

WISCONSIN PUBLIC SERVICE CORPORATION
KEWAUNEE NUCLEAR POWER PLANT UNIT NO. 1
2ND OUTAGE; 1ST PERIOD; 2ND INTERVAL
1986

INTRODUCTION

An Inservice Examination Program was performed at the Kewaunee Nuclear Power Plant Unit No. 1 from March 11, 1986 thru April 24, 1986 by Westinghouse Electric Corporation Nuclear Service Integration Division - Inspection Services.

Examinations were performed to the requirements of ASME Boiler and Pressure Vessel Code Section XI-1980 Edition up to and including Winter 1981 Addenda and NRC Regulatory Guide 1.14.

The Examination Program Plan located under Tab C was prepared by Kewaunee Nuclear Power Plant Unit No. 1 for the 2nd Outage, 1st 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. Reactor Coolant Pump A Flywheel
4. Class 1 and Class 2 Piping
5. Class 1 and Class 2 Valves
6. Seal Water Injection Filter 1A
7. Class 1, Class 2 and Class 3 Supports and Hangers
8. Class 1, Class 2 and Class 3 System Leakage Test

The examinations were performed 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: 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. Two (2) recordable indications were noted by ultrasonic examination methods and found acceptable by ASME Boiler and Pressure Vessel Code Section XI-1980 Edition up to and including Winter 1981 recording criteria.

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WISCONSIN PUBLIC SERVICE CORPORATION (Cont'd.)

2. Two (2) recordable indications were noted by surface examination methods.
 - (A) One (1) indication was repaired, re-examined and found to be acceptable.
 - (B) One (1) indication was accepted as is.
3. Thirty-three (33) indications were noted by visual examination methods on Supports, Hangers and Valve Bolting and dispositioned by Kewaunee Nuclear Power Plant personnel. When repairs were involved the Support, Hanger or Valve Bolting was re-examined for acceptance.
4. Eighty-eight (88) indications were noted by visual examination methods during the Class 1, Class 2 and Class 3 System Leakage Test and dispositioned by Kewaunee Nuclear Power Plant personnel.

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

WISCONSIN PUBLIC SERVICE CORPORATION
Kewaunee Nuclear Power Plant Unit No. 1
2nd Outage, 1st Period, 2nd Interval
1986
Outage Core XI-XII

During the 1986 refueling outage, Westinghouse Electric Corporation personnel performed nondestructive examinations of selected components at the Kewaunee Nuclear Power Plant. These examinations resulted in several indications being reported on the basis of Westinghouse NDE procedure recording criteria.

The recordable indications observed during the surface, volumetric, and visual (VT-1 and VT-3) examinations have been evaluated and all required corrective actions have been completed. All of these recordable indications have been dispositioned as acceptable by the Wisconsin Public Service Corporation.

Recordable indications found during Class 1, 2, and 3 System Leakage Tests were investigated and evaluated during the tests. Corrective actions, such as removing boric acid/corrosion from components and fixing leaks of non-motor operated valves/flanges were also performed during the test. These corrective actions observed during the System Leakage Test have been dispositioned as acceptable by the Wisconsin Public Service Corporation and will continue to be monitored as required through normal plant tours and inspections.

Charles A. Jones

Charles A. Jones
Plant Nuclear Engineer
Wisconsin Public Service Corporation
Kewaunee Nuclear Power Plant

Date 7-9-86

Clark R. Steinhardt

Clark R. Steinhardt
Plant Manager
Wisconsin Public Service Corporation
Kewaunee Nuclear Power Plant

Date 07-09-86

CUSTOMER: Wisconsin Public Service Corporation
SITE: Kewaunee
PERIOD OF SERVICE: March 22, 1986 to April 10, 1986
FIELD SERVICE REPORT: MRS 4.4 WPS-13, E/C Inspection, Installation of Stabilizers, Removal of Mechanical Plugs & Mechanical Plugging

During the Kewaunee Unit No. 1 refueling outage of 1986 Westinghouse Steam Generator Primary Service group performed the following steam generator services:

1. Removal of Mechanical Plugs
2. Eddy Current Inspection
3. Installation of Stabilizers
4. Mechanical Plugging

This service provided to Kewaunee was performed in accordance with Westinghouse General Order No. MK 76132.

PLUG REMOVAL

Prior to any inspection, mechanical plugs were removed from both end of the following tubes:

- Row 43, Column 32
- Row 43, Column 33
- Row 44, Column 33

These plugs were removed to permit the inspection of the tubes, installation of stabilizers, and to remove sentinel plugs previously installed.

