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SUBJECT: Provides response to NRC position that util remove addl tubes from plant SGs during spring 1995 refueling outage, per 941229 telcon.

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January 9, 1995

U.S. Nuclear Regulatory Commission  
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Ladies/Gentlemen:

Docket 50-305  
Operating License DPR-43  
Kewaunee Nuclear Power Plant  
Response to NRC Staff Position On Steam Generator Pulled Tube Data

- References:
- 1) NRC Draft Generic Letter 94-XX: "Voltage-Based Repair Criteria For The Repair of Westinghouse Steam Generator Tubes Affected By Outside Diameter Stress Corrosion Cracking," Noticed in the Federal Register on August 12, 1994.
  - 2) Letter from Alex Marion (NEI) to U.S. Nuclear Regulatory Commission dated September 14, 1994 submitting industry comments on the NRC Generic Letter 94-XX.
  - 3) Letter from C.R. Steinhardt (WPSC) to Document Control Desk (NRC) dated November 8, 1994 submitting proposed Technical Specification change for a Voltage-Based Repair Criteria.
  - 4) "Steam Generator Degradation Specific Management Tube Pull Program", draft May 9, 1994.
  - 5) EPRI Draft Report TR-100407, Revision 1, "PWR Steam Generator Tube Repair Limits-Technical Support Document for Outside Diameter Stress Corrosion Cracking at Tube Support Plates".

The purpose of this letter is for Wisconsin Public Service Corporation (WPSC) to provide a formal response to the Nuclear Regulatory Commission (NRC) staff position that we remove additional tubes from the Kewaunee Nuclear Power Plant (KNPP) steam generators (SG) during the spring 1995 refueling outage. This position was discussed during a telephone conference call

on December 29, 1994. Our understanding is that the NRC staff feels it is necessary for WPSC to remove and analyze six SG tube support plate (TSP) intersections in order to receive approval of the TSP voltage-based repair criteria submitted in reference 3. As we understand it, the NRC position is based on 3 things: (1) the pulled tube recommendations provided in draft Generic Letter 94-XX, reference 1; (2) the staffs' concern that there may be changes in degradation morphology which only pulled tube examinations will detect and (3) that additional leakage and burst test data is required to supplement the industry data base for 7/8 inch diameter tubing. We concur that pulled tube data provides valuable information, however, based on our understanding of the issues, the current staff position appears to be neither technically nor economically justified.

We feel that instead of requiring implementation of the pulled tube recommendations set forth in the draft GL it would be more beneficial for the NRC to review and endorse the industry proposed tube pull program, reference 4. We and the industry believe that the staffs' concerns are acceptably addressed by the industry proposed program. This program requires pulling tube specimens to confirm degradation morphology and details a plan to continue to supplement the industry data base with meaningful information. Obtaining pulled tube data is very costly and results in increased personnel radiation exposure. Therefore, it is prudent to ensure that data is collected in a carefully planned manner and that it provides meaningful information.

In order to support a license amendment for the voltage-based repair criteria we removed five TSP intersections from the KNPP SGs in the spring of 1993. These specimens had a range of voltage indications with a maximum bobbin probe signal of 2 volts. These specimens were examined nondestructively, burst tested and examined destructively. The burst pressures of the corroded TSP regions were well above the safety limitations with a range of 9,537 to 9,756 psig. These burst pressure test results are in the upper 95% prediction interval of the APC burst pressure versus bobbin voltage correlation, reference 5. The destructive examination of the TSP regions revealed axially oriented, outside diameter intergranular stress corrosion cracking as the dominant form of corrosion. We feel confident that these test results adequately characterized the degradation morphology and confirmed the applicability of the burst pressure versus bobbin voltage correlation for the SG TSP intersections at KNPP.

In accordance with our commitment to the industry program we will be prepared to pull three additional TSP intersections during the 1996 refueling outage (the first refueling outage after the voltage-based repair criteria is applied) provided there are accessible indications greater than 2 volts. We feel that adequate burst and leakage test data exists for indications under 2 volts and continuing to pull and analyze indications in this range is not justified. It would be more beneficial to supplement the industry data base with higher voltage indications. We have performed a review of our TSP indications currently inservice and believe, based on our past history of very low growth rates, that we will not have accessible indications greater than 2 volts during the 1995 refueling outage. Therefore, in all likelihood there will not be the opportunity to collect meaningful data during this upcoming refueling.

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We are committed to the safe and economical operation of KNPP. We feel there is no safety-based technical reason compelling us to remove tubes during the 1995 refueling outage versus allowing us to implement the industry proposed program. Based on tube pull data from 1993 the morphology has been confirmed, the burst pressures are well above the safety limits and we perform extensive inspections of our SG tubing. Based on our experience, it is unlikely that significant changes in morphology which could result in failure of SG tubing and which would be undetected by our NDE methods would occur.

It is estimated that removing six intersections from the SGs during the 1995 refueling outage will result in a three day extension to the planned SG work scope, cost approximately \$600,000 for equipment mobilization and analysis, and increase the outage radiation dose by 2 man-rem. These figures do not reflect any contingency actions that may have to be pursued if the initial efforts to remove tube samples are not successful. Experience from an earlier tube pulling effort has taught us that difficulties do arise which cause significant time delays and increased radiation exposure. Given that there is no safety basis for pulling tubes we feel this impact on our outage is not economically justified. We are also concerned that the NRC staff is enforcing a draft GL which has received a number of comments from the industry that are still unresolved.

We appreciate the staffs' effort to discuss this issue with us in a timely manner. We will make every effort to continue discussion on this issue to resolve it as expeditiously as possible. If you have any questions or need additional information please contact me or a member of my staff.

Sincerely,



C.A. Schrock  
Manager - Nuclear Engineering

SLB/san

cc - US NRC Region III  
US NRC Senior Resident Inspector