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SUBJECT: Forwards documentation identifying ISI exams completed during annual refueling outage for 1988.

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WISCONSIN PUBLIC SERVICE CORPORATION

600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

July 12, 1988

10 CFR 50.55a

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

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
ISI Examinations Completed During the Annual
Kewaunee Refueling Outage of Year 1988

As required by Code and Regulation, various ISI examinations were performed during the past refueling outage (March 3, 1988 to April 14, 1988). This refueling outage constituted the first inspection year of the 2nd period of the 2nd interval. The examination requirements for this inspection year are listed in the 1980 Edition Through Winter 1981 Addenda of Section XI. These requirements were implemented in accordance with the "Kewaunee Nuclear Power Plant ISI Plan and Schedule - Second Ten Year Interval (1984-1994)" and Westinghouse Electric Corporation NDE procedures.

This past year, the reactor vessel internals, conoseal bolting, and closure head studs were nondestructively examined. Balance of plant components, main flange bolts from 1A Reactor Coolant Pump, and various welds on the pressurizer and 1A Steam Generator were also inspected. Other ASME Code Class I components were visually inspected during the reactor coolant system pressure test. Although not required by Section XI, eight (8) large bore snubbers (900 Kip) on 1A and 1B Steam Generators were functionally tested by Bergen-Paterson. Also, small bore snubber testing and eddy current testing of steam generator tubes were performed; these inspections were implemented in accordance with in-house surveillance procedures and the plant technical specifications.

During the refueling outage, no welded repairs were performed to correct conditions noted during the inservice inspection. However, welded repairs and alterations were performed over the last year (and during the refueling outage) due to design change work and replacements of components which had reached end

A047
1/1

of life, etc. In accordance with the requirements of the Wisconsin Administrative Code, Chapter ILHR 42, these welded repairs and alterations are approved/inspected by an authorized inspector and a record (Form SB-190) of each has been furnished to the State of Wisconsin.

In keeping with the reporting requirements of IWA-6230 of Section XI, the following summary documentation is attached:

- NIS-1 Form for 1st Outage, 2nd Period, 2nd Interval,
- NDE Summary Report of 1st Outage, 2nd Period, 2nd Interval,
- Owner's letter of Disposition for Items Reported During 1st Outage, 2nd Period, 2nd Interval,
- Summary of Steam Generator Tube Sleeving, Post Sleeving, Baseline Eddy Current Inspection, and Mechanical Plugging,
- Summary of Steam Generator 900 Kip Snubber Testing,
- Welded Repair Records (Form SB-190) .

The complete reports of these inspections are on file in the QA/QC Records Vault at the Kewaunee Nuclear Power Plant.

Sincerely,

C. R. Steinhardt
Manager - Nuclear Power

CSS/jms

Attach.

cc - Mr. Robert Nelson, US NRC
US NRC, Region III

FORM NIS-1, OWNER'S DATA REPORT
FOR INSERVICE INSPECTIONS
AS REQUIRED BY THE PROVISIONS OF THE ASME CODE RULES

1. OWNER - WISCONSIN PUBLIC SERVICE CORPORATION, P.O. BOX 19002, GREEN BAY, WISCONSIN 54307

2. PLANT - KEWAUNEE, ROUTE 1, P.O. BOX 48, KEWAUNEE, WISCONSIN 54216

3. PLANT UNIT - No. 1

4. OWNER CERTIFICATE OF AUTHORIZATION - N/A

5. COMMERCIAL SERVICE DATE - JUNE 16, 1974

6. NATIONAL BOARD NUMBER FOR UNIT - N/A

7. COMPONENTS INSPECTED -

COMPONENT OR APPURTENANCE	MANUFACTURER OR INSTALLER	MANUFACTURER OR INSTALLER SERIAL NO.	STATE OR PROVINCE NO.	NATIONAL BOARD NO.
Reactor Vessel	Combustion Engineering	69202	U11480	21010
Pressurizer	Westinghouse	1151	U11402	68-23
Steam Generator A	Westinghouse	1141	U11400	6928
Steam Generator B	Westinghouse	1142	U11401	6929
Excess Letdown Heat Exchanger 1A	Sentry	3996-5E	U11407	364
Excess Letdown Heat Exchanger 1B	Sentry	3996-6E	U11408	365
Class 1 Piping	Phillips Getschow	--	--	--
Reactor Coolant Pump 1A	Westinghouse	RCPCP1-01	--	--
Reactor Coolant Pump 1B	Westinghouse	RCPCP1-02	--	--

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4. OWNER CERTIFICATE OF AUTHORIZATION - N/A

5. COMMERCIAL SERVICE DATE - JUNE 16, 1974

6. NATIONAL BOARD NUMBER FOR UNIT - N/A

7. COMPONENTS INSPECTED -

COMPONENT OR APPURTENANCE	MANUFACTURER OR INSTALLER	MANUFACTURER OR INSTALLER SERIAL NO.	STATE OR PROVINCE NO.	NATIONAL BOARD NO.
Residual Heat Exchanger 1A	Joseph Oat & Sons	1817-1E	U11406 --	344
Residual Heat Exchanger 1B	Joseph Oat & Sons	1817-1F	U11424 --	345
Letdown Heat Exchanger	Atlas	1206	U11405 --	1031
Charging Pump Surge Vessel 1A	Greer Products	6576	--	--
Seal Water Heat Exchanger	Atlas	734	U11404	596
Volume Control Tank	Joseph Oat & Sons	1787-1C	U11425	376
Regenerative Heat Exchanger	Joseph Oat & Sons	1831-13	--	413

FORM NIS-1, OWNER'S DATA REPORT
FOR INSERVICE INSPECTIONS
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5. COMMERCIAL SERVICE DATE - JUNE 16, 1974

6. NATIONAL BOARD NUMBER FOR UNIT - N/A

7. COMPONENTS INSPECTED -

COMPONENT OR APPURTENANCE	MANUFACTURER OR INSTALLER	MANUFACTURER OR INSTALLER SERIAL NO.	STATE OR PROVINCE NO.	NATIONAL BOARD NO.
Seal Water Injection Filter 1A	Commercial Filter	101072	--	1172
Seal Water Injection Filter 1B	Commercial Filter	--	--	1173
Class 2 Piping	Phillips Getschow	--	--	--
Diesel Generator Cooling Water Heat Exchanger 1A	Young Radiator Co.	231093 231094	-- --	-- --
Diesel Generator Cooling Water Heat Exchanger 1B	Young Radiator Co.	231095 231096	-- --	-- --

