



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 18, 1998

Docket  
file

50-906

Mr. Roger O. Anderson, Director  
Nuclear Energy Engineering  
Northern States Power Company  
414 Nicollet Mall  
Minneapolis, Minnesota 55401

SUBJECT: REVIEW OF STEAM GENERATOR WELD INDICATION EVALUATION FOR  
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2  
(TAC NO. M98760)

Dear Mr. Anderson:

In a letter dated May 6, 1997, Northern States Power Company (NSP) submitted, for NRC review, its evaluation of flaw indications in steam generator welds from ultrasonic testing (UT) conducted during the refueling outage in winter 1997, at the Prairie Island 2 Nuclear Power Plant. The document indicates that there are 17 indications and 5 of them exceed the allowable flaw sizes specified in IWB-3500 of Section XI of American Society of Mechanical Engineers (ASME) Code and require flaw evaluation using IWB-3610 of the ASME Code. All indications are in the tubesheet to channel head weld region for #22 steam generator. These examinations were done to satisfy the first period requirements of the third 10-year interval in compliance with the 1989 edition of Section XI of the ASME Code.

The NRC staff completed the review and found the submittals acceptable. The staff evaluation is summarized in this letter.

Having characterized the flaws through flaw sizing and determined that five indications exceeded the allowable flaw sizes specified in IWB-3500 of Section XI of the ASME Code, NSP used a handbook by Westinghouse, WCAP-14166, "Handbook on Flaw Evaluation for Prairie Island Units 1 and 2 Steam Generators and Pressurizer," to determine the acceptability of these five flaws. The handbook was enclosed as a supplement to a submittal dated December 30, 1994, regarding similar flaw evaluations on steam generator weld indications. This handbook provides methodology and evaluation curves for various welds in Prairie Island Units 1 and 2 steam generators based on the criteria of IWB-3611 and IWB-3612. Fatigue crack growth has also been considered. The portion of the handbook related to the indications in the tubesheet to channel head weld region in Prairie Island steam generators was reviewed in 1995 by the staff. The staff concluded in a safety evaluation dated September 6, 1995 (transmitted by letter from J. N. Hannon (NRC) to R. O. Anderson (NSP) dated September 6, 1995) for that submittal that the methodology and criteria used in generating flaw evaluation curves for the steam generators of both units of Prairie Island are in accordance with Section XI of the ASME Code.

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In the present review, the staff has assessed NSP's flaw sizing calculations and flaw evaluation using WCAP-14166 and determined that NSP sized the flaws adequately and applied the handbook curves in its flaw evaluation adequately. The results indicate that the detected flaw sizes are smaller than the critical flaw size. Hence, the reported flaws are acceptable without repair. However, according to IWB-2420, the areas containing flaws shall be reexamined during the next three inspection periods listed in the schedule of the inspection program of IWB-2400.

This completes cur work for TAC No. M98760.

Sincerely,

ORIGINAL SIGNED BY

Tae Kim, Senior Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

Docket Nos. 50-282 and 50-306

cc: See next page

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Mr. Roger O. Anderson, Director  
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