

COMMONWEALTH EDISON
BYRON UNIT ONE
EDDY CURRENT REPORT
CYCLE 3 REFUELING OUTAGE
JANUARY 1990

Commonwealth Edison
Byron Nuclear Power Station
4450 North German Church Road
Byron, IL 61010

(3008M/0308M)

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PDR ADOCK 05000454
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TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
1.0	Introduction	1
2.0	Summary	1
3.0	Certifications	2
4.0	Examinations	3
5.0	Scope	3
6.0	Results	4
7.0	Documentation	5
8.0	Figures/Tables/Attachments	5

1.0 INTRODUCTION

Byron Nuclear Power Station is a two unit site, owned and operated by the Commonwealth Edison Company. Each unit utilizes a Westinghouse design Nuclear Steam Supply System, which includes a four loop pressurized water reactor rated at 3411 megawatts-thermal, four recirculating steam generators, and a turbine generator, rated at 1175 megawatts-electrical.

Eddy current (ET) examinations were conducted by Babcock & Wilcox Company personnel on Byron's four Unit 1 recirculating steam generators during the cycle 3 refueling outage in January and February of 1990. The scope of examinations consisted of 100% of all steam generator tubes inspected from the eleventh support plate on the cold leg through the U-bend to the tube sheet on the hot leg. Approximately 50% of all tubes in each steam generator were inspected full length, tubesheet to tubesheet.

The tubes in the four steam generators are made of Inconel 600 with a nominal outside diameter of 0.750 inches and a nominal thickness of 0.043 inches.

2.0 SUMMARY

The following is a summary of the results of the Eddy Current examinations for each steam generator.

2.1 1A Steam Generator - 1RC01BA

- 4539 Tubes Inspected - Total
 - 2235 Tubes Inspected Full Length
 - 2304 Tubes Inspected Partial Length (11C TSP-TSH)
- 2 Tubes contained indications \geq 40% Through Wall (TW)
- 3 Tubes contained indications 20-39% TW
- 5 Tubes removed from service

2.2 1B Steam Generator - 1RC01BB

- 4562 Tubes inspected - Total
 - 2264 Tubes inspected Full Length
 - 2298 Tubes inspected Partial Length
- 2 Tubes contained indications \geq 40% TW
- 0 Tubes contained indications 20-39% TW
- 2 Tubes removed from service

2.3 1C Steam Generator - 1RC01BC

- 4569 Tubes inspected - Total
 - 2300 Tubes inspected Full Length
 - 2269 Tubes inspected Partial Length
- 4 Tubes contained indications \geq 40% TW
- 2 Tubes contained indications 20-39% TW
- 6 Tubes removed from service

2.4 1D Steam Generator - 1RC01BD

- 4567 Tubes inspected - Total
 - 2264 Tubes inspected Full Length
 - 2303 Tubes inspected Partial Length
- 2 Tubes contained indications \geq 40% TW
- 3 Tubes contained indications 20-39% TW
- 3 Tubes removed from service

3.0 CERTIFICATIONS

- 3.1 The examination and evaluation procedures used during the Eddy Current inspection were approved by personnel qualified to Level III in accordance with Babcock & Wilcox Procedure ISI-24.
- 3.2 The steam generator tubing examinations were performed by personnel qualified to Level I under the direct supervision of personnel qualified to Level II in accordance with Babcock & Wilcox Procedure ISI-24.
- 3.3 The Eddy Current data was evaluated by personnel qualified to a minimum of Level IIA in accordance with Babcock and Wilcox Procedure ISI-24.
- 3.4 The examinations, equipment, and personnel were in compliance with the requirements of the Babcock & Wilcox SPIS QA Manual for Inservice Inspection, Byron Station Technical Specification 4.4.5, the ASME Boiler and Pressure Vessel Code Section XI, 1983 Edition through Summer 1983 Addenda, and industry standards.
- 3.5 Certification packages for examiners, data evaluators, and equipment are available at Byron Station. Table 5 provides a listing of the certified personnel who performed, supervised, or evaluated the Eddy Current examinations.

