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SUBJECT: Forwards Form NIS-1, "Owners Rept for ISI as Required by Provisions of ASME Code Rules," WCAP-14435 & proprietary rev 1 to WCAP-14359, "Structural Integrity Evaluation...." Rev 1 to WCAP-14359 withheld.

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August 11, 1995

10CFR50.55a

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Ladies and Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
1995 Inservice Inspection (ISI) Summary Report

As required by Federal Regulation 10 CFR 50.55a and Wisconsin Administrative Code, Chapter ILHR 42, various ISI examinations were performed during the 1995 Refueling Outage (April 1, 1995 through May 14, 1995; i.e. closing of G1), prior to Refueling Outage 1995 (March 1995) and following Refueling Outage 1995 (May 1995 and June 1995).

This refueling outage constituted the 4th Inspection Year of the 3rd Period of the 2nd Interval as well as the 1st Inspection Year of the 1st Period of the 3rd Interval. As permitted by ASME Boiler and Pressure Vessel Code Section XI 1980 Edition up to and including Winter 1981 Addenda, Section IWA-2400(c), "Each inspection interval may be decreased or extended (but not cumulatively) by as much as 1 year." Kewaunee Nuclear Power Plant implemented this Section and extended its 2nd Ten Year Interval to June 16, 1995.

The examination requirements of this year for the 2nd Ten Year Interval were as stated in the ASME Boiler and Pressure Vessel Code Section XI 1980 Edition up to and including Winter 1981 Addenda except that the visual examination method for component supports and hangers were as stated in the ASME Boiler and Pressure Vessel Code Section XI 1986 Edition. These requirements were implemented in accordance with the "Kewaunee Nuclear Power Plant ISI Plan and Schedule - Second Ten Year Interval 1984-1994," Plant Technical Specifications, and NDE Procedures.

The examination requirements of this year for the 3rd Ten Year Interval were as stated in the ASME Boiler and Pressure Vessel Code Section XI 1989 Edition. These requirements were implemented in accordance with the "Kewaunee Nuclear Power Plant 3rd Ten-Year Inservice Inspection (ISI) Program 1994-2004," Plant Technical Specifications and NDE Procedures.

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Various Class 1, Class 2 and Class 3 components and their supports were examined and included:

1.1 Reactor Vessel

1.2 Reactor Vessel Upper and Lower Internals

1.3 Pressurizer

1.4 Steam Generators

1.5 Reactor Coolant Pump Bolting

1.6 Class 1 and Class 2 Piping

1.7 Class 1 Valves

1.8 Class 2 Pressure Vessels

1.9 Class 3 Component and Piping Integral Attachments

1.10 Class 1, Class 2 and Class 3 Piping and Component Supports and Hangers

1.11 Class 1 System Leakage Pressure Test

1.12 Class 2 and Class 3 System Functional and Inservice Pressure Tests

1.13 Additional examinations to satisfy requirements of ASME Boiler and Pressure Vessel Code Section XI 1989 Edition Paragraph IWC-2430 and IWF-2430.

1.14 Eddy Current Testing of Steam Generators in accordance with Kewaunee Nuclear Power Plant Technical Specifications

In addition, the following examinations were performed in excess of ASME Boiler and Pressure Vessel Code Section XI 1980 Edition up to and including Winter 1981 Addenda and Section Xl 1989 Edition requirements and included:

2.1 Nuclear Regulatory Commission 10 CFR Part 50.55a(g)(6)(ii)(A) Augmented Examination of Reactor Vessel as listed in Federal Register Volume 57 No. 152 Rules and Regulations dated Thursday, August 6, 1992.

2.2 United States Nuclear Regulatory Commission Regulatory Guide 1.150. Revision 1, Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations.

2.3 Radiography of Steam Generator 1A and 1B Feedwater Nozzle to Pipe and Pipe to Pipe Weld for verification of integrity and detection of cracking.

2.4 Visual examination of Class 1, Class 2 and Class 3 Valve Bonnet Bolting for Erosion/Corrosion per Nuclear Regulatory Commission Generic Letter 88-05: Boric Acid Corrosion of Carbon Steel Reactor Coolant Boundary Components in PWR Plants.

2.5 Reactor Vessel incore thimbles were eddy current inspected in response to U.S. NRC Bulletin 88-09.

2.6 Portions of the service water system were radiographed for detection of pits, sand, and/or zebra mussel intrusion and corrosion.

