

September 4, 1981

Docket No. 50-409
LS05-81-09-009



Mr. Frank Linder, General Manager
Dairyland Power Cooperative
Post Office Box 817
2615 East Avenue South
LaCrosse, Wisconsin 54601

Dear Mr. Linder:

SUBJECT: SEP TOPIC III-6, SEISMIC DESIGN CONSIDERATIONS
LACROSSE BOILING WATER REACTOR

In accordance with 10 CFR 50.54(f) of the Commission's Regulations, our letter to you dated August 4, 1980 requested that you submit plans and proceed with a seismic reevaluation program for LaCrosse Boiling Water Reactor and that you provide justification for your conclusion that continued operation is justified in the interim until the seismic reevaluation and any necessary upgrading, as results from this reevaluation, are complete. The staff has completed the review of the information supporting continued operation contained in your letters dated October 14, 1980 and June 12, 1981 and the letter from Craig Finnan, NES, to R.E. Shimshak, DPC, dated April 21, 1981. Furthermore, the staff and its consultant (Dr. W.J. Hall of University of Illinois) visited the site to evaluate the seismic resistance of the facility. As a result of this review, the staff has concluded that continued operation of the LaCrosse Boiling Water Reactor is justified under the following conditions:

- (1) results of seismic analyses are submitted for NRC review on the schedule specified in your June 12, 1981 letter; and
- (2) any modifications shown to be necessary as a result of the seismic analysis which are not implemented by January 1, 1983 were justified on a case by case basis with a schedule for implementation.

Enclosed is our Safety Evaluation Report.

Sincerely,

Original signed by
Lennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

Add: Greg Cwajana

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OFFICE	Enclosure: As stated	DL:SEP8 TCheng:sah 8/28/81	DL:SEP8/SL RHermann 8/25/81	DL:SEP8/BC WRussell 8/26/81	DL:ORB#5/PM RCarus 9/1/81	DL:ORB#5/BC DCrutchfield 9/3/81	DL:AD/SA G... 9/3/81
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Mr. Frank Linder

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BASES FOR CONTINUED OPERATION LACROSSE BOILING WATER REACTOR

INTRODUCTION

In accordance with the Commission Regulation 10 CFR 50.54(f), a letter was issued on August 4, 1980 to Dairyland Power Cooperative requesting the licensee to provide justification for continued operation for the interim until the seismic reevaluation program is complete. In response to this letter, the licensee submitted its basis for continued operation on October 14, 1980. More recently, a telecopy of Craig Finnan's (NES) letter to R. E. Shimshak, DPC dated April 21, 1981 was received by the staff. In this letter, a response to certain staff's questions was discussed. On May 22, 1981 the staff and its consultant, Prof. W. J. Hall of University of Illinois, made a site visit to the plant to discuss with the DPC and its consultants the ongoing seismic analyses and related studies and the seismic retrofitting that is in progress. The staff's evaluation of the basis for continued operation follows.

Seismic Hazard Consideration

The staff, in its letter dated August 4, 1980, directed the licensee to conduct the seismic reevaluation of LaCrosse Nuclear Plant using the site specific spectrum (0.11g peak ground acceleration) as the free field ground motion. The adequacy of this site specific spectrum was confirmed by the staff through a letter dated June 17, 1981. This ground motion is equivalent to an earthquake with return period between 1,000 years and 10,000 years.

Seismic Resistance of Structures, Systems and Components

In 1974, the licensee completed a seismic analysis of the plant facilities (reactor building, reactor pressure vessel, main steam, main feedwater and recirculation pipings, and other fluid and electrical distribution systems) as part of basis for its FTOL application. Regulatory Guide 1.60 Spectrum scaled to 0.12g peak ground acceleration was used as input ground motion. This spectrum completely enveloped the site specific spectrum recommended by the staff, i.e., it is more conservative than the site specific spectrum. The results of this analysis are highlighted below:

- . Positive safety margins of reactor building structures were identified
- . Additional pipe restraints were found to be necessary for High Pressure Core Spray, Main Steam, Main Feedwater and Recirculation pipings from the results of analyses performed using 0.12g R. G. 1.60 Spectrum input ground motion. So far, a total of twenty-five restraints have been installed to High Pressure Core Spray system. The design of additional restraints in preparation for upgrading is currently underway.

- . The structural model used for these analyses was not consistent with current staff criteria (2-D vs 3-D). However, the combination of stresses was by a more conservative absolute addition method. The use of a 2-D structural model with absolute summation of response is conservative and acceptable.

Since 1978, the following additional seismic issues have been addressed and resolved under the SEP seismic review. Furthermore, the licensee in response to NRC letters dated August 4, 1980 and April 24, 1981, has initiated a seismic reevaluation program that is scheduled for completion by January 1983.

- . Soil liquefaction is not problematic for 0.12g peak ground acceleration at LaCrosse site. (NRC Safety Evaluation dated February 25, 1981.)
- . In response to NRC "Anchorage and Support of Safety-Related Electrical Equipment" issues dated January 1, 1980 and July 28, 1980, a total of 43 items were inspected by the licensee and its consultants (DPC letter to NRC dated 5/30/80). All the items were satisfactorily anchored and supported or were upgraded (DPC letter to NRC dated 4/23/81).

In addition, the staff and their consultant verified during May 22, 1981 site visit that alternate sources of cooling water and power (including emergency gasoline motor driven pumps) have been provided to remove decay heat. The report of the staff's consultant regarding continued operation of the facility is attached (Enclosure 1).

CONCLUSION

Based on the acceptable results provided to date from the analyses of the plant structures, systems and components, the upgrading of high pressure core spray system, the proper anchorage and support of safety related electrical components, the addition of redundant cooling water supplies, and the inherent capacity of the remaining plant structures and systems as well as the low seismic hazard associated with the LaCrosse site, the staff concludes that the continued operation of LaCrosse Boiling Water Reactor during the seismic reevaluation of the facility and the implementation of any modification shown to be necessary as a result of seismic reanalysis is justified under the following conditions:

- (1) results of seismic analysis are submitted for NRC review on the schedule specified in the licensee's June 12, 1981 letter; and
- (2) any modifications shown to be necessary as a result of the seismic analysis which are not implemented by January 1, 1983 are justified on a case by case basis with a schedule for implementation.