FORM NIS-1, OWNER'S DATA REPORT
FOR INSERVICE INSPECTIONS
AS REQUIRED BY THE PROVISIONS OF THE ASME CODE RULES

1. OWNER - WISCONSIN PUBLIC SERVICE CORPORATION, P.O. BOX 19002, GREEN BAY, WISCONSIN 54307

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3. PLANT UNIT - No. 1

4. OWNER CERTIFICATE OF AUTHORIZATION - N/A

5. COMMERCIAL SERVICE DATE - JUNE 16, 1974

6. NATIONAL BOARD NUMBER FOR UNIT - N/A

7. COMPONENTS INSPECTED -

COMPONENT OR APPURTENANCE	MANUFACTURER OR INSTALLER	MANUFACTURER OR INSTALLER SERIAL NO.	STATE OR PROVINCE NO.	NATIONAL BOARD NO.
Auxiliary Feed Pump Turbine Driven	Pacific Pump	46575	--	--
Component Cooling Heat Exchanger 1A	Engineering Fabrication	15748-A	U11426	1139
Component Cooling Surge Tank	Sharpsville Steel Fab.	WPSACATCC-1	U11421	714
Class 3 Piping	Phillips Getschow	--	--	--
Service Water Pump 1A1	Worthington Pump	VTP27736	--	--
Containment Spray Pump 1A	Ingersoll Rand	067074	--	--
Spent Fuel Pool Heat Exchanger	Struther Wells	1-68-06-1519	U11445	13105
Residual Heat Removal Pump 1A	Byron Jackson Pump	APCAPRH-01	--	--

FORM NIS-1 (back)

8. Examination Datas 3-6-88 to 4-10-88

9. Inspection Interval from 6-16-84 to 6-16-94

10. Abstract of Examinations. Include a list of examinations and a statement concerning status of work required for current intarval. Reference Tab C

11. Abstract of Conditions Noted Reference Tab B and Tab F

12. Abstract of Corrective Measures Recommended and Taken Refernce Tab B and Tab F

We certify that the statements made in this report are correct and the examinations and corrective measures taken conform to the rules of the ASME Code, Section XI.

Date July 8 19 88 Signed Wisconsin Public Service By KHE vera
Owner

Certificate of Authorization No. (if applicable) N/A Expiration Date N/A

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or tha Stata or Province of Wisconsin and employed by Hartford Steam Boiler of Hartford CT. have inspected the components described in this Owners Data Report during the period 3-6-88 to 4-10-88, and state that to the best of my knowledge and belief, the Ownar has performed examinations and taken corrective measures described in this Owners Data Report in accordanca with the requirements of the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer mekes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owners Data Report. Furthermora, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date July 8 19 88

Roger Molzen
Inspectors Signature

Commissions NB7741 WIS #38
National Board, State, Province and No.

WISCONSIN PUBLIC SERVICE CORPORATION
KEWAUNEE NUCLEAR POWER PLANT UNIT NO. 1
1ST OUTAGE; 2ND PERIOD; 2ND INTERVAL
1988

INTRODUCTION

An Inservice Examination Program was performed at the Kewaunee Nuclear Power Plant Unit No. 1 from March 6, 1988 thru April 10, 1988 by Westinghouse Electric Corporation Nuclear Services Integration Division - Inspection Services and Wisconsin Public Service Corporation - Kewaunee Unit No. 1.

Examinations were performed to the requirements of ASME Boiler and Pressure Vessel Code Section XI - 1980 Edition up to and including Winter 1981 Addenda.

The Examination Program Plan located under Tab C was prepared by Kewaunee Nuclear Power Plant Unit No. 1 for the 1st Outage, 2nd Period, 2nd Interval as identified in the 2nd Ten-Year Plan (1984-1994).

The following items were examined (Reference Tab C):

1. Reactor Vessel
2. Pressurizer
3. Steam Generator A
4. Class 1 and Class 2 Piping
5. Reactor Coolant Pumps A and B
6. Class 1 Valves
7. Class 2 Components
8. Class 1, 2 and 3 Piping and Components Supports and Hangers
9. Class 1 System Leakage Test (Performed by Wisconsin Public Service Corporation - Kewaunee Unit No. 1 Nuclear Power Plant Personnel)

The examinations performed were in accordance with an approved Examination Program Plan located under Tab C of the Final Report. Examination procedures were approved prior to the start of examinations and certification documents relative to personnel, equipment and materials were reviewed and determined to be satisfactory.

Witnessing and surveillance of the examinations and related activities were conducted by personnel from: United States Nuclear Regulatory Commission, Hartford Steam Boiler Inspection and Insurance Company and Wisconsin Public Service Corporation Quality Assurance Department.

RESULTS

Examinations resulted in the following recordable indications being noted on the basis of procedure recording criteria, which generally are more critical than specified ASME Section XI Acceptance Standards.

1. Recordable Ultrasonic Indications were noted on the Upper Transition to Shell Weld 1-5 (SG-W2) on Drawing WPS-2-1100 (M1206) utilizing 45° and 60° Ultrasonic Examination Angles. All indications recorded were either

acceptable by ASME Boiler and Pressure Vessel Code Section XI - 1980 Edition thru Winter 1981 Addenda or by Fracture Analysis. Reference Tab F - Section F101 for complete evaluation of all Ultrasonic Indications for Steam Generator Weld 1-5 (SG-W2).

2. Six (6) Reactor Vessel Studs 18 (RV-S18), 20 (RV-S20), 21 (RV-S21), 23 (RV-S23), 27 (RV-S27) and 32 (RV-S32) on Drawing WPS-1-1400 (M1196) had nine (9) recordable surface indications of which seven (7) were noted visually in 1984. These indications were dispositioned and accepted by Kewaunee Unit No. 1 Nuclear Power Plant Personnel.

3. Nine (9) Recordable Indications on drawings WPS-1-4105 (M1146) - 4WS (RSI-H62), WPS-1-4202 (M1152) - 6 (SI-W58), WPS-1-4210 (M1156) - 36 (CVC-W62S), WPS-1-4215 (M1158) - 34 (CVC-W119S), WPS-2-1110 (M1207) - 1A-1WS (AHRSI-SW1), WPS-2-2101 (M1166)-11 (FW-W15), WPS-2-2200 (M1167) - 20BC (MS-W70BC), WPS-2-2531 (M1172) - 4WS (RHR-H34A) and WPS-2-2531 (M1172) - 51 (RHR-W241) were noted by surface examinations on Class 1 and Class 2 Piping and Welded Supports. These indications were dispositioned, accepted or repaired, reexamined and found to be acceptable.

4. Twenty-one (21) Recordable Indications on drawings WPS-1-1200 (M1199) - Flange to core barrel weld, WPS-1-1300 (M1197) - 35 (RV-CB2), WPS-1-4105 (M1146) - 7H (RSI-H104) and 8HS (RSI-H67), WPS-1-4111 (M1147) - 4R (CVC-H2010), WPS-1-4113 (M1150) - 2H (RCVC-H66) and 8H (RCVC-H60), WPS-1-4213 (M1157) - 3HS (RCVC-H32), WPS-1-4503 (M1159) - 8000A (PR-1A), 8000B (PR-1B) and 3SH (RC-H11), 2-1300 (M1212) 1A-2WS (AFSW-SW2), WPS-1-2542 (M1176) - 4CS (RHR-H16), WPS-3-1100 (M1224) - 1A Support, WPS-3-1140 (M1222) - Supports, WPS-3-3400 (M1177) - 3R (SW-H5), 5R (SW-H3) and 6R (SW-H1), WPS-3-3850 (M1180) - 10SH (SFP-H1) and WPS-3-3854 (M1191) - 1R (SFP-H2177) and 2R (SFP-H2178) were noted by visual examinations on Reactor Vessel Core Barrel, Reactor Vessel Closure Head and Class 1, Class 2 and Class 3 Valve Bolting or Piping and Component Supports and Hangers. These indications were dispositioned, accepted or repaired, reexamined and found to be acceptable.