2.7 Balance of plant piping subject to erosion/corrosion was examined by radiographic ultrasonic techniques.

The ASME Boiler and Pressure Vessel Code required examinations and examinations performed in excess of ASME Boiler and Pressure Vessel Code requirements resulted in the following indications being recorded on the basis of Inservice Inspection Procedure recording criteria which is generally more restrictive than ASME Boiler and Pressure Vessel Code, Section XI Acceptance Standards. Dispositioning of all indications was in accordance with the rules of ASME Boiler and Pressure Vessel Code Section Xl 1980 Edition up to and including Winter 1981 Addenda for 2nd Ten- Year Interval Examinations and ASME Boiler and Pressure Vessel Code Section XI 1989 Edition for 3rd Ten-Year Interval Examinations.

3.1 Sixty One (61) Recordable Indications were noted during performance of Remote Automated Ultrasonic Examinations of the Reactor Vessel Shell Welds and Nozzle to Vessel Welds. These indications were acceptable, depending on interval credited to, per ASME Boiler and Pressure Vessel Code Section XI 1980 Edition up to and including Winter 1981 Addenda Acceptance Standards or ASME Boiler and Pressure Vessel Code Section XI 1989 Edition Acceptance Standards. Evaluations were reviewed and accepted by Wisconsin Public Service Corporation Inservice Inspection, Westinghouse Nuclear Service Division Level III and the Authorized Nuclear Inservice Inspector.

3.2 One (1) Recordable Indication was noted during performance of Manual Ultrasonic Examination of Class 2 Main Steam Piping. This indication was acceptable to ASME Boiler and Pressure Vessel Code Section XI 1989 Edition Acceptance Standards. Evaluations were reviewed and accepted by Wisconsin Public Service Corporation Inservice Inspection, Lambert, MacGill & Thomas (LMT) Inc. Level III and the Authorized Nuclear Inservice Inspector.

3.3 Four (4) Separate Recordable Indications were noted during performance of Automated Ultrasonic Examination of Class 2 Feedwater Piping. These indications were acceptable to ASME Boiler and Pressure Vessel Code Section XI 1989 Edition Acceptance Standards. Evaluations were reviewed and accepted by Wisconsin Public Service Corporation - Inservice Inspection, Level III and the Authorized Nuclear Inservice Inspector.

3.4 Recordable Indications were noted during performance of manual and subsequent automated Ultrasonic Examinations of the Class 2 Feedwater Nozzle to Pipe Welds. A total of 113 separate Recordable Indications were plotted circumferentially around each Feedwater Nozzle to Pipe Weld located on Steam Generator 1A and Steam Generator 1B. Ninety (90) separate Recordable Indications were Unacceptable to ASME Boiler and Pressure Vessel Code Section XI 1989 Edition IWB-3000 and IWC-3000 Acceptance Standards. As permitted by ASME Boiler and Pressure Vessel Code Section XI 1989 Edition Section IWB-3142.4 Acceptance by Analytical Evaluation and IWB-3600 Analytical Evaluation of Flaws, these indications were acceptable for continued service as detailed in Westinghouse Electric Corporation WCAP-14359, "Structural Integrity Evaluation for the Feedwater Nozzle Safe-End Region of the Kewaunee Nuclear Power Plant." Approval of evaluation was acceptable also as referenced in U.S. Nuclear Regulatory Commission letter dated May 9, 1995 Safety Evaluation by the Office of Nuclear Reactor Regulation relating to Steam Generator Nozzle Weld Flaws Kewaunee Nuclear Power Plant Docket No. 50-305.

Enclosed pursuant to your request are 1) WCAP-14359, Revision 1, Proprietary, dated July, 1995, and 2) WCAP-14435,"Structural Integrity Evaluation for the Feedwater Nozzle Safe-End Region of the Kewaunee Nuclear Plant," Non-Proprietary, dated July, 1995. These documents reflect the additional information requested by the NRC staff. Also enclosed are a Westinghouse authorization letter, CAW-95-869, accompanying affidavit, Proprietary Information Notice, and Copyright Notice. These documents are included as Attachment 1.

As Item 1 contains information proprietary to Westinghouse Electric Corporation, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.790 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.790 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit should reference CAW-95-869 and should be addressed to N. J. Liparulo, Manager of the Nuclear Safety Regulatory & Licensing Activities, Westinghouse Electric Corporation, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Tentative reexamination plans include both radiography and automated ultrasonic examination of the Steam Generator 1A and 1B feedwater nozzle to pipe welds in 1996 and prior to the 1996 refueling outage demonstration of detection and sizing techniques. Additionally, to meet commitments made to the Nuclear Regulatory Commission and requirements of the ASME Boiler and Pressure Vessel Code Section XI 1989 Edition, Paragraph IWC-2420, "Successive Inspections," Steam Generator 1A and 1B Feedwater Nozzle to Pipe Welds will be ultrasonically examined during the 1998 refueling outage.

