May 23, 1996

Mr. Robert E. Link, Vice President
Nuclear Power Department
Wisconsin Electric Power Company
231 West Michigan Street, Room P379
Milwaukee, WI 53201

Distribution w/encls:

Docket File	JRoe
PUBLIC	WAxelson, RIII
PD3-3 Reading	CGrimes
ACRS	GMarcus
TKobetz, RIII	EAdensam (E)
OGC	

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2, REQUEST FOR ADDITIONAL INFORMATION REGARDING THE REPORT ON THE VERIFICATION OF SEISMIC ADEQUACY OF MECHANICAL AND ELECTRICAL EQUIPMENT IN OPERATING REACTORS (TACS M69472 AND M69473)

Dear Mr. Link:

The staff has completed its review of the mechanical and civil engineering, geosciences, and human factors aspects of your submittal on verification of seismic adequacy of mechanical and electrical equipment in operating reactors, dated June 30, 1995. The staff requires additional information regarding certain aspects of the report to make a safety determination. The attached request for additional information provides details of the required material.

Please provide your response within 90 days of the date of this letter. If you need additional time, or if you have questions, please contact me.

Sincerely,

(original signed by)

Allen G. Hansen, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-266
and 50-301

Enclosure: Request for Additional Information

cc w/encls: See next page

DOCUMENT NAME: G:\PTBEACH\PTB69472.RAI

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	LA:PD33	E	PM:PD33	E
NAME	DFoster-Curseen		AHansen	
DATE	5/23/96		5/23/96	

OFFICIAL RECORD COPY

280024

NRC FILE CENTER COPY

DF01

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 23, 1996

Mr. Robert E. Link, Vice President
Nuclear Power Department
Wisconsin Electric Power Company
231 West Michigan Street, Room P379
Milwaukee, Wisconsin 53201

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2, REQUEST FOR ADDITIONAL INFORMATION REGARDING THE REPORT ON THE VERIFICATION OF SEISMIC ADEQUACY OF MECHANICAL AND ELECTRICAL EQUIPMENT IN OPERATING REACTORS (TACS M69472 AND M69473)

Dear Mr. Link:

The staff has completed its review of the mechanical and civil engineering, geosciences, and human factors aspects of your submittal on verification of seismic adequacy of mechanical and electrical equipment in operating reactors, dated June 30, 1995. The staff requires additional information regarding certain aspects of the report to make a safety determination. The attached request for additional information provides details of the required material.

Please provide your response within 90 days of the date of this letter. If you need additional time, or if you have questions, please contact me.

Sincerely,

Allen G. Hansen, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-266
and 50-301

Enclosure: Request for Additional Information

cc w/encls: See next page

cc:

Ernest L. Blake, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N Street, N.W.
Washington, DC 20037

Mr. Gregory J. Maxfield, Manager
Point Beach Nuclear Plant
Wisconsin Electric Power Company
6610 Nuclear Road
Two Rivers, Wisconsin 54241

Mr. Ken Duveneck
Town Chairman
Town of Two Creeks
13017 State Highway 42
Mishicot, Wisconsin 54228

Chairman
Public Service Commission
of Wisconsin
P.O. Box 7854
Madison, Wisconsin 53707-7854

Regional Administrator
U.S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4531

Resident Inspector's Office
U.S. Nuclear Regulatory Commission
6612 Nuclear Road
Two Rivers, Wisconsin 54241

Ms. Sarah Jenkins
Electric Division
Public Service Commission of Wisconsin
P.O. Box 7854
Madison, Wisconsin 53707-7854

REQUEST FOR ADDITIONAL INFORMATION

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

UNRESOLVED SAFETY ISSUE A-46

1. Section 3.0, Page 3-1 (Seismic Design Basis)

   For plant structures containing equipment in the USI A-46 scope:

   a. Identify structures which have licensing-basis floor response spectra (5% critical damping) for elevations within 40-feet above the effective grade, which are higher in amplitude than 1.5 times the SQUG Bounding Spectrum.

   b. Provide the response spectra designated according to height above the effective grade identified item a above and a comparison to 1.5 times the Bounding Spectrum.

   c. With respect to the comparison of equipment seismic capacity to seismic demand, indicate which method (Method A or Method B in Table 4-1 of GIP-2) was used to address the seismic adequacy of equipment installed on those floors as identified in item a above.

