

August 2, 2007

Mr. David A. Christian  
Senior Vice President and  
Chief Nuclear Officer  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

SUBJECT: KEWAUNEE POWER STATION - REQUEST FOR ADDITIONAL  
INFORMATION RELATED TO INTERNAL FLOODING DESIGN-BASIS  
(TAC NO. MD0511)

Dear Mr. Christian:

By letter to the Nuclear Regulatory Commission (NRC) dated March 17, 2006, Dominion Energy Kewaunee, Inc. (DEK), submitted a request to modify the Kewaunee Power Station Updated Final Safety Analysis Report to add new design criteria associated with internal flooding analyses (License Amendment Request No. 215). By letter dated April 17, 2007, DEK provided a response to an NRC request for additional information (RAI) dated November 17, 2006.

The NRC staff is reviewing your submittals and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. The NRC staff has discussed the enclosed RAI with Mr. Dave Sommers and other members of your staff. Subsequently, your staff indicated that a response to this RAI would be submitted within 45 days of receipt of this letter.

If circumstances result in the need to revise the requested response date, please contact me at (301) 415-4041.

Sincerely,

*/RA/*

Patrick D. Milano, Senior Project Manager  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-305

Enclosure:  
Request for Additional Information

cc w/encl: See next page

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Kewaunee Power Station

cc:

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REQUEST FOR ADDITIONAL INFORMATION

KEWAUNEE POWER STATION

DOCKET NO. 50-305

In reviewing the Dominion Energy Kewaunee, Inc.'s submittals dated March 17, 2006, and April 17, 2007, related to internal flooding analyses for the Kewaunee Power Station, the Nuclear Regulatory Commission (NRC) staff has determined that the following information is needed in order to complete its review:

1. Since any non Category I (seismic) equipment may break during an safe shutdown earthquake (SSE), is this considered in the flooding analysis? Please explain the basis.
2. Why are Class II and III\* structures, systems and components (SSC), which are designed to withstand Uniform Building Code loads, not to be considered as a potential flooding source? Provide the percentage of Class II, III and III\* piping systems, whose failure could impact the function of safety-related equipment, that have been evaluated for design-basis earthquake (DBE) loads.
3. Item (d) in Section B.11.2 specifies operator actions. Please provide more specific criteria for defining operator actions. For example, please provide information regarding the criteria for evaluating operator actions as described in American National Standards Institute/American Nuclear Society 58.8, "Time Response Design Criteria for Safety Related Operator Actions."
4. The application states that specific evaluations for the Class II and III piping in safeguard alley and the auxiliary building, are capable of withstanding the effects of a DBE without failure. Discuss these evaluations. Does this mean that all pipe/tanks in these areas will remain intact after an SSE?
5. Please discuss the use of the Section III Code for evaluation for level D loading and American Society of Mechanical Engineers Section III, Appendix F. Provide the load combinations and stress allowable equations that were used to evaluate Class II, III and III\* piping systems for DBE loads.
6. Please explain why the Itemized Flood Guidelines sent to licensees in early 1970's are not included in the Flooding Design Criteria.
7. Please clarify whether your proposed internal flooding evaluation criteria will apply (1) only in the analysis of ruptures caused by seismic events, or (2) in the analysis of ruptures caused by any unspecified mechanism (e.g., seismic, random, corrosion, etc.).

ENCLOSURE

8. The NRC staff has identified the following two examples where postulated failures of seismically-qualified piping systems had been discussed with respect to flooding effects:
  - A. By letter dated November 7, 1972, Kewaunee responded to an oral NRC staff request to address random pipe breaks in systems containing high-energy fluids. Sections I through III of the enclosure to that letter provided analyses of postulated breaks in the main steam and main feedwater piping within the auxiliary building, and Section IV of that enclosure described analyses of miscellaneous piping systems. The analyses of miscellaneous piping systems included evaluations of potential flooding effects from failures of the service water, component cooling, demineralized water, reactor makeup water system, waste disposal and spent fuel pool cooling. For these evaluations, the licensee determined that either the system has too low a volume to endanger engineered safety features or the rate of rise of water level was low enough to allow operator action before affecting safeguards equipment.
  - B. In a letter to Wisconsin Public Service Corporation from the Atomic Energy Commission (AEC) staff dated September 23, 1971, the AEC staff asked a question (Kewaunee Final Safety Analysis Report (FSAR) Question 8.16) regarding the potential failure of service water piping in proximity to the emergency diesel generator rooms. This question requested that Kewaunee provide an analysis of the effect of a rupture of one of the service water lines on the emergency power systems. The response to FSAR Question 8.16 was included with Amendment No. 13 to the Application for Construction Permit and Operating License for the Kewaunee Power Station, issued December 15, 1971. The response stated that the rupture of a service water pipe in an emergency diesel generator room could result in loss of the generator or safeguards electrical bus in that room. In addition, the response stated that operation of service water valves from the control room would isolate the break and, if required, operators would realign service water supplies through intact piping.

The proposed changes to the internal flooding evaluation criteria appear to focus on postulated failures of non-seismic piping and tanks. Please discuss how the above licensing basis information has been incorporated into the proposed evaluation criteria for internal flooding.