4.0 EXAMINATIONS

- 4.1 The Eddy Current examinations were performed with a 0.610" diameter ULC bobbin coil probe or a 0.590" diameter spring flex bobbin coil probe for partially obstructed tubes. The examination frequencies consisted of 550, 300, 100, and 35 KHz generated by a Zetec MIZ-18 remote digital acquisition unit in both the absolute and differential modes. A 550/100 KHz differential tube support plate (TSP) differential mix was used to enhance detection at the TSP by suppressing the TSP signal. A 300/100 KHz absolute mix was used to enhance detection of anti-vibration bar wear in the U-bend region. A 550/300/100 differential mix was used to enhance detection in the tubesheet roll transition region.
- 4.2 The official results of the data analysis were recorded on the MIZ-18 DDA-4 data disks and then loaded into a data management system. The data management system performed the following functions:
- a) screen analysis entries for invalid data,
 - b) perform data sorting routines,
 - c) verify inspections are complete on all tubes within examination scope, and
 - d) provide tube sheet maps of tubes removed from service and all indications found during inspection.
- 4.3 Babcock & Wilcox Automated Data Screening (ADS) was utilized as a second, independent data review. Any discrepancies between the primary analysis and ADS were resolved by the on-site Babcock & Wilcox Level III analyst. The final report reflects all resolutions.
- 4.4 The Eddy Current inspections were witnessed and/or verified by the Authorized Nuclear Inservice Inspector, Mr. J. Hendricks, of Hartford Steam Boiler Inspection and Insurance Company of Hartford, Connecticut, Chicago Branch, 300 South Riverside Plaza Suite 700 North, Chicago, Illinois 60606.

5.0 SCOPE

The Eddy Current examination scope for each steam generator consisted of full length inspections (tubesheet to tubesheet) of the following:

- All tubes with previous % through wall (TW) indications including signal-to-noise indications.
- All tubes in rows 1, 2, and 44 through 49.
- All tubes three deep along the T-slot and the curved portion of the periphery.
- A sample of interior tubes, approximately 25% of tubes.

Partial length Eddy Current examinations, extending from the hot leg tubesheet through the U-bend to the top support plate on the cold leg, were performed on all remaining tubes, thus completing a 100% inspection of all tubes.

Figures 1A, 1B, 1C and 1D indicate the inspection scope for each steam generator.

6.0 RESULTS

6.1 1A Steam Generator - 1RC01BA

Full length inspections were performed on 2235 tubes and partial length inspections were performed on 2304 tubes for a 100% examination scope. Five tubes were identified to contain indications greater than 20% TW with two tubes with indications greater than or equal to 40%. Refer to Table 1, Form NIS-BB, for results. Five tubes were removed from service by mechanical roll tube plugs.

Tube 7-39 contained 40% TW degradation in the hot leg tubesheet roll transition area. This tube was subsequently plugged. Tube 24-46 contained a 63% OD indication at the 9H support plate that is attributed to secondary side pitting. This tube was also plugged. The other tubes, 46-75, 48-36, 36-15 contained indications between 20-39% TW with common mode degradation of secondary side pitting near support plates. Tubes 46-75, 48-36, and 36-15 were plugged due to 38%, 34%, and 21% TW degradation respectively. Tube 46-74 plugged with 0% TW degradation.

6.2 1B Steam Generator - 1RC01BB

Full length inspections were performed on 2264 tubes and partial length inspections were performed on 2298 tubes for a 100% examination scope. Two tubes were identified to contain indications greater than 40% TW and no tubes contained degradation in the 20-39% TW range. Refer to Table 2, Form NIS-BB, for results. Two tubes were removed from service by mechanical roll tube plugs.

Tubes 24-68 and 31-86 contained OD degradation indicative of secondary side pitting that was 77% and 76% TW respectively. These tubes were plugged.

6.3 1C Steam Generator - 1RC01BC

Full length inspections were performed on 2300 tubes and partial length inspections were performed on 2269 tubes for a 100% examination scope. Six tubes contained indications greater than 20% TW with four of those tubes with degradation exceeding 40% TW. Refer to Table 3, Form NIS-BB, for results. Six tubes were removed from service.