EDDY CURRENT INSPECTION

The inspection program consisted of 100 percent of all tubes in both steam generators. All tubes in rows 4 through 46 were inspected full length. All tubes in rows 1 through 3 were inspected from the inlet through the u-bend.

All testing was performed using a 0.720 inch diameter probe (.0680 in low row u-bends using frequencies of 400 KHz, 200 KHz, 100 KHz, and 10 KHz in the differential and absolute modes.

MECHANICAL PLUGGING

Steam Generator A

Mechanical plugs were installed in 46 tubes of Steam Generator A due to eddy current indications. One tube, Row 24 - Column 30 was plugged on the inlet side. It was previously plugged in only the outlet side. Three plugs were installed in the outlet side to replace sentinel plugs previously removed.

Steam Generator B

Twenty-six tubes were plugged due to eddy current indications. One tube, Row 24 - Column 36 was plugged on the inlet side. This tube was previously plugged on the outlet side only.

A video recording was made after marking and following plugging to provide a permanent record.

STABILIZER INSTALLATIONS

Three stabilizer assemblies were installed in the inlet side only of the following tubes:

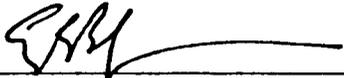
Row 43, Column 32

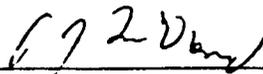
Row 43, Column 33

Row 44, Column 33

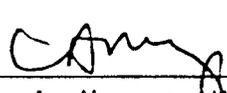
The marking and final locations of these stabilizers were also video recorded for permanent record.

All material, equipment, personnel certifications, process control sheets, and procedures used are included in the appendices of this report.

Prepared By 
E. P. Belizar
Field Service Engineer
S/G Primary Maintenance
Services

Approved By 
P. J. McDonough, Manager
S/G Primary Maintenance
Services

Approved By 
R. M. Clark, Manager
S/G Primary Services

Approved By  6/10/86
C. A. Meyers, Manager
Operations Q.A.

RECORD OF REPAIR OR ALTERATION

STATE OF WISCONSIN
 DEPARTMENT OF INDUSTRY, LABOR & HUMAN RELATIONS
 SAFETY & BUILDING DIVISION
 201 EAST WASHINGTON AVE.
 POST OFFICE BOX 7969
 MADISON, WISCONSIN 53707

REPAIR OR ALTERATION COMPLETED ON:

N/A	POWER BOILER
N/A	HEATING BOILER
N/A	PRESSURE VESSEL
N/A	MINIATURE BOILER

WIS REG. # N/A
 NB # N/A
 SERIAL # N/A
 OTHER N/A

MANUFACTURER: _____

WORK COMPLETED BY:	IN THE PLANT OF:
NAME: <u>Phillips-Getchow Company</u>	OWNERS NAME: <u>Wisconsin Public Service Corp.</u>
ADDRESS: <u>431 N. Dearborn St.</u>	LOCATION OF REPAIR: <u>Kewaunee Nuclear Power Plant</u>
<u>Chicago IL 60610</u>	<u>Route 1, Box 48</u>
ZIP <u> </u>	<u>Kewaunee, WI 54216</u>

DESCRIPTION OF REPAIR:
 (USE REVERSE FOR SKETCH) Replaced AFW-4A MWR 86-05B-33278
Design Spec. ES-2003 (M368)
Material ASTM A216 GR WCB
Valve was replaced with identical replacement.

HYDROSTATIC TEST psi 1750# @ Gauge #11229 NDE LPT Weld Preps and Final Passes, 100% RT
PER SP-06-258 REVA All Weld Joints.
 REPAIR OR ALTERATIONS WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WISCONSIN DEPT. OF INDUSTRY, LABOR & HUMAN RELATIONS, WIS. ADM. CODE. CHAPTER IND 42.

THE WELDING WAS COMPLETED BY: Paul G. Hirst WHO HAS MET THE TEST REQUIREMENTS OF SAID RULES.

WELDING PROCEDURE SPECIFICATION: IA-MA-11-0

CONTRACTOR REP. SIGNATURE: *John Repes* DATE: 7/22/86

I, the undersigned, have inspected the work described in the report and state that to the best of my knowledge and belief, this work has been done in accordance with the requirements of Wis. Adm. Code Chapter IND 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 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, except such liability as may be provided in a policy of insurance which the Inspector's insurance company may issue upon said object and then only in accordance with terms of said policy.