5. Twenty-one (21) recordable indications were noted on valves during the performance of the Class 1 System Leakage Test performed by Kewaunee Unit No. 1 Nuclear Power Plant personnel. These indications were dispositioned and repaired, reexamined and found to be acceptable by Kewaunee Unit No. 1 Nuclear Power Plant personnel.

Specific data relative to the above indications and their dispositons are located under Tab F of Volume 2 of the Final Report.

OWNER'S LETTER OF DISPOSITION
WISCONSION PUBLIC SERVICE CORPORATION
KEWAUNEE NUCLEAR POWER PLANT
1st Outage, 2nd Period, 2nd Interval
1988
Outage Core XIII - XIV

During the 1988 refueling outage, Westinghouse Electric Corporation personnel performed nondestructive examinations of selected components at the Kewaunee Nuclear Power Plant. These examinations resulted in seventy-one (71) indications being reported on the basis of Westinghouse NDE procedure recording criteria which is more restrictive than Section XI acceptance criteria. All seventy-one (71) of these indications have been evaluated and dispositioned (accepted, repaired/replaced, or monitored). Of the seventy-one (71) indications only twenty-one (21) of them were evaluated by Wisconsin Public Service Corporation as marginally exceeding the acceptance criteria of Section XI.

Fourteen (14) of the twenty one (21) indications which exceeded the acceptance criteria of Section XI were found on the upper shell to cone weld on steam generator 1A. Westinghouse Electric Corporation performed a detailed evaluation of all fourteen (14) of the girth weld indications in accordance with the requirements of IWB-3600 and Appendix A of Section XI. All of these girth weld indications have been shown to be acceptable as documented in the March 28, 1988 letter from D C Hintz to USNRC titled, "Steam Generator Girth Weld Fracture Analysis".

The remaining seven (7) indications which exceeded the acceptance criteria of Section XI were found on balance of plant components. All seven (7) of these indications were corrected and subsequently re-examined and found to be acceptable.

A brief summary of these seven (7) indications are provided below:

Identification	Description of Component	Type of Indication	Resolution
1. RCVC-H66	Rod Hanger	visual-not tensioned	readjusted setting
2. SI-W58	butt weld	surface-linear indication in base metal	mechanically removed indication
3. RHR-H34A	lugs welded to pipe	surface-linear indication on lugs	mechanically removed indication
4. RHR-W241	butt weld	surface-curved linear indication in base metal	mechanically removed indication
5. FW-W15	butt weld	surface-linear indication in base metal	mechanically removed metal to reduce indication to acceptable size
6. MS-W70BC	fillet weld on reinforcing pad	surface-linear indication in fillet weld	mechanically removed indication
7. AHRSI-SWI	fillet weld on support to heat exchanger	surface-linear indication in fillet weld	mechanically removed indication

In closing, Wisconsin Public Service Corporation acknowledges that all seventy-one (71) indications listed in the Westinghouse NDE Summary Report have been dispositioned in accordance with the 1980 Edition through Winter 1981 Addenda of Section XI and that the Authorized Nuclear Inservice Inspector has verified this activity.

Sincerely,

Charles A. Tomes

Charles A Tomes
Plant Nuclear Engineer
Wisconsin Public Service Corporation
Kewaunee Nuclear Power Plant

K H Evers

Kenneth H Evers
Plant Manager
Wisconsin Public Service Corporation
Kewaunee Nuclear Power Plant

CUSTOMER: WISCONSIN PUBLIC SERVICE COMPANY
SITE: KEWAUNEE NUCLEAR POWER PLANT
PERIOD OF SERVICE: MARCH 5 TO APRIL 3, 1988
FIELD SERVICE REPORT: WPS-15

During the Spring 1988 maintenance and refueling outage, the Steam Generator Primary Services Department of the Westinghouse Energy Systems Service Division (ESSD) completed a program of steam generator tube sleeving, post sleeving baseline eddy current inspection, and mechanical plugging in the steam generators of Wisconsin Public Service Company's Kewaunee Nuclear Power Plant.

STEAM GENERATOR TUBE SLEEVING

Wisconsin Public Service Company contracted Westinghouse to perform a preventative steam generator sleeving program over a two outage period. The program required that two sleeve lengths, 30" and 36" be installed to maximize tubesheet coverage. The 36" sleeves were installed in the central tubesheet regions while the 30" sleeves were installed in the peripheral regions extending the sleeving boundary. Approximately half of the total number of preventative sleeves were to be installed in 1988 with the balance in 1989. Additionally, all 30" sleeves were to be installed in 1988 to allow for only one sleeve length in 1989. Tubes which were identified as having pluggable indications within the established sleeving parameters were added to the sleeving program as corrective candidates.

As per the final preventative and corrective programs a total of 1940 sleeves were installed with the following distribution:

Steam Generator A Hot Leg - 990
Steam Generator B Hot Leg - 950

The majority of the sleeving processes were performed remotely and automatically with the Remotely Operated Service Arm (ROSA) delivery system and the Automatic Logic Integrated Sleeving II (ALIS II) computerized tool control system. The systems were operated from the Westinghouse Multi-Purpose

Field Service Unit (MPFSU) which was staged outside of the Kewaunee Auxiliary Building. A limited number of processes were performed manually in situations where sleeving candidates were located outside of the automatic sleeving boundary but within the manual sleeving boundary.

Sleeving operations were completed according to manufacturing sequences that were prescribed for particular operations. All activities were monitored by Westinghouse Quality Services (QS) personnel for completion and to verify adherence to procedure. The role of the site QS group was extensive in all aspects of the sleeving program. QS duties included, but were not restricted to: receipt inspection and control of sleeves and mechanical plugs; distribution, control and approval of all controlled documents including manufacturing sequences and process control sheets; field procedures and field change notices; continuous monitoring of sleeving operations including the completion and maintenance of data records; issuance and control of nonconformance reports and concurrence upon their final disposition; maintenance of on-site personnel certifications; performance of visual and dimensional inspection; regular issuance of QS surveillance and housekeeping records; and generation of the final QS data package.

The final QS data package was presented to Wisconsin Public Service Company at the conclusion of site operations. Appendix I provides an index of items included in this data package. Although the QS data package is not duplicated as a part of this report, it is considered an integral part of the final report and is included in the microfiche copy of the report.

Appendix II contains the steam generator tube sleeving certificate of conformance.