2. Section 3.3, Page 3-2 (Soil Structure Interaction)

   Provide the methodology used for the Point Beach soil structure interaction analysis including validation of the methodology. The report indicates that the damping values for those structures on soil are higher than those on rock. Therefore, it is uncertain as to how the overall damping for the soil structure interaction system has been formulated. In addition to the methodology, provide a detailed description of the model for structural and soil damping including mathematical expressions.

3. Page 5-1, "Commentary Regarding GIP Deviation"

   The commentary in Table 5-1 states that the Point Beach breakers in the Low Voltage Switchgear 1(2)B-03 and 04, do not have side-to-side restraints. Provide the calculation performed to justify that the available clearances in the slide-out supporting rail precluded the disconnection of the secondary stabs such that the side-to-side restraints are not needed.

   In the same table, for SI pumps 1(2)P-15 A and B, provide the torque value used for checking the tightness of 1.25 inch diameter WEJ-IT expansion anchors.

   The nominal allowable pullout capacities for cast-in-place bolts were used in place of the values in Table C.5-1 of the GIP for grouted-in-place bolts. Are the installation procedures for grouted-in-place bolts similar to those in Reference 28, Section 10 of GIP-2?

4. Section 5.3, Page 2-4 (Relay Evaluation Report)

Provide the resolution for essential relay outliers identified in the report and the schedule for completion of this effort.

5. Section 6.1, Page 6-1 (Tanks and Heat Exchangers)

The report states that this section provides the results of the tanks and heat exchangers evaluations. In total, fifty-two tanks and heat exchangers were reviewed. However, there are only 17 items identified in Table 6-1. Please explain the inconsistency.

6. Table 6-1, Page 6-2, Item No 16

In general, the EPRI report NP-6041-SL, Revision 1, "A Methodology for Assessment of Nuclear Power Plant Seismic Margin (Revision 1)" is not acceptable for resolution of USI A-46. Hence, the use of Conservative Deterministic Failure Margin (CDFM) analysis for the refueling water storage tank (RWST) to determine its seismic adequacy is questionable. Provide a detailed analysis of the tank for staff review.

7. Section 7.1, Page 7-1 (Cable Trays and Conduit Raceways)

It is stated that all power block buildings and elevations were surveyed. Provide a discussion of the survey conducted and its result, including a description of the power block buildings and briefly outline the seismic interaction concerns associated with the power block buildings on safe shutdown equipment.

8. Table 7.1, Page 7-4

In the table, a list is provided for the cable trays that were subjected to the Limited Analytical Review (LAR). Transmit analysis Number 9 of LAR, Primary Auxiliary Building central part, 8' elevation, and include a list of references used for the analysis.

9. Section 7.2, Page 7-9

The report states that cable trays were evaluated for lateral load ductility to ensure that there were no brittle failure modes. Provide the procedure for the ductility evaluation and discuss the bases for the approach, including any references used. In particular, discuss how the ductility is accounted for in the dynamic response analysis.

10. Page 7-6, "Cable Data and Weight Determination"

    In analytical evaluation of the ten LARs, was the weight of cable insulating materials (e.g. thermo-lag materials) included in the seismic demand evaluation?

11. Page 12 of 23, "Relay Functionality Review"

    In reference to Section 4.5.1 "Relay Mounted on Vibrating Equipment," demonstrate by calculation and/or testing that normal operational vibration of equipment supporting these relays is more severe than the vibration induced by a design basis seismic event.

12. Page 13 of 23, "Relay Functionality Review"

    Section 4.5.2, "Generic Seismic Test Data," references Generic Equipment Ruggedness Spectra (GERS) for relays that are documented in Addenda 1 and 2 to the report EPRI NP-7147-SL, Vol. 2. This EPRI report has not been reviewed by the staff. Please submit this report for staff review.

13. Section 9.1, Page 9-3 (Outlier Resolution)

    Provide calculations performed for anchor J-bolts that have an embedment less than 16 diameters, in resolution of outliers Nos. 14 through 19.

14. Section 9.1, Page 9-4

    Provide calculation performed to justify operability of the service water pumps in resolution of outliers Nos. 20 through 25. Also, provide your resolution to the interaction hazard of the overhead crane in the above outliers.