Roger McGinnis 38 *Saintford Steam Boiler Shop & Ins Co* 7-22-86
 AUTHORIZED INSPECTOR- WIS. COM. NO. EMPLOYED BY Test witness per SP of -258 Rev A DATE 4-16-86

RECORD OF REPAIR OR ALTERATION

**STATE OF WISCONSIN
DEPARTMENT OF INDUSTRY, LABOR & HUMAN RELATIONS
SAFETY & BUILDING DIVISION
201 EAST WASHINGTON AVE.
POST OFFICE BOX 7969
MADISON, WISCONSIN 53707**

REPAIR OR ALTERATION COMPLETED ON:

N/A POWER BOILER
 N/A HEATING BOILER
 N/A PRESSURE VESSEL
 N/A MINIATURE BOILER

WIS REG.# N/A
NB # N/A
SERIAL # N/A
OTHER N/A

MANUFACTURER: N/A

WORK COMPLETED BY:	IN THE PLANT OF:
NAME: <u>Phillips-Getchow</u>	OWNERS NAME: <u>Wisconsin Public Service Corp.</u>
ADDRESS: <u>430 North Dearborn St.</u>	LOCATION OF REPAIR: <u>Kewaunee Nuclear Power Plant</u>
<u>Chicago, IL</u>	<u>Route 1, Box 48</u>
<u>60610</u>	<u>Kewaunee WI 54216</u>
<u>ZIP</u>	

DESCRIPTION OF REPAIR:

(USE REVERSE FOR SKETCH) Install 2" valves and blind flanges in Steam Generator Blow-
down piping between 8N and 8S penetration inside containment per MWR-32904,
DCR 1772 and engineer approved drawings. Material used - 2" Stainless Steel
S.W. valves, QA-85-588, 2" tee S.W. Carbon Steel 3000# A-105, Heat No. F642,
2" Schedule 80 A-106 pipe Carbon Steel, Heat No. N36039, QA-83-366, 2" RF
flanges Carbon Steel slip on A-105 900# Heat No. AHTK, QA-86-160. All documen-
tation and certification in QC Vault on site.

Visual Final and LPT final welds.

~~HYDROSTATIC TEST~~ psi Operating Pressure NDE LPT Existing End Preps

REPAIR OR ALTERATIONS WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WISCONSIN DEPT. OF INDUSTRY, LABOR & HUMAN RELATIONS, WIS. ADM. CODE CHAPTER IND 42.

"JRF" J. Fessler SS# 388-58-9971 "TJK" T. Krueger SS# 396-56-2680
THE WELDING WAS COMPLETED BY: "PGH" P. Hirst SS# 395-46-1389 WHO HAS MET THE TEST REQUIREMENTS OF SAID RULES.

WELDING PROCEDURE SPECIFICATION: IA-MA-11-0 IA-MA-18-0

CONTRACTOR REP. SIGNATURE: John Repser DATE: 4/24/86

I, the undersigned, have inspected the work described in the report and state that to the best of my knowledge and belief, this work has been done in accordance with the requirements of Wis. Adm. Code Chapter IND 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 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, except such liability as may be provided in a policy of insurance which the Inspector's insurance company may issue upon said object and then only in accordance with terms of said policy.

Roger Metzger 38 Hartford Steam Boiler Iron Works Co 5-23-86
AUTHORIZED INSPECTOR - WIS. COM. NO. EMPLOYED BY wisconsin Insur. Co 424-86 DATE

RECORD OF REPAIR OR ALTERATION

**STATE OF WISCONSIN
DEPARTMENT OF INDUSTRY, LABOR & HUMAN RELATIONS
SAFETY & BUILDING DIVISION
201 EAST WASHINGTON AVE.
POST OFFICE BOX 7969
MADISON, WISCONSIN 53707**

REPAIR OR ALTERATION COMPLETED ON:

N/A	POWER BOILER
N/A	HEATING BOILER
N/A	PRESSURE VESSEL
N/A	MINIATURE BOILER

WIS REG.# N/A
 NB # N/A
 SERIAL # N/A
 OTHER N/A

MANUFACTURER: _____

WORK COMPLETED BY:	IN THE PLANT OF:
NAME: <u>Phillips-Getschow</u>	OWNERS NAME: <u>Wisconsin Public Service Corp.</u>
ADDRESS: <u>430 North Dearborn St.</u>	LOCATION OF REPAIR: <u>Kewaunee Nuclear Power Plant</u>
<u>Chicago, IL</u>	<u>Route 1, Box 48</u>
<u>60610</u>	<u>Kewaunee, WI 54216</u>
ZIP	

DESCRIPTION OF REPAIR:
 (USE REVERSE FOR SKETCH) Replaced SI-206B MWR 85-33-33511
Design Spec: ES-2001 W Category 2512 + SS-M421
QA Type - 1A
DCR p532-61 re laced Rockwell Edwards 2" 3674 Check Valve with
a 2" Kerotest 99115 WPS Stock Code #206-6503.