A normal sleeve installation sequence of operations was followed in both steam generators. Candidate locations were wet honed prior to sleeve insertion, expansion, lower hard rolling, upper hard rolling, in-process eddy current inspection and post-operation baseline eddy current inspection. An anomalous, short tube to tubesheet roll was identified in a quantity of tubes in both Steam Generators A and B. As a result, a shorter than typical sleeve to tube lower hard roll was developed and tested in Westinghouse laboratories. The

test results were presented to the NRC in Washington, DC by Wisconsin Public Service and Westinghouse representatives with favorable results. With NRC concurrence short lower hard roll was performed on the applicable sleeves. A WCAP detailing the final test results will be presented to formally conclude the issue.

Appendix III contains the Kewaunee Sleeving Information Management System II (SIMS II) Sleeving Report 3. This report presents a detailed summary of sleeving operations.

Periodically, sleeve installation condition deviations were encountered during the sleeving processes. Sleeved tube locations that did not comply with the prerequisite acceptance criteria for properly executed tube sleeve installations were cataloged by QS personnel in a Nonconformance Report (NR) for further evaluation and resolution. These reports for subject tube locations, the applicable source document requirements not met, the recommendations for resolving the situation, and the actual corrective action taken are all listed on QS generated documents.

Resolution of a NR was at the initial direction of the on-site Westinghouse Technical Advisor, who would request assistance from Westinghouse Pittsburgh on an as-needed basis. Items that were enveloped in approved drawings, procedures, sleeving licensing report, and other available specifications were resolved on site. Those items that were outside of this envelope mandated written approval from the Westinghouse headquarters engineering staff. A total of 31 NRs were written for sleeving and plugging operations. All were dispositioned to the satisfaction of the cognizant Wisconsin Public Service Company representative, the Westinghouse Technical Advisor, the Westinghouse Site Sleeving Director, Westinghouse Quality Services, and Westinghouse headquarters in Pittsburgh.

Appendix IV contains the Kewaunee SIMS II Report 6 which provides a summary of all NRs generated.

EDDY CURRENT INSPECTION

The following eddy current inspections were performed on all installed sleeves during the 1988 Kewaunee Sleeving Program.

1. An in-process dimensional verification of upper and lower joints, radial dimensions and any abnormal dimensional characteristics (if present).

2. A final baseline inspection of both the tube and sleeve wall thicknesses to provide a reference point for future inspection.

The in-process dimensional verification data and final baseline inspection eddy current data was evaluated by Westinghouse Level IIA evaluators. Results of the inspection are summarized in Appendix V - Kewaunee SIMS II Report 9.

MECHANICAL PLUGGING

Mechanical plugs were installed in the hot and cold legs of both steam generators at Kewaunee. A total of 86 mechanical plugs were installed with the following distribution:

Steam Generator A Cold Leg - 17
Steam Generator A Hot leg - 17
Steam Generator B Cold Leg - 26
Steam Generator B Hot Leg - 26

Appendix VI contains SIMS-II Report 11. This report presents a detailed summary of plugging operations.

SUMMARY

A total of 1940 sleeves were installed in both steam generators with a manREM expenditure of 66.785 or 34.43 mR per sleeve. Steam Generator A was completed in 17 days, approximately 2.4 days ahead of the proposed schedule with an average production rate of 56.1 sleeves per day. Steam Generator B was

completed in 14.3 days, approximately 4.7 days ahead of the proposed schedule with an average production rate of 66.4 sleeves per day. Eighty-six mechanical plugs were installed in both steam generators with a total manREM expenditure of 4.661.

Prepared By _____

F. J. Klorczyk, Manager
Outage Management Programs
Kewaunee Sleeving Director

Approved By _____

R. M. Clark, Manager
Steam Generator Primary
Services

Approved By _____

C. A. Meyers, Manager
Operations, Q.A.

June 22, 1988

Green Bay

Steam Generator 900 Kip Snubber Test Results

C A Tomes

Each of the Kewaunee steam generators was originally designed with four (4) 900,000 lb. hydraulic snubbers located at the upper lateral support, acting in the direction of the horizontal section of the main steam line at the steam generator nozzel.

These snubbers were designed to limit deflection of the steam generators during postulated ruptures of the main steam, feedwater, or reactor coolant piping, or during the postulated design basis earthquake.

Due to NRC acceptance of new analysis techniques, many of the previously postulated loads on the snubbers were eliminated, allowing removal of three snubbers from each steam generator. WPSC applied to the NRC for approval of this design change on February 5, 1988. Approval was received on March 18, 1988, prior to restart from cycle 13-14 refueling outage.

Visual and functional testing was performed on all eight snubbers to verify that lockup velocity, bleedrate velocity and drag forces were within specifications. All eight passed the velocity and visual tests but failed their drag test. It was subsequently learned that there was a significant difference in the technique of measuring drag force between the original and current testing procedures. To resolve this inconsistency, WPSC contracted Westinghouse to provide acceptable drag force limits which could be correlated to present testing techniques. When compared to the revised acceptance criteria, all snubbers were considered acceptable with sufficient margin.

All eight snubbers were disassembled and the seals and O-rings removed for examination. All O-rings and seals were considered acceptable.

Four of the eight snubbers were then reassembled using replacement O-rings and seals and then filled with new hydraulic fluid. The control valve assembly was replaced with a new design to improve reliability and to increase the lockup velocity to that which was assumed in the current analysis. The remaining four snubbers were disposed of.

The four rebuilt snubbers were then functionally tested, and one was installed on each steam generator and the other two were placed in storage.

WPSC representatives have reviewed and accepted the test results prior to unit startup.

DW Sauer

DWSauer

sam

State of Wisconsin
Department of Industry,
Labor and Human Relations

WELDED REPAIR RECORD

Safety & Buildings Divisic
P.O. Box 7969
Madison, Wiscosnin 53707
Telephone: (608) 266-1904

Repair completed on:

☐ Power Boiler ☐ Heating Boiler

☐ Pressure Vessel ☐ Miniature Boiler

Manufacturer: _____

Wisconsin Reg. No: _____

National Board No: _____

Serial No: . . . . _____

Other No: . . . . Piping System

WORK COMPLETED BY:	IN THE PLANT OF:
Name: Phillips, Getschow Co.	Owner's Name: Wisconsin Public Service Corp.
Street Address 431 N. Dearborn St	Location of Repair: Kewaunee Nuclear Power Plant
City/Town/Village: Zip Code: Chicago, IL 60610	Route 1, Box 48
Repair Program No:	Kewaunee, WI 54216

Description of Repair - attach additional page if needed:
(use reverse side of this page for sketch)

Replaced 3/4" check valve RHR-44 per Work Request 37183. Valve is in an ASME Section XI, Class 2 System as shown on Flow Drawing XK100-18 and Physical Drawing M-361.

Hydrostatic Test PSI 470 (Inservice-4/9/88) NDE VT and LPT 100% of completed welds

Repair made in accordance with the requirements of the Wisconsin Department of Industry, Labor and Human Relations, Wisconsin Administrative Code Chapters 41-42.

R. Leonowicz, RL, 393-70-2833

The welding was completed by A. Michalek, AMM, 393-56-7389, who has met the test requirements of Chapters 41-42.

