November 2, 1989

ENCLOSURE

Mr. D. M. Musolf, Manager
Nuclear Support Services
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

Dear Mr. Muslof:

SUBJECT: USE OF WCAP-11525 IN FUTURE LICENSE AMENDMENT REQUESTS BY WESTINGHOUSE OWNERS GROUP (TURBINE VALVE TEST FREQUENCY EVALUATION SUBGROUP MEMBERS)

By letter dated September 28, 1987, as supplemented by letters dated October 15, 1987, and June 24, 1987, Northern States Power Company (the licensee for Prairie Island Nuclear Station, Unit Nos. 1 and 2) requested amendments to the Technical Specifications that would revise the surveillance test frequency of the turbine valves associated with turbine overspeed protection. Surveillance testing of these valves is necessary to assure the performance of their safety function in protecting against the consequences of a turbine missile ejection accident. In its submittal, Northern States Power Company stated that its request was based, in part, on the report WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency."

It was further stated in the above-mentioned submittal that WCAP-11525 is applicable to 17 nuclear generating units in addition to Prairie Island Unit Nos. 1 and 2. (The report was prepared by Westinghouse Electric Corporation for the Westinghouse Owners Group (Turbine Valve Test Frequency Evaluation Subgroup)). The Prairie Island license amendment request was a lead submittal for the subgroup, and for this reason, it was requested that WCAP-11525 be reviewed with the amendment request and that a separate Safety Evaluation Report be issued for WCAP-11525. This procedure would allow for simplified review of future license amendment requests from other members of the subgroup.

By letter dated February 7, 1989, license amendments to the facility operating licenses for Prairie Island Nuclear Station, Unit Nos. 1 and 2, were issued consisting of changes to the Technical Specifications in response to your request. Our acceptance of the methodology described in WCAP-11525 was addressed as a supplement to the safety evaluation of the license amendment. The purpose of this letter is to provide the staff's generic conclusions regarding license amendment requests for changes in the surveillance intervals for turbine valve tests in Technical Specifications for the remaining members of the subgroup and the applicability of WCAP-11525 to support these requests. The staff's safety evaluation for the license amendment and the supplemental safety evaluation of WCAP-11525 are provided in Enclosure 1.

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As referred to in the safety evaluation of the Prairie Island license amendment, the NRC staff, in a letter to Westinghouse Electric Corporation, dated February 2, 1987, proposed generic turbine failure guidelines for total turbine missile generation probabilities to be used for determining (1) frequencies of turbine disc ultrasonic inspections, and (2) maintenance and testing schedules for turbine control and overspeed protection systems. In this letter, the NRC issued reliability criteria for maintaining the turbine in service as follows. In general, the minimum reliability requirement for loading the turbine and bringing the system on line is a total turbine missile generation probability of (1) less than $10^{-4}$ $yr^{-1}$ for a favorably oriented turbine, and (2) less than $10^{-5}$ $yr^{-1}$ for an unfavorably oriented turbine.

The safety evaluation of the Prairie Island license amendment stated that the staff requested that the licensee work with the turbine vendor to maintain a turbine valve failure database for the purpose of tracking changes in valve failure rate; that information on the valve failure rate be included in the plant Updated Safety Analysis Report (USAR); and that the failure rate information included in the USAR be updated at least once every 3 years. The licensee was also requested in accordance with 10 CFR 50.59 to review and reevaluate the turbine valve testing frequency probabilistic analysis (by WCAP-11525 methodology) any time that major changes in the turbine system are made or a significant upward trend in the valve failure rate is identified. This matter was discussed with and agreed to by Northern States Power Company.

Based on the above, the staff has identified in Enclosure 2 the information it will need to review license amendment requests from other members of the subgroup to evaluate proposed changes in turbine valve test surveillance frequencies.

The other licensees of the subgroup are encouraged to propose changes to Technical Specifications that are consistent with the model provided in Enclosure 3 and that are responsive to the requirements of Enclosure 2. Proposed license amendments conforming to this guidance will be expeditiously reviewed by the NRC project manager for the facility, but those that deviate from this guidance will require a longer, more detailed review. Licensees should contact the project manager if they have questions on this matter.

In accordance with the procedures established in NUREG-0390, "Topical Report Review Status," we request that the subgroup publish accepted revisions of WCAP-11525, both proprietary and non-proprietary, within 3 months of receipt of this letter. The accepted versions should (1) incorporate this letter and its enclosures, and (2) include an "-A" (designating accepted) following the report identification number.

Should our acceptance criteria or regulations change so that our conclusions as to the acceptability of the report are no longer valid, the subgroup and/or the applicants referencing WCAP-11525-A will be expected to revise and resubmit their respective documentation, or to provide justification for the continued applicability of WCAP-11525-A without revision of their documentation.

Sincerely,

Original signed by

Ashok C. Thadani, Assistant Director
for Systems
Division of Engineering and Systems Technology
Office of Nuclear Reactor Regulation

Enclosures:
As stated

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