Five tubes had common mode degradation of secondary side pitting near support plates. Tubes 18-16, 34-15, 34-37, and 45-26 were plugged due to degradation exceeding 40% TW (80%, 58%, 62% and 62% TW respectively). Tube 35-16 was preventively plugged due to 37% TW pitting. Tube 12-8 was plugged as a preventative measure with a orificed plug in the cold leg due to a recommendation by Westinghouse as a result of a preliminary tube analysis. A 29% TW manufacturing burnish mark was found in tube 19-83. The mark showed no growth from the previous inspection and was subsequently left in service.

6.4 1D Steam Generator - 1RC01BD

Full length inspections were performed on 2264 tubes and partial length inspections were performed on 2303 tubes for a 100% examination scope. Five tubes contained indications greater than 20% TW with two of those tubes exceeding 40% TW degradation. Refer to Table 4, Form NIS-BB, for results. Three tubes were removed from service by mechanical roll tube plugs.

All five tubes contained common mode degradation of secondary side pitting near support plates. Tubes 14-8 and 36-16 contained degradation exceeding 40% TW, 64% and 59% TW respectively. These tubes were subsequently plugged. Tube 29-80 was preventively plugged due to 38% TW pitting.

7.0 DOCUMENTATION

All original data tapes have been provided to Commonwealth Edison Company. The final data sheets and tubesheet maps showing pertinent information are contained in the Babcock & Wilcox Eddy Current Examination Report for Commonwealth Edison Byron Unit 1 January 1990 Refueling Outage.

8.0 FIGURES/TABLES/ATTACHMENTS

- 8.1 Table 1: 1A Steam Generator Form NIS-BB Examination Results
Table 2: 1B Steam Generator Form NIS-BB Examination Results
Table 3: 1C Steam Generator Form NIS-BB Examination Results
Table 4: 1D Steam Generator Form NIS-BB Examination Results
Table 5: Personnel Certification Listing
- 8.2 Figure 1A: 1A Steam Generator Inspection Plan
Figure 1B: 1B Steam Generator Inspection Plan
Figure 1C: 1C Steam Generator Inspection Plan
Figure 1D: 1D Steam Generator Inspection Plan
- 8.3 Figure 2A: 1A Steam Generator Plugging Map
Figure 2B: 1B Steam Generator Plugging Map
Figure 2C: 1C Steam Generator Plugging Map
Figure 2D: 1D Steam Generator Plugging Map

- 8.4 Attachment 1: Form NIS-2 for 1A SG Tube Plugging
Attachment 2: Form NIS-2 for 1B SG Tube Plugging
Attachment 3: Form NIS-2 for 1C SG Tube Plugging
Attachment 4: Form NIS-2 for 1D SG Tube Plugging
Attachment 5: Form NIS-1 Owners Report for SG Inspections

- 8.5 The following is a list of definitions used in the preceding
Tables/Figures/Attachments:

%TW - Indication depth in through wall percentage.
ID - Indication originating from the inside diameter of tube.
OD - Indication originating from the outside of the tube.
TEH - Tube end on the hot leg side.
TSH - Tubesheet on the hot leg side.
TEC - Tube end on the cold leg side.
TSC - Tubesheet on the cold leg side.
RFO - Refueling Outage.
AVx - Anti-vibration bar number x.
xxH - Tube support plate number xx on the hot leg side.
xxC - Tube support plate number xx on the cold leg side.
Full Length - Hot leg tube end to cold leg tube end.
Partial Length - Hot leg tube end through the U-bend to the top support plate
on the cold leg side.

FIGURE 1A

TUBES INSPECTED BY BOBBIN COIL DURING 01/90 RFO

PLANT: BYRON UNIT 1

GENERATOR: A

TOTAL TUBES: 4578

P = TUBES PREVIOUSLY PLUGGED (39)

- TUBES INSPECTED FULL LENGTH (2935)

0 = TUBES INSPECTED PARTIAL LENGTH (2304)