Twenty-three (23) separate Recordable Indications were acceptable to ASME Boiler and Pressure Vessel Code Section XI 1989, Edition IWB-3000 and IWC-3000 Acceptance Standards. Evaluations were reviewed and accepted by Wisconsin Public Service Corporation Inservice Inspection, Lambert, MacGill and Thomas (LMT) Inc. Level III and the Authorized Nuclear Inservice Inspector.

3.5 Six (6) Recordable Indications were noted during Surface (Liquid Penetrant) Examinations of Class 1 and Class 2 Piping. Two indications recorded on the Class 1 2" RTD Piping were similar to those detected during the 1990 Refueling Outage. These indications were accepted due to not being service induced and were classified as non-relevant imperfections caused by extrusion. Four indications were acceptable to ASME Boiler and Pressure Vessel Code Section XI 1989 Edition Acceptance Standards. Evaluations were reviewed and accepted by Wisconsin Public Service Corporation Inservice Inspection, Level III, Lambert, MacGill and Thomas Inc. Level III and Authorized Nuclear Inservice Inspector.

3.6 Twenty-four (24) recordable indications were noted by Visual Examinations on one Class 1 valve and twenty-three (23) Class 1, Class 2, and Class 3 component and piping supports and hangers. Visual indications recorded on Class 1 Valve SI-13B were evaluated and dispositioned by replacing with 12 new studs and nuts. Four (4) visual indications noted on supports and hangers were acceptable to ASME Boiler and Pressure Vessel Code Section XI 1989 Acceptance Standards or Kewaunee Nuclear Power Plant Engineering Evaluations. Nineteen (19) visual indications noted on supports and hangers were repaired, reexamined, and accepted. Evaluations were reviewed and accepted by Wisconsin Public Service Corporation Inservice Inspection, Level III and Engineering Personnel and the Authorized Nuclear Inservice Inspector.

3.7 Sixteen (16) Recordable Indications were noted by visual examinations during Class 1 System Leakage Pressure Test and Class 2 and Class 3 System Functional and Inservice Pressure Tests. These indications were 1) Evaluated and accepted or 2) Repaired, reexamined and accepted by Wisconsin Public Service Corporation Maintenance, Quality Control, Operations, Health Physics and Inservice Inspection groups. Evaluations were reviewed and accepted by the Authorized Nuclear Inservice Inspector.

3.8 The 1995 Refueling Outage Steam Generator Tube Eddy Current Inspection resulted in the plugging of four hundred seventy-nine (479) tubes in Steam Generator A and two hundred sixty-nine (269) tubes in Steam Generator B. Installation of these plugs and recovery of previously plugged tubes resulted in a total of seven hundred seventy-one

(771) plugged tubes in Steam Generator A and five hundred eighteen (518) plugged tubes in Steam Generator B. There were no sleeves installed during this Refueling Outage. To date, a total of 2188 sleeves have been installed in Steam Generator A with 1702 sleeves remaining in service. A total of 2123 sleeves have been installed in Steam Generator B, with 1870 sleeves remaining in service. Based on the number of installed plugs and sleeves, the resulting equivalent plugging percentage is 24.94% in Steam Generator A and 17.69% in Steam Generator B. The plugs and sleeves were installed as a result of degradation believed to have been caused by intergranular attack and outside diameter stress corrosion cracking. In addition, preliminary examination results of steam generator sleeved tubes removed during the 1995 outage show indications of primary water stress corrosion cracking.

One leaking ABB Combustion Engineering welded plug was identified during a tubesheet visual scan prior to the Eddy Current examination. The plug was removed and a new welded tube plug was installed. Per the requirements of the Wisconsin Administrative Code, Chapter ILHR 42, the welded repair was inspected and accepted by the Authorized Nuclear Inservice Inspector.

A total of 29 Westinghouse mechanical plugs believed to be susceptible to service induced primary side cracking were removed during the 1995 Refueling/Maintenance Outage. These plugs were replaced with alloy 690 mechanical and welded tube plugs. Per the requirements of the Wisconsin Administrative Code, Chapter ILHR 42, the welded repairs were inspected and accepted by the Authorized Nuclear Inservice Inspector.