Welding procedure specification: WPS GMP 102-388 TGS

Contractor rep. signature: RPLeonowicz Dated: 5-5-88

I, the undersigned, have inspected the work described in this report and state that this work, to the best of my knowledge and belief, has been done in accordance with the requirements of Wis. Adm. Code Chapters ILHR 41-42. By signing this certificate, neither the inspector nor his employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection. The only exception is for such liability that may be provided in an insurance policy which the inspector's insurance company may issue for the object, and then only in accordance with terms of that policy.

Authorized Inspector Signature:	Cert. No:	Employed By:	Dated:
Roger McGuire	38	Hartford Steam Boiler	5-19-88

SB-190(R.01/87)

State of Wisconsin
Department of Industry,
Labor and Human Relations

WELDED REPAIR RECORD

Safety & Buildings Divisio
P.O. Box 7969
Madison, Wiscosnin 53707
Telephone: (608) 266-1904

Repair completed on:

☐ Power Boiler ☐ Heating Boiler

☐ Pressure Vessel ☐ Miniature Boiler

Manufacturer: _____

Wisconsin Reg. No: _____

National Board No: _____

Serial No: . . . . _____

Other No: . . . . _____

WORK COMPLETED BY:

Name:
Phillips, Getschow Co.
Street Address
431 N. Dearborn St.
City/Town/Village: Zip Code:
Chicago, IL 60610
Repair Program No:

IN THE PLANT OF:

Owner's Name:
Wisconsin Public Service Corp.
Location of Repair:
Kewaunee Nuclear Power Plant
Route 1, Box 48
Kewaunee, WI 54216

Description of Repair - attach additional page if needed:
(use reverse side of this page for sketch)

Replaced 3/4" Rockwell Edwards Globe Valve SI 37A with a 3/4" Kerotest globe valve per WR 38704. Valve is in a ASME Section XI, Class 2 System.

Hydrostatic Test PSI 2245 psig 5/3/88 NDE LPT of all completed welds

Repair made in accordance with the requirements of the Wisconsin Department of Industry, Labor and Human Relations, Wisconsin Administrative Code Chapters 41-42.

The welding was completed by C. Schaefer, VGP, 393-34-6322, who has met the test requirements of Chapters 41-42.

Welding procedure specification: WPS GMP 102-388 TGS

Contractor rep. signature: RRSephas Dated: 5-12-88

I, the undersigned, have inspected the work described in this report and state that this work, to the best of my knowledge and belief, has been done in accordance with the requirements of Wis. Adm. Code Chapters ILHR 41-42. By signing this certificate, neither the inspector nor his employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection. The only exception is for such liability that may be provided in an insurance policy which the inspector's insurance company may issue for the object, and then only in accordance with terms of that policy.

Authorized Inspector Signature:	Cert. No:	Employed By:	Dated:
Roger Matyas	38	Hartford Steam Boiler	5-19-88

SB-190(R.01/87)

accept as per SPE 88

State of Wisconsin
Department of Industry,
Labor and Human Relations

WELDED REPAIR RECORD

Safety & Buildings Divisic
P.O. Box 7969
Madison, Wiscosnin 53707
Telephone: (608) 266-1904

Repair completed on:

☐ Power Boiler ☐ Heating Boiler

☐ Pressure Vessel ☐ Miniature Boiler

Manufacturer: _____

Wisconsin Reg. No: _____

National Board No: _____

Serial No: . . . . _____

Other No: . . . . _____

WORK COMPLETED BY:	IN THE PLANT OF:
Name: Phillips, Getschow Co.	Owner's Name: Wisconsin Public Service Corp.
Street Address 431 N. Dearborn St.	Location of Repair: Kewaunee Nuclear Power Plant
City/Town/Village: Zip Code: Chicago, IL 60610	Route 1, Box 48
Repair Program No:	Kewaunee, WI 54216

Description of Repair - attach additional page if needed:
(use reverse side of this page for sketch)

Replaced 3/4" globe valve RC 310A per Work Request 40236, valve is an ASME Section XI, Class 1 System as shown on Flow Drawing XK100-10 and Physical Drawing M-365.

Hydrostatic Test PSI 2335 per SP-087 4/10/88 NDE LPT End Prep, VT and LPT completed welds
Repair made in accordance with the requirements of the Wisconsin Department of Industry, Labor and Human Relations, Wisconsin Administrative Code Chapters 41-42.

The welding was completed by P. Hirst, PGH, 395-46-1389, who has met the test requirements of Chapters 41-42.

Welding procedure specification: WPS GMP 102-388 TGS

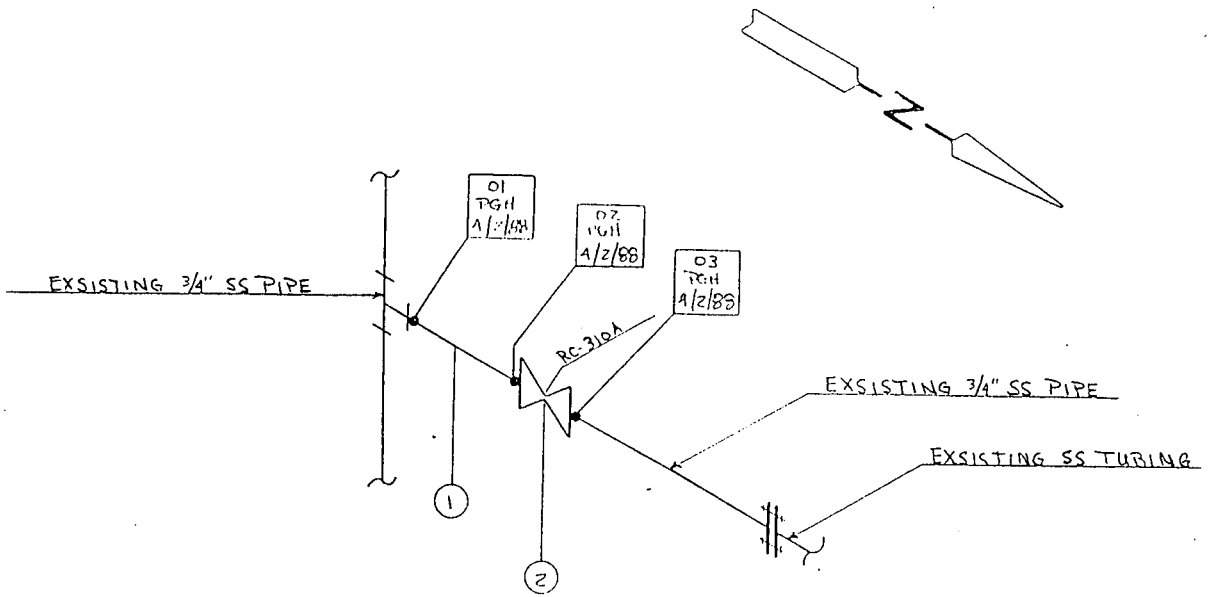
Contractor rep. signature: R P Kepphaus Dated: 5-5-88

I, the undersigned, have inspected the work described in this report and state that this work, to the best of my knowledge and belief, has been done in accordance with the requirements of Wis. Adm. Code Chapters ILHR 41-42. By signing this certificate, neither the inspector nor his employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection. The only exception is for such liability that may be provided in an insurance policy which the inspector's insurance company may issue for the object, and then only in accordance with terms of that policy.