@ 2246# Gauge #P923
 HYDROSTATIC TEST psi Inservice Hydro NDE LPT Weld Prep, Root Passes, and Final Passes.
 REPAIR OR ALTERATIONS WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WISCONSIN DEPT. OF INDUSTRY, LABOR & HUMAN RELATIONS, WIS. ADM. CODE CHAPTER IND 42.

THE WELDING WAS COMPLETED BY: "JRF" J.R. Fessler SS# 388-58-9971 WHO HAS MET THE TEST REQUIREMENTS OF SAID RULES.

WELDING PROCEDURE SPECIFICATION: IA-MA-88-0

CONTRACTOR REP. SIGNATURE: R P Lephas DATE: 4-24-86

I, the undersigned, have inspected the work described in the report and state that to the best of my knowledge and belief, this work has been done in accordance with the requirements of Wis. Adm. Code Chapter IND 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 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, except such liability as may be provided in a policy of insurance which the Inspector's insurance company may issue upon said object and then only in accordance with terms of said policy.

Roger Metzger 38 Hartford Steam Boilers Inc & Co 5-23-86
 AUTHORIZED INSPECTOR - WIS. COM. NO. EMPLOYED BY DATE

RECORD OF REPAIR OR ALTERATION

**STATE OF WISCONSIN
DEPARTMENT OF INDUSTRY, LABOR & HUMAN RELATIONS
SAFETY & BUILDING DIVISION
201 EAST WASHINGTON AVE.
POST OFFICE BOX 7969
MADISON, WISCONSIN 53707**

REPAIR OR ALTERATION COMPLETED ON:

N/A	POWER BOILER	WIS REG. #	N/A
N/A	HEATING BOILER	NB #	N/A
N/A	PRESSURE VESSEL	SERIAL #	N/A
N/A	MINIATURE BOILER	OTHER	N/A

MANUFACTURER: N/A

WORK COMPLETED BY:	IN THE PLANT OF:
NAME: <u>Phillips-Getschow</u>	OWNERS NAME: <u>Wisconsin Public Service Corp.</u>
ADDRESS: <u>430 North Dearborn St.</u>	LOCATION OF REPAIR: <u>Kewaunee Nuclear Power Plant</u>
<u>Chicago, IL</u>	<u>Route 1, Box 48</u>
<u>60610</u>	<u>Kewaunee WI 54216</u>
<u>ZIP</u>	

DESCRIPTION OF REPAIR: (USE REVERSE FOR SKETCH) Relocate LD-4A, LD-4B, LD-4C valves per MWR-31049 and DCR 1561

and Engineer approved drawings. Using 2" Schedule 160 Stainless Steel pipe,

Heat No. 470371 QA-85-663, 2" Schedule 40 Stainless Steel pipe Heat No.

470050 QA-85-663, 3/4" Schedule 160 Stainless Steel pipe Heat No. 471161

QA-85-663, 3/4" Schedule 40 Stainless Steel pipe, Heat No. 470903 QA-85-663,

All pipe fittings Stainless Steel S.W. 3000# and 6000#. All QA-1 material with

all documentation in DCR Package. All Certification in QA Vault on site.

LPT Root Pass LPT Final Welds RT Schedule 160 Pipe Welds and Tie-in Points.

INSERVICE per 36-SP-087
HYDROSTATIC TEST psi 3750 & 900 Psig NDE LPT Existing End Preps Final Visual

REPAIR OR ALTERATIONS WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WISCONSIN DEPT. OF INDUSTRY, LABOR & HUMAN RELATIONS, WIS. ADM. CODE CHAPTER IND 42. "RM" M. Rohr SS#398-42-2490

"JPM" J. Mecca SS#390-48-9224 "RL" R. Leonowicz SS#393-70-2833
THE WELDING WAS COMPLETED BY: "CH" R.C. Harrell SS#242-40-6362 WHO HAS MET THE TEST REQUIREMENTS OF SAID RULES.

WELDING PROCEDURE SPECIFICATION: IA-MA-88-0

CONTRACTOR REP. SIGNATURE: John Repus DATE: 4/24/86

I, the undersigned, have inspected the work described in the report and state that to the best of my knowledge and belief, this work has been done in accordance with the requirements of Wis. Adm. Code Chapter IND 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 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, except such liability as may be provided in a policy of insurance which the Inspector's insurance company may issue upon said object and then only in accordance with terms of said policy.

Roger Motzger 38 Hartford Steam Boiler Engine & Machine Co 5-23-86
AUTHORIZED INSPECTOR- WIS. COM. NO. EMPLOYED BY Inser Text without 4-24-86 DATE