TOTAL TUBES ASSIGNED: 4578

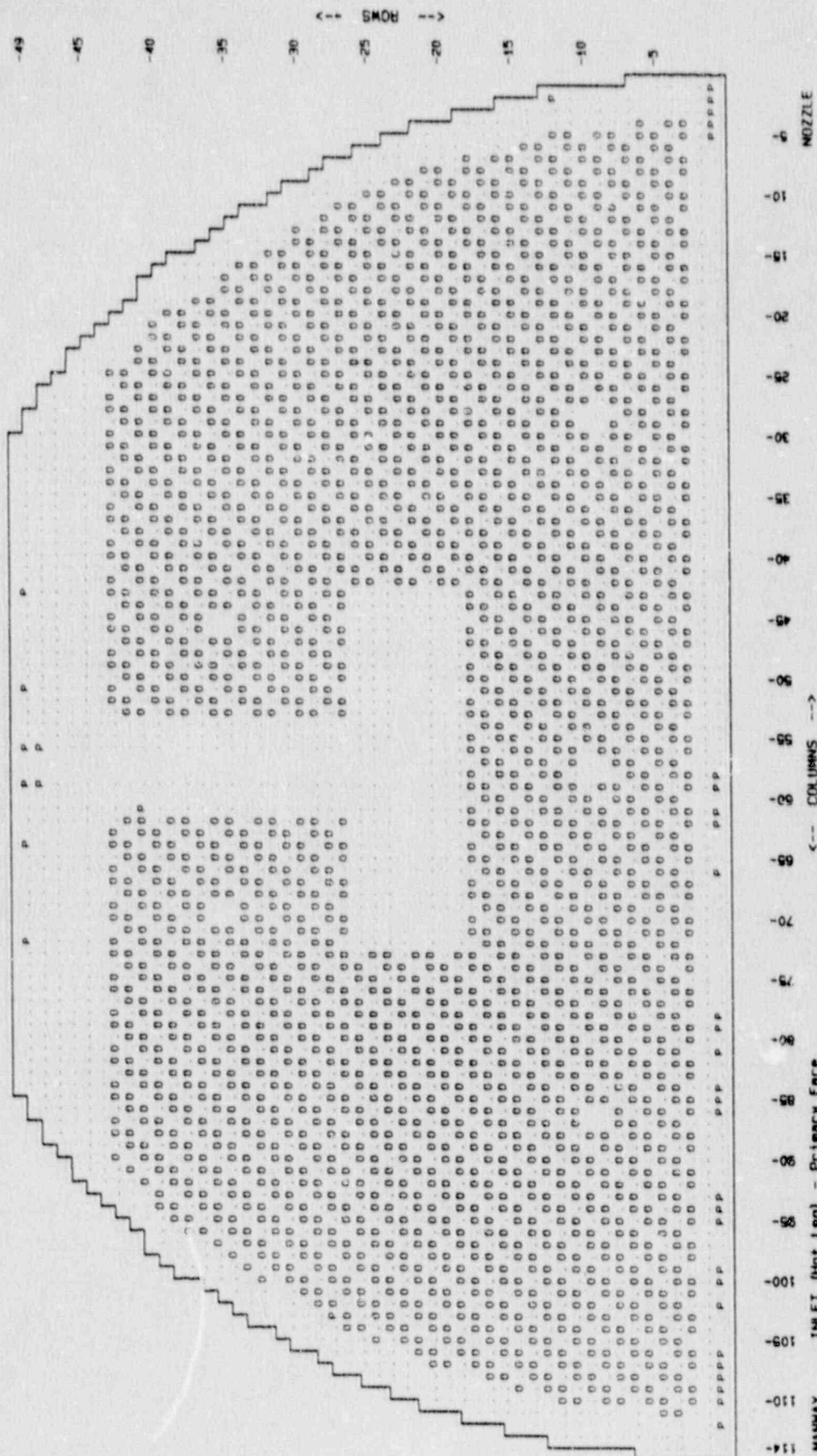


FIGURE 1B

TUBES INSPECTED BY BOBBIN COIL DURING 01/90 RFO

PLANT: BYRON UNIT 1

GENERATOR: B

TOTAL TUBES: 4578

4578

P = TUBES PREVIOUSLY PLUGGED (16)

• = TUBES INSPECTED FULL LENGTH (2264)

0 = TUBES INSPECTED PARTIAL LENGTH (2298)