Authorized Inspector Signature:	Cert. No:	Employed By:	Dated:
Roger Mongeon	38	Hartford Steam Boiler	5-20-88 Hydrostatic 4-10-88

SB-490(R.01/87)

NOTES:



ITEM	QUAN	DESCRIPTION
1	1'	3/4" SS PIPE SCH 160 HT# Q7142
2	1ea	3/4" SS VALVE KEOTEST QA# 86-500

BILL OF MATERIAL

ABI

REV	DATE	DRAWN	CHECKED	QC APP	SM APP	DESCRIPTION	REF DWG
0	4/2/88	[signature]	4-2-88	[signature]		RC-310A REPLACEMENT VALVE	M-365

CLASS	X	NUCLEAR	PNEUMATIC
1A		NON NUC	RADIOGRAPH
DESIGN TABLE	ANSI B31.1		MAG PART
WELD PROC	GMP 102-388 TGS	X	DYE PEN
		X	HYDRO
SCALE	NONE		HEAT TREAT

PHILLIPS, GETSCHOW CO
Wisconsin Public Service Corp.
Kewaunee Nuclear Power Plant
UNIT 1 BLDG CONT. W O No 40236
PGCO PROJ. NO. _____ SPEC. _____
DWG No 40236-1 REV 0

State of Wisconsin
Department of Industry,
Labor and Human Relations

WELDED REPAIR RECORD

Safety & Buildings Divisi
P.O. Box 7969
Madison, Wiscosnin 53707
Telephone: (608) 266-1904

Repair completed on:

☐ Power Boiler ☐ Heating Boiler

☐ Pressure Vessel ☐ Miniature Boiler

Manufacturer: _____

Wisconsin Reg. No: _____

National Board No: _____

Serial No: . . . . _____

Other No: . . . . Piping System

WORK COMPLETED BY:	IN THE PLANT OF:
Name: Phillips, Getschow Co.	Owner's Name: Wisconsin Public Service Corp.
Street Address: 431 N. Dearborn St.	Location of Repair: Kewaunee Nuclear Power Plant
City/Town/Village: Chicago, IL 60610 Zip Code:	Route 1, Box 48
Repair Program No:	Kewaunee, WI 54216

Description of Repair - attach additional page if needed:
(use reverse side of this page for sketch)

Modified Containment penetration number 43N for use as a refueling cableway per Work Request 39896 and Design Change Number 2167.

* NDE included; - LPT of weld preps, VT of root pass and completed welds, RT and MT of completed welds

Hydrostatic Test PSI at closing per SP-090 NDE * see above

Repair made in accordance with the requirements of the Wisconsin Department of Industry, Labor and Human Relations, Wisconsin Administrative Code Chapters 41-42.

The welding was completed by see back, who has met the test requirements of Chapters 41-42.

Welding procedure specification: WPS GMP 102-311 GS, 102-311 TGS

Contractor rep. signature: RPKephart Dated: 5-5-88

I, the undersigned, have inspected the work described in this report and state that this work, to the best of my knowledge and belief, has been done in accordance with the requirements of Wis. Adm. Code Chapters ILHR 41-42. By signing this certificate, neither the inspector nor his employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection. The only exception is for such liability that may be provided in an insurance policy which the inspector's insurance company may issue for the object, and then only in accordance with terms of that policy.

Authorized Inspector Signature:	Cert. No:	Employed By:	Dated:
Roger Motquin	38	Hartford Steam Boiler	5-20-88

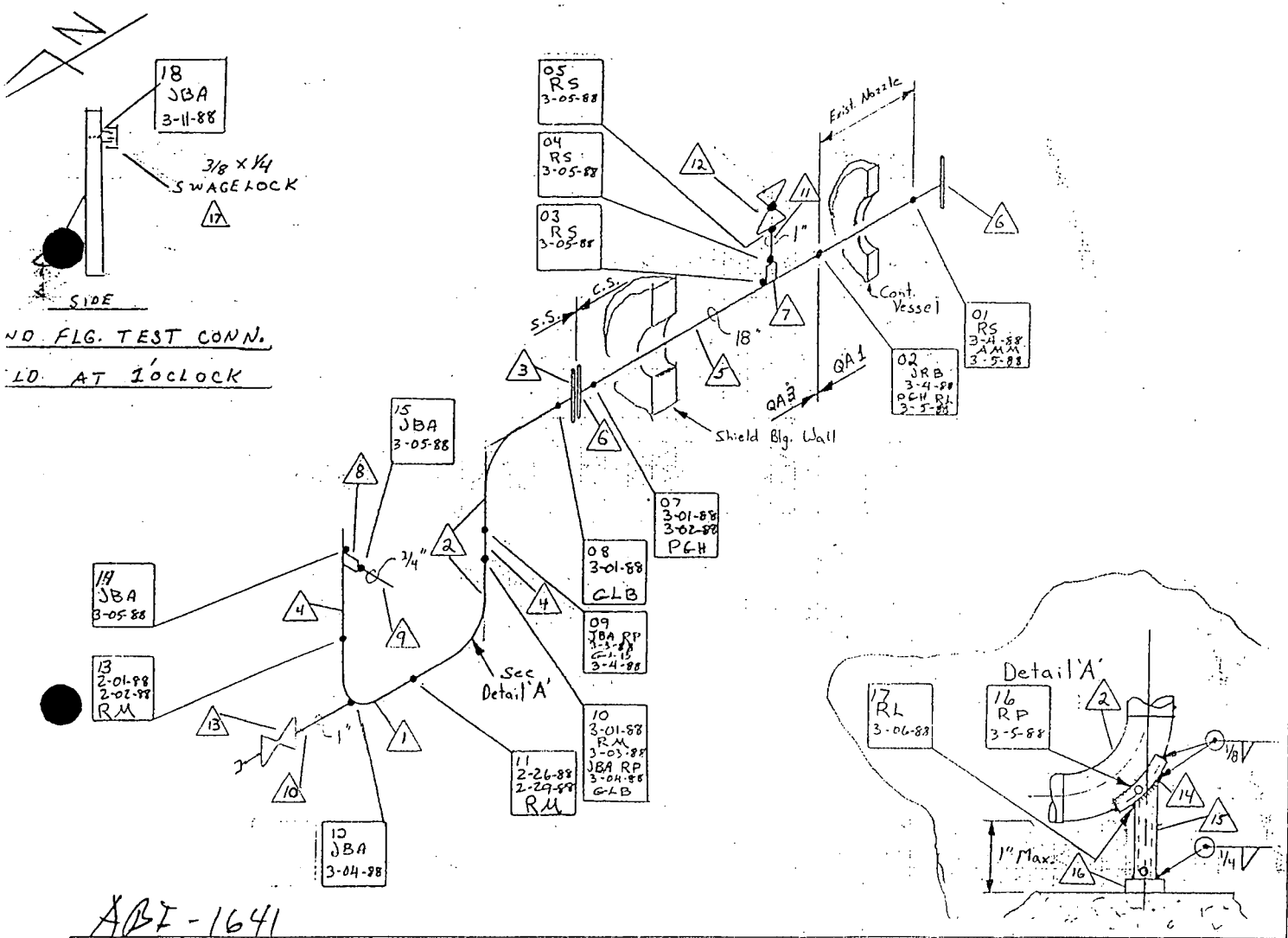
SB-100(R.01/87)

