

November 2, 2005

Mr. David A. Lochbaum
Union of Concerned Scientists
1707 H Street, NW, Suite 600
Washington, DC 20006-3919

Dear Mr. Lochbaum:

I am responding to your letter dated July 29, 2005, addressed to Richard Ennis, regarding the impacts of various issues on the Vermont Yankee Nuclear Power Station (VYNPS) minimum critical power ratio (MCPR) limit. In the letter, you expressed concern about cumulative effects of fuel channel bow and uncertainties associated with General Electric (GE) methods for performing neutronic and thermal/hydraulic analysis. To address fuel channel bow, you stated that the licensee should either apply the 0.02 operating limit maximum critical power ratio (OLMCPR) penalty discussed in General Electric Nuclear Energy's (GENE's) March 3, 2003, letter or implement the recommended surveillance program. To address the GE methods uncertainties, you stated that the licensee should apply a 0.02 MCPR penalty, proposed in the June 30, 2005, public meeting with the Nuclear Regulatory Commission (NRC), GE, and Entergy Nuclear Operations, Inc. (Entergy), in addition to any other penalties.

On March 3, 2003, GENE issued notification pursuant to Title 10 of the *Code of Federal Regulations*, Part 21, concerning a reportable condition related to fuel channel bowing which could lead to control rod-fuel channel interference in GENE boiling water reactors (BWRs). In the March 3, 2003, letter GENE recommended an interim penalty of 0.02 to the OLMCPR for BWR/6 plants affected by the fuel channel bow phenomenon in order to maintain operation within acceptable limits. VYNPS is a BWR/4, D-lattice plant and, as such, was not subject to the recommendations in this letter.

By letter dated July 14, 2005, GENE revised the recommended surveillance program for fuel channel-control blade interference. The revised program included a surveillance plan for BWR/6, S-lattice plants, and another surveillance plan for BWR/2 through 5, C and D-lattice plants. VYNPS was one of the plants that GENE recommended for implementation of the revised surveillance program. GENE did not recommend additional OLMCPR penalties for D-lattice plants.

During a September 14, 2005, telephone conversation between the NRC staff, Entergy, and GENE, Entergy indicated that they plan to implement the recommended surveillance program for monitoring fuel channel-control blade interference after GENE completes its assessment of the susceptible fuel cells. Entergy also indicated that, in the fuel reload analyses, there is an "R-factor" uncertainty which accounts for some variance of fuel power distribution, fuel assembly geometry, and fuel channel bow. The staff agrees that implementing the recommended surveillance program is the appropriate action for the licensee to take in response to the GE part 21 notification.

The 0.02 MCPR penalty you referenced from the June 30, 2005, public meeting, was proposed to address NRC staff concerns specifically related to the level of uncertainties in the methods used by GENE to perform reactor neutronic and thermal/hydraulic analyses for VYNPS at

extended power uprate (EPU) conditions. This additional conservatism would only be implemented as a license condition if the NRC staff approves the EPU amendment request.

In summary, the licensee has indicated that they plan to implement the recommended surveillance program and would implement a 0.02 MCPR penalty if the EPU was approved, and the staff believes their actions adequately address your concerns. The NRC staff believes the 10 CFR Part 21 process to be appropriate for resolution of issues associated with fuel channel bow and that the uncertainties in GENE analytical methods would be addressed in the NRC staff's review of the EPU amendment request. I appreciate your input on this matter, and hope that this letter resolves your concerns.

Sincerely,

/RA/

J. E. Dyer, Director
Office of Nuclear Reactor Regulation

Docket No. 50-271

cc: See next page

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Sincerely,
/RA/

J. E. Dyer, Director
Office of Nuclear Reactor Regulation

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Vermont Yankee Nuclear Power Station

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