The following is a summary, as required by ASME Boiler and Pressure Vessel Code Section XI, 1989 Edition of Repairs and Replacements performed following the 1994 Refueling Outage and during the 1995 Refueling Outage by grinding, buffing, filing, cutting, or welding on Class 1 and Class 2 Pressure Boundary and are in addition to those previously submitted per requirements of Form SB-190, State of Wisconsin Welded Repair Program and in addition to attached Form NIS-2 Owner's Report for Repairs or Replacements.

Component	Class	Reference	Repair/Replacement Method
Steam Generator 1A	1	XK-100-10	Install Weld and Mechanical Plugs
Steam Generator 1B	1	XK-100-10	Install Weld and Mechanical Plugs
2" Pipe Support at Point 9155	2	XK-100-18	Welding on new installed Shim Plate
6" Valve SI-13B	1	XK-100-28	Seal Weld Body to Bonnet
2" Piping Upstream and Downstream of Valve SI-10A	2	XK-100-28	Cutting and Welding of Piping
2" Piping Upstream and Downstream of Valve SI-10B	2	XK-100-28	Cutting and Welding of Piping
2" Piping Upstream and Downstream of Valve SI-14A	2	XK-100-28	Cutting and Welding of Piping

Component	Class	Reference	Repair/Replacement Method
2" Piping Upstream and Downstream of Valve S1-14B	2	XK-100-28	Cutting and Welding of Piping
2" Pipe Hanger RSI-H79	2	XK-100-28	Cutting and Welding on Hanger
2" Miniflow Orifice	2	XK-100-29	Cutting and Welding of Piping
3/4" Valve CVC-33	2	XK-100-35	Cutting and Welding of Valve
2" Valve CVC-5A	2	XK-100-36	Cutting and Welding of Replacement Valve
2" Valve CVC-5C	2	XK-100-36	Cutting and Welding of Replacement Valve
3/4" Valve RC-411	1	XK-100-44	Cutting and Welding of Replacement Valve
6" Valve SD-3A	2	M-203	Welding on Seat Ring Seating Surface
3/4" Valve BT40A	2	M-203	Cutting and Welding of Replacement Valve
3/4" Valve BT40B	2	M-203	Cutting and Welding of Replacement Valve
3/4" Valve AFW-23010-2A	2	M-205	Cutting and Welding of Replacement Valve
3/4" Valve AFW-23012-1B	2	M-205	Cutting and Welding of Replacement Valve

Please find attached a copy of the following documentation which summarizes the results of the Kewaunee Nuclear Power Plant 1995 Refueling Outage Inservice Inspection:

- Form NIS-1 Owner's Report for Inservice Inspections for 4th Outage of the 3rd Period of the 2nd Interval (Attachment 2)
- Form NIS-1 Owner's Report for Inservice Inspection for 1st Outage of the 1st Period of the 3rd Interval for Reactor Vessel Examinations (Attachment 3)
- Form NIS-1 Owner's Report for Inservice Inspection for 1st Outage of the 1st Period of the 3rd Interval for Balance of Plant Examinations (Attachment 4)
- Form NIS-2 Owner's Report for Repairs or Replacements (81 Total) for 1st Outage of the 1st Period of the 3rd Interval (Attachment 5)
- Summary Report for 4th Outage, 3rd Period, 2nd Interval (Attachment 6)
- Summary Report for 1st Outage, 1st Period, 3rd Interval Reactor Vessel Examinations and Balance of Plant Examinations (Attachment 7)

- Summary Report of Eddy Current of Steam Generator Tubes for 1st Outage, 1st Period, 3rd Interval (Attachment 8)

- Summary of Incore Thimble Eddy Current results (Attachment 9)

The complete report of these examinations is on file in the QA/QC Records Vault at the Kewaunee Nuclear Power Plant. These records are available for review as deemed necessary. If you would desire a copy of these reports, please contact the Plant Manager at (414) 388-2560, extension 2222, and a copy will be forwarded to you upon request.

Additional Comments

The next Refueling Outage at the Kewaunee Nuclear Power Plant is tentatively scheduled for September 21, 1996, through November 3, 1996.

Sincerely,

M. L. Marchi
Manager - Nuclear Business Group

PEB/hck

Attach.

cc: U.S. NRC - Region III (w/o attach)
U.S. NRC - Senior Resident Inspector (w/o attach)

ATTACHMENT 1

Letter from M. L. Marchi (WPSC)

To

Document Control Desk (NRC)

Dated

August 11, 1995