TOTAL TUBES ASSIGNED: 4578

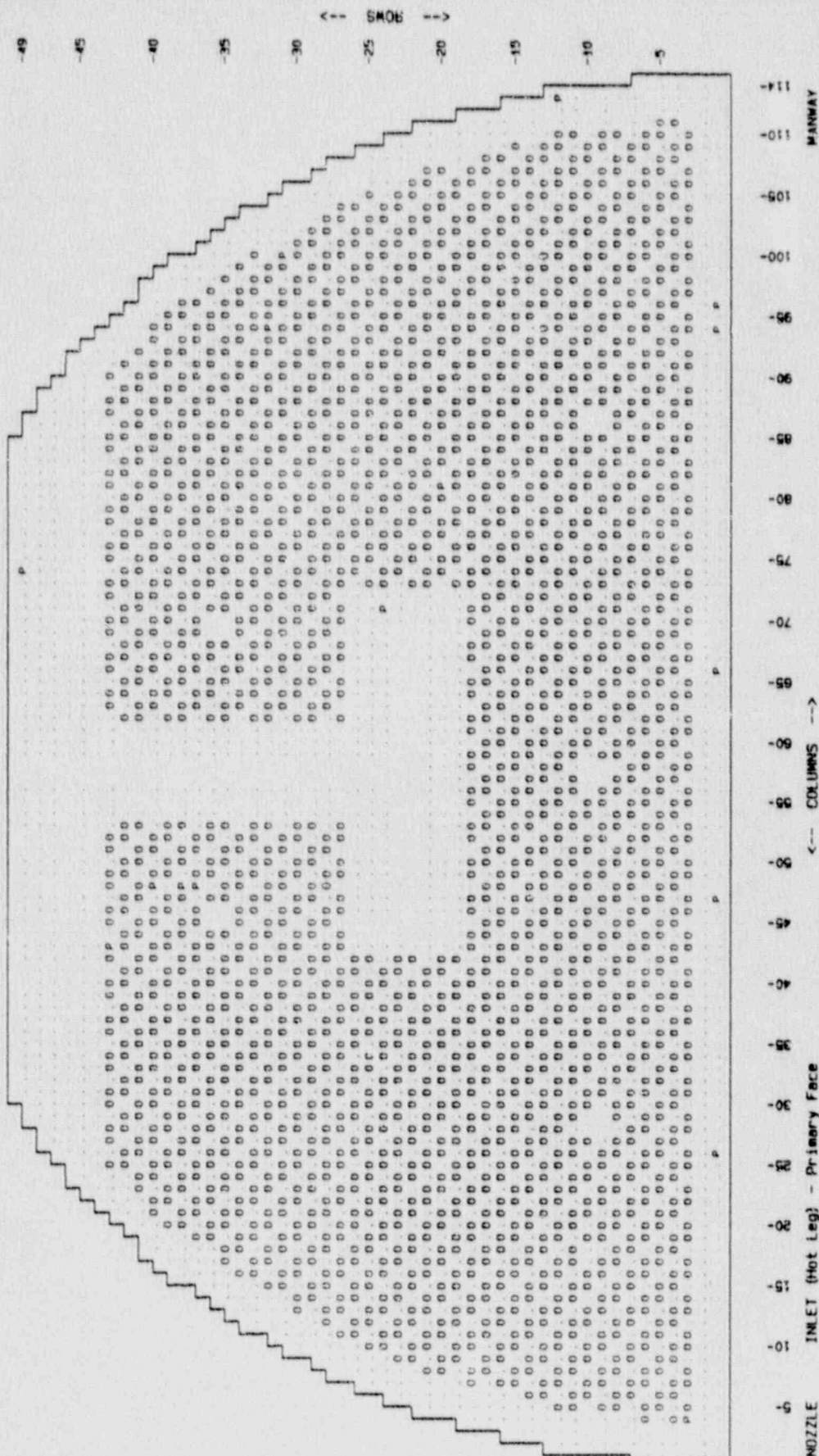


FIGURE 1C

TUBES INSPECTED BY BOBBIN COIL DURING 01/90 RFO

PLANT: BYRON UNIT 1

GENERATOR: C

TOTAL TUBES: 4578