15. Section 9.1, Page 9-5

    In resolution of outliers Nos. 26 through 30, concerning the interaction hazard of the unanalyzed block wall with the condensate system valves, what administrative procedure would direct the operator to turn off the feed pumps and the condensate pumps in the event of a condensate system valve malfunction?

16. Section 9.1, Page 9-9

    Clarify the support configuration for the safety injection valves 1(2) SI 878 A,B,C and D to explain the statement that "The valve was supported by the valve operator but not the valve body." Provide the results of the piping analyses performed in resolution of outliers Nos. 56 through 62, which show that the safety injection system valves in question are not overstressed.

17. Section 9.1, Page 9-10

In the resolution of outliers Nos. 64, 65 and 66 for service water heater exchangers HX-66, HX-66A and HX-98, a 2-inch and a 2 1/2-inch break of service water piping were assumed with minimal impact on service water supply to essential loads. Provide details regarding the systems supplied by these service water lines and the impact of their failure on these systems.

18. Section 9.1, Page 9-11

Provide your final resolution to the anchorage issue of the chiller units identified as outlier Nos. 69 and 70.

19. Section 9.1, Page 9-13

Provide your final resolution to the door latches of the cabinets that do not positively latch, identified as outlier Nos. 80 and 81.

20. Section 9.1, Page 9-15

In reference to resolution of outliers Nos. 95 and 96, tanks 1T-12 and 2T-12, were found to have excessive clearance between their anchor bolts and the respective bolt holes. The operability of tanks during a seismic event was based partly on the effect of some restraint from the attached piping. However, this hypothesis might be inconsistent with the basic assumptions in the piping analysis, whereby the tanks are considered as the anchor points for the attached piping. Provide an estimate of the safe shutdown earthquake loads transferred to the attached piping as a result of the above assumption and confirm the acceptability of the resulting piping stresses to justify its structural integrity.

21. Section 9.1, Page 9-15

Provide specifics regarding items that failed to satisfy the screening criteria of Section 7 of the GIP. With regard to tank IT-13, provide the finite element analysis model, input parameters and results, and state if the finite element computer code is benchmarked.

22. Provide a tentative schedule for completion of pending modification requests and/or engineering evaluations with regard to resolution of outliers identified in Section 9.1.

23. Page 2-16 of the Seismic Evaluation Report regarding the safe shutdown equipment list (SSEL) states in part that "the PBNP SSEL has been reviewed against the plant operating procedures by a multi-disciplinary team made up of PBNP operations personnel and nuclear safety and transient analysis engineers. The review concluded that operations personnel will be able to establish and maintain PBNP Unit 1 and Unit 2 in a safe shutdown condition, using the components selected on the SSEL by following the existing emergency operating procedures (EOPs),

abnormal operating procedures (AOPs) and operating procedures (OPs)." How did PBNP personnel determine that operations personnel will be able to maintain the plant in a safe shutdown condition using the SSEL and procedures identified? What field and control room simulator scenarios were developed to verify and validate that these operator actions could be accomplished in the timeframe required to facilitate safe shutdown?

24. Do any of the operator actions specified in the EOPs, AOPs, and OPs referenced in Table 2.4-1 of the Seismic Evaluation Report require in-plant actions by the operations crew? If so, how were potentially harsh environmental conditions factored into the analysis? What specific operator training was provided to ensure all operating crews were knowledgeable of the SSEL and the procedural guidance expected to be used during a postulated earthquake?

25. Section 8.2, Generic Outlier Issues, of the Seismic Evaluation Report identifies unrestrained portable equipment as an impact hazard in the main control room. What steps have been taken to resolve this issue?

26. Section 5.3.2, Relays Requiring Seismic Capacity Screening, of the Relay Evaluation Report identified approximately 132 relays considered outliers. From the report discussion, it is not clear if any of these relays, necessary for proper operation of safe shutdown equipment, require operator action in order to achieve their intended function. If any of these relays require operator action, what field and control room simulator scenarios were developed to verify and validate that these operator actions could be accomplished in the timeframe required to facilitate safe shutdown? How were potentially harsh environmental conditions factored into the analysis?

Principal Contributors: S. Kim
P. Patnaik
G. Galletti