Welders -

R. Leonowicz, RL, 393-70-2833
A. Michalek, AMM, 393-56-7389
J. Barzeau, JRB, 391-46-4218
P. Hirst, PGH, 395-46-1389

NOTES:

LPT or MT of all Weld preps is required on QA1 portion only Including Weld #07



ITEM	QUAN	DESCRIPTION QA84-136
17		SWAGELOK 3/8X1/4 CS QA 71-0047
18	2	18" CS BLIND FLG. HT. ANXH QA 88056
1	1	18" SR SS 90° ELBOW
		304 HT. P0686
2	2	18" SR SS 90° ELBOW
		316L HT. P09941
3	1	18" RF WN SS 150#
		FLANGE BORED TO SCH. 10
		HT. 34540
4		18" SCH. 10 304 SS PIPE
		HT. F50073
5		18" CS A106 .375 WALL PIPE
		HT. L41312 QA 88-055
6	2	18" CS RF WN FLANGES
		HT. ANXH QA 88-056
7	1	1" CS 3000# SOCK O LET
		HT G749
8	1	3/4" SS SOCK OLET
		HT. A188
9	1	3/4" x 3 1/2 SS NIP.
		HT. U64899 QA 75-180
10		1" SS SCH. 40 PIPE
		HT. 468400 QA 83-358
11	1	1" CS NIP
		HT# 83077
12	1	1" SS VENT VALVE
		HT. BN649 QA 83-386
13	1	1" DRAIN VALVE
		HT. N/A QA 86202
14		1/8" 304 SS PLATE PO# 51903
15		6" SCH 40 CS PIPE
		HT. T64900 QA 74-264
16		1/2" CS PLATE HT. B02W5196O

BILL OF MATERIAL

ABI-1641

REV	DATE	DRAWN	CHECKED	QC APP	SM APP	DESCRIPTION	REF DWG
0	2/22/88	WER	2-22-88	Roy Harris		Refueling Cont. Loop Seal Pen #42N	M389, M382

CLASS 1A+3B — X NUCLEAR — NON NUC

DESIGN TABLE ANSI B31.1

WELD PROC GMP 102-311 GS, GMP 102-311 TGS, GMP 102-388 TGS, GMP 102-318 TGS

SCALE NONE

	PNEUMATIC
X	RADIOGRAPH
X	MAG PART
X	DYE PEN
X	HYDRO
	HEAT TREAT

PHILLIPS GETSCHOW CO
Wis. Public Service
Kewaunee Nuclear Power Plant

UNIT 1 BLDG Aux. W O No 39896
PGCO PROJ. NO. _____ SPEC. _____

DWG No 39896-1 REV 0

State of Wisconsin
Department of Industry,
Labor and Human Relations

WELDED REPAIR RECORD

Safety & Buildings Divisi
P.O. Box 7969
Madison, Wiscosnin 53707
Telephone: (608) 266-1904

Repair completed on:

☐ Power Boiler ☐ Heating Boiler

☐ Pressure Vessel ☐ Miniature Boiler

Manufacturer: _____

Wisconsin Reg. No: _____

National Board No: _____

Serial No: . . . . _____

Other No: . . . . _____

WORK COMPLETED BY:	IN THE PLANT OF:
Name: Phillips, Getschow Co.	Owner's Name: Wisconsin Public Service Corp.
Street Address 431 N. Dearborn St.	Location of Repair: Kewaunee Nuclear Power Plant
City/Town/Village: Zip Code: Chicago, IL 60610	Rt.1, Box 48
Repair Program No:	Kewaunee, WI 54216

Description of Repair - attach additional page if needed:
(use reverse side of this page for sketch) Replaced 3" schedule 160 Gate valve PR-1A per MWR 37096, valve is an ASME Section XI, Class 1 system as shown on Flow Drawing XK 100-10 and Physical Drawing M350.

Hydrostatic Test PSI 2335 per SP-087 4/10/88 NDE LPT weld preps, VT, root pass, VT, LPT, R of completed weld.

Repair made in accordance with the requirements of the Wisconsin Department of Industry, Labor and Human Relations, Wisconsin Administrative Code Chapters 41-42.

A. Pagel, RP, 393-32-2502

The welding was completed by P. Hirst, PGH, 395-46-1389, who has met the test requirements of Chapters 41-42.

Welding procedure specification: WPS GMP 102-388TGS

Contractor rep. signature: R Pagel Dated: 5-5-88

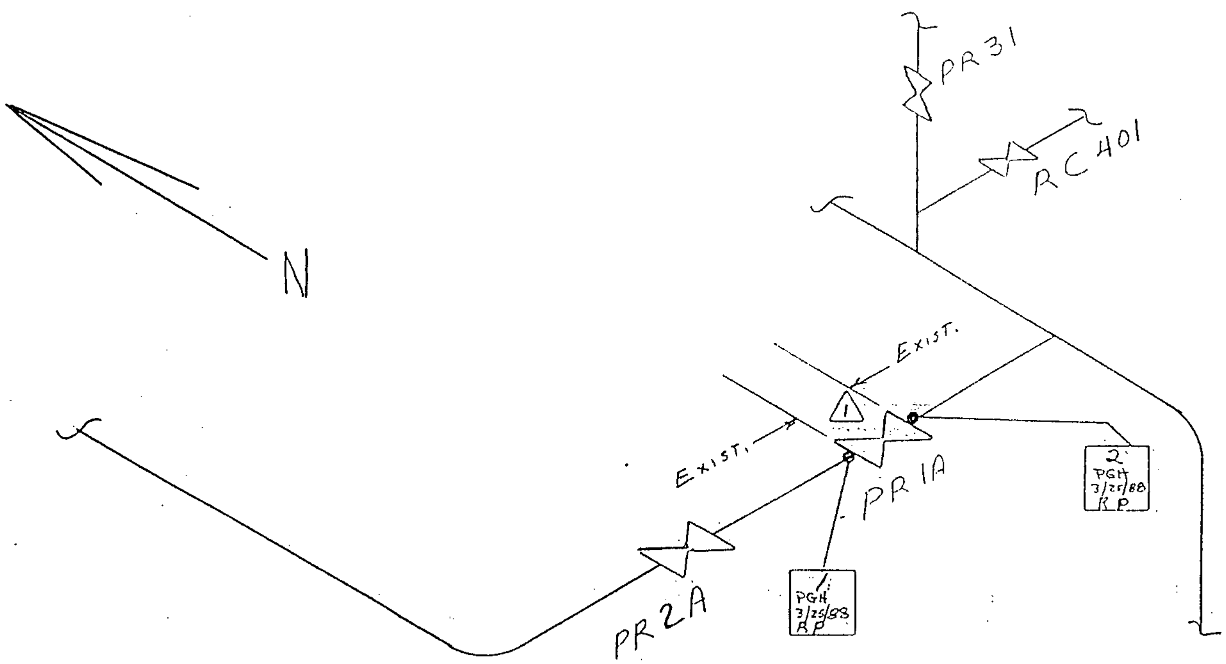
I, the undersigned, have inspected the work described in this report and state that this work, to the best of my knowledge and belief, has been done in accordance with the requirements of Wis. Adm. Code Chapters ILHR 41-42. By signing this certificate, neither the inspector nor his employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection. The only exception is for such liability that may be provided in an insurance policy which the inspector's insurance company may issue for the object, and then only in accordance with terms of that policy.

