DAIRYLAND POWER COOPERATIVE

La Crosse, Wisconsin

54601

January 14, 1980

In reply, please refer to LAC-6733

DOCKET NO. 50-409

Director of Nuclear Reactor Regulation
ATTN: Mr. Dennis L. Ziemann, Chief
Operating Reactors Branch No. 2
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: DAIRYLAND POWER COOPERATIVE
LA CROSSE BOILING WATER REACTOR (LACBWR)
PROVISIONAL OPERATING LICENSE NO. DPR-45
LIQUEFACTION POTENTIAL AND SEISMIC ANALYSIS OF SYSTEMS AND STRUCTURES AT LACBWR -
(SEP TOPICS II-4 AND III-6)

Reference: (1) DPC Letter, Linder to Director of NRR, LAC-6664, dated November 29, 1979.

Gentlemen:

Our letter (Reference 1) proposed measures to mitigate the NRC-postulated potential for liquefaction in the event that the LACBWR plant site experiences soil liquefaction in the top forty (40) feet due to a Safe Shutdown Earthquake (SSE) resulting in a ground surface acceleration of 0.12g.

Since our submittal of Reference 1 and subsequent to the meetings with the Nuclear Regulatory Commission (NRC) staff last year, our consultants, Dames & Moore, have obtained independent review of the report titled "Liquefaction Potential at La Crosse Boiling Water Reactor (LACBWR) Site, near Genoa, Vernon County, Wisconsin", dated September 28, 1979.

The reviews were done by Professor H. Bolton Seed and Dr. Sukhmander Singh. Professor Seed, a professor in the Civil Engineering Department at the University of California in Berkely, is an internationally renowned expert on liquefaction. His work was used in the Dames & Moore report as well as in the analyses done by the NRC. Dr. Singh is a specialist on soil properties pertaining to liquefaction. His Ph.D thesis pertains to soil properties and liquefaction and was done under the supervision of Professor Seed.

Professor Seed concluded that, for the design earthquake at the La Crosse site, (maximum horizontal ground acceleration of 12 percent gravity at the ground surface due to the occurrence of a local MM Intensity VI earthquake) his analyses indicate a safe condition against liquefaction at the La Crosse site. His conclusion was based on three separate approaches, namely empirical approaches based on past performances, the Japanese empirical approach and the analysis-testing approach.

Another significant conclusion pertains to the apparent uncertainty on the effects of possible sample disturbance on the results of cyclic load tests. Both Professor Seed and Dr. Singh concluded that, for the La Crosse site, it may be estimated that the effects of sampling disturbance has minor influence on the results of these tests due to counteracting influences.

Professor Seed and Dr. Singh will be willing to meet with NRC staff at an appropriate time and place in the near future to present their findings in more detail.

Dames & Moore has indicated at previous meetings with the NRC that they believe that the La Crosse site is safe against liquefaction for the earthquake design parameters that were assumed. Their findings have been substantiated by those of Professor Seed and Dr. Singh. We strongly recommend that this new development be given serious consideration by you and your staff prior to any decision by the NRC to issue an order to show cause which requires substantial mitigative measures for an alleged potentially hazardous condition at the site.

Further information regarding the above conclusions and proposed schedules for a meeting will follow on January 15, 1980.

Very truly yours,

DAIRYLAND POWER COOPERATIVE

Frank Linder /af

Frank Linder, General Manager

FL:RES:af

cc: J. Keppler, Reg. Dir., NRC-DRO III

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