items 6 and 7 of Attachment 'A' may be provided with the application for the operating license.

ATTACHMENT A

ENVIRONMENTAL QUALIFICATION OF
CLASS 1E EQUIPMENT

In order to ensure that your environmental qualification program conforms with General Design Criteria 1, 2, 4 and 23 of Appendix A and Sections III and XI of Appendix B to 10 CFR Part 50, and to the national standards mentioned in Part II "Acceptance Criteria" (which includes IEEE Std 323) contained in Standard Review Plan Section 3.11, the following information on the qualification program is required for all Class 1E equipment.

1. Identify all Class 1E Equipment, and provide the following:
 - a. Type (functional designation)
 - b. Manufacturer
 - c. Manufacturer's type number and model number
 - d. The equipment should include the following, as applicable:
 - 1) Switchgear
 - 2) Motor control centers
 - 3) Valve operators
 - 4) Motors
 - 5) Logic equipment
 - 6) Cable
 - 7) Diesel generator control equipment
 - 8) Sensors (pressure, pressure differential, temperature and neutron)
 - 9) Limit Switches
 - 10) Heaters
 - 11) Fans
 - 12) Control Boards
 - 13) Instrument racks and panels
 - 14) Connectors
 - 15) Electrical penetrations
 - 16) Splices
 - 17) Terminal blocks

2. Categorize the equipment identified in (1) above into one of the following categories:
 - a. Equipment that will experience the environmental conditions of design basis accidents for which it must function to mitigate said accidents, and that will be qualified to demonstrate operability in the accident environment for the time required for accident mitigation with safety margin to failure.
 - b. Equipment that will experience environmental conditions of design basis accidents through which it need not function for mitigation of said accidents, but through which it must not fail in a manner detrimental to plant safety or accident mitigation, and that will be qualified to demonstrate the capability to withstand any accident environment for the time during which it must not fail with safety margin to failure.
 - c. Equipment that will experience environmental conditions of design basis accidents through which it need not function for mitigation of said accidents, and whose failure (in any mode) is deemed not detrimental to plant safety or accident mitigation, and need not be qualified for any accident environment, but will be qualified for its non-accident service environment.
 - d. Equipment that will not experience environmental conditions of design basis accidents and that will be qualified to
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demonstrate operability under its normal or abnormal service environment. This equipment would normally be located outside the reactor containment.

3. For each type of equipment in the categories of equipment listed in (2) above provide separately the equipment design specification requirements, including:
 - a. The system safety function requirements.
 - b. An environmental envelope as a function of time which includes all extreme parameters, both maximum and minimum values, expected to occur during plant shutdown, normal operation, abnormal operation, and any design basis event (including LOCA and MSLB), including post event conditions.
 - c. Time required to fulfill its safety function when subjected to any of the extremes of the environmental envelope specified above.
 - d. Technical bases should be provided to justify the placement of each type equipment in the categories 2.b and 2.c listed above.
4. Provide the qualification test plan, test set-up, test procedures, and acceptance criteria for at least one of each group of equipment

of (1.d) as appropriate to the category identified in (2) above. If any method other than type testing was used for qualification (operating experience, analysis, combined qualification, or on-going qualification), describe the method in sufficient detail to permit evaluation of its adequacy.

5. For each category of equipment identified in (2) above, state the actual qualification envelope simulated during testing (defining the duration of the hostile environment and the margin in excess of the design requirements). If any method other than type testing was used for qualification, identify the method and define the equivalent "qualification envelope" so derived.
- *6. A summary of test results that demonstrates the adequacy of the qualification program. If analysis is used for qualification, justification of all analysis assumptions must be provided.
- *7. Identification of the qualification documents which contain detailed supporting information, including test data, for items 4, 5 and 6.

In addition, in accordance with the requirements of Appendix B of 10 CFR 50, the staff requires a statement verifying: 1) that all Class 1E equipment has been (OL) or will be (CP) qualified to the program described above, and 2) that the detailed qualification information and test results are (or will be) available for an NRC audit.

*For applications for construction permits, it is acceptable to state that items 6 and 7 will be supplied in the initial application for an operating license.

REQUEST FOR ADDITIONAL INFORMATION

PART II - HAVEN SITE ADDENDUM

360.0 GEOLOGY/SEISMOLOGY

The following questions apply to Amendment 18, Appendix 2M (Geology and Seismicity under Lake Michigan).

360.7 Provide a gravity map and interpretation of the gravity data (App 2m) for Lake Michigan.

360.8 Modify the following figures in Appendix 2M to reflect the (App 2m) following:

- (1) 2M-3 Include the fault which exists 5 miles southeast of the Haven Site;
- (2) 2M-6 Include fault F on geologic cross Section BB;
- (3) 2M-7 Include the fault which exists 5 miles southeast of the Haven Site on geologic cross Section CC;
- (4) 2M-8 Include faults L, M, and N on geologic cross Section DD;
- (5) 2M-10 Include the location of faults C through N;
- (6) 2M-12 Label the geologic contacts and longitude lines on the profiles; and
- (7) 2M-13 Label the geologic contacts and longitude lines on the profiles. Label the fault and identify the reflection line on the figure.

360.9 Provide a figure which shows both the faults on seismic (App 2m) profiles and the regional faults shown in Figure 2.5.1-9E of the PSAR. Discuss the possible continuation of the faults under Lake Michigan into Wisconsin and Michigan.

360.10 Discuss the ages of the rock units offset by the faults seen (App 2m) on the seismic reflection records. Discuss the age of the oldest rock units penetrated by the shallow versus the deep reflection records.

360.11 Provide full size copies of: (App 2m)

- (1) University of Wisconsin shallow reflection lines 12 through 17;
- (2) Grant Geophysical deep reflection lines D.0, 17, 18, 19, 23, 25, and 30;

- (3) Illinois Geological Survey high resolution seismic lines; and
- (4) Weston Geophysical Company's reflection record which shows the fault which exists 5 miles southeast of the Haven Site.

- 360.12 (App 2m) Provide further discussion of the arguments for connecting faults, G, H and C. Are there any geologic structures on the shores of Lake Michigan with a similar northeast trend? Provide a regional geological analysis to support the assumption that all the faults in Lake Michigan strike the same direction.
- 360.13 (App 2m) Provide a full scale bathymetric chart of Lake Michigan.
- 360.14 (App 2m) Show on the cross sections where the breccia related to possible salt collapse occurs. Discuss in detail the relationship of the apparent zone of salt collapse and the irregular bottom north of 44°10'N, which is assumed to be due to differential erosion of breccias caused by salt collapse.
- 360.15 (App 2m) What is the basis for correlation of Or (Richmond Group-Michigan) with Om (Maquoketa Group-Wisconsin)?
- 360.16 (App 2m) If a Pleistocene river channel is responsible for the fault-like conditions observed on lines 13, 14 and 15 and D.O. 25, why isn't the channel apparent on lines 12 and 16?
- 360.17 (App 2m) Provide an estimate of the seismic detection magnitude threshold for Lake Michigan given the current seismic monitoring around the Lake. In this regard, it should also be noted that the microearthquakes recorded at the Milwaukee station could have originated in northeastern Lake Michigan.
- 360.18 (App 2m) Discuss in detail the following as possible sources of faulting in Lake Michigan:
- (1) Reactivation of Precambrian faults (consider any faults inferred from the aeromagnetic or gravity studies and their relationships to the faults found on the seismic reflection records);
 - (2) Solution of the salt formations and associated collapse of the overlying formations;
 - (3) Crustal rebound following Pleistocene glaciation; and
 - (4) Channel fill which appears as faulting on the seismic reflection records.