Authorized Inspector Signature: Cert. No:	Employed By:	Dated:
Roger Matson 38	Hartford Steam Boiler	5-19-88

SB-190(R.01/87)

Hydro witnessed 5-10-88

NOTES:



ITEM	QUAN	DESCRIPTION
1		3" S/S VALVE QA 87-322

BILL OF MATERIAL

ABI-1643 Transferred to Weld map M-363-AD R. Hansen 5-11-88

REV	DATE	DRAWN	CHECKED	QC APP	SM APP	DESCRIPTION	REF DWG
0	3-24-88	[illegible]	3-24-88	[illegible]		NEW PR1A VALVE REPLACEMENT	M-363 K100-10

CLASS 1A	X NUCLEAR / NON NUC
DESIGN TABLE	ANSI B31.1
WELD PROC	GMP 102-388TCS
SCALE	NONE

	PNEUMATIC
X	RADIOGRAPH
	MAG PART
X	DYE PEN
X	HYDRO
	HEAT TREAT

PHILLIPS, GETSCHOW CO

Wisconsin Public Service
Kewaunee Nuclear Power Plant

UNIT 1 BLDG CONT. W O No 37096
PGCO PROJ. NO. ______ SPEC. ______

DWG No 37096-1 REV

State of Wisconsin
Department of Industry,
Labor and Human Relations

WELDED REPAIR RECORD

Safety & Buildings Divisio
P.O. Box 7969
Madison, Wiscosnin 53707
Telephone: (608) 266-1904

Repair completed on:

☐ Power Boiler ☐ Heating Boiler

☐ Pressure Vessel ☐ Miniature Boiler

Manufacturer: _____

Wisconsin Reg. No: _____

National Board No: _____

Serial No: . . . . _____

Other No: . . . . _____

WORK COMPLETED BY:	IN THE PLANT OF:
Name: Phillips, Getschow Co.	Owner's Name: Wisconsin Public Service Corp.
Street Address 431 N. Dearborn St.	Location of Repair: Kewaunee Nuclear Power Plant
City/Town/Village: Zip Code: Chicago, IL 60610	Route 1, Box 48
Repair Program No:	Kewaunee, WI 54216

Description of Repair - attach additional page if needed:
(use reverse side of this page for sketch)

Replaced 3/4" globe valve PR 50A per WR 37078, vlave is an ASME Section XI, Class 1 system as shown on Flow Drawing XK100-10 and Physical Drawing M365.

*LPT existing end preps and final completed welds, RT to verify gap and Visual of all completed welds.

Hydrostatic Test PSI 2335 per SP-087 NDE *See above

Repair made in accordance with the requirements of the Wisconsin Department of Industry, Labor and Human Relations, Wisconsin Administrative Code Chapters 41-42.

P. Hirst, PGH, 395-46-1389

The welding was completed by A. Michalek, AMM, 393-56-7389, who has met the test requirements of Chapters 41-42.

Welding procedure specification: WPS GMP 102-388TGS

Contractor rep. signature: R Phipps Dated: 5-11-88

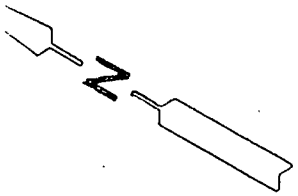
I, the undersigned, have inspected the work described in this report and state that this work, to the best of my knowledge and belief, has been done in accordance with the requirements of Wis. Adm. Code Chapters ILHR 41-42. By signing this certificate, neither the inspector nor his employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection. The only exception is for such liability that may be provided in an insurance policy which the inspector's insurance company may issue for the object, and then only in accordance with terms of that policy.

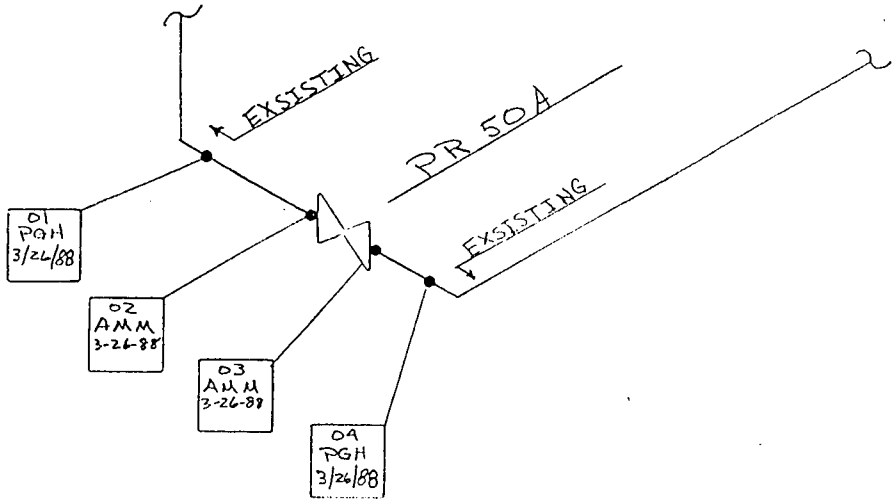
Authorized Inspector Signature: Cert. No:	Employed By:	Dated:
Roger Matsen 38	Hartford Steam Boiler	5-19-88

Witness Nyhus 4-10-88

SB-190(R.01/87)

NOTES:





ITEM	QUAN	DESCRIPTION
1	1	KeroTest 3/4" 3/5 Valve E31506 QA-86-500

BILL OF MATERIAL

ABI-1638

REV	DATE	DRAWN	CHECKED	QC APP	SM APP	DESCRIPTION	REF DWG
0	3/25/88	D. [illegible]	3-25-88	[illegible]		PR-50A VALVE	M-365 KK-100-10

CLASS: 1A — NUCLEAR [X] / NON NUC [ ]
DESIGN TABLE: ANSI B31.1
WELD PROC: GMP 1DZ-3B8 TGS
SCALE: NONE

	PNEUMATIC
X	RADIOGRAPH
	MAG PART
X	DYE PEN
X	HYDRO
	HEAT TREAT

PHILLIPS, GETSCHOW CO
WISCONSIN PUBLIC SERVICE CORP.
KEWAUNEE NUCLEAR PLANT
UNIT 1 BLDG Cont. W O No 37078
PGCO PROJ. NO. _____ SPEC. _____
DWG No 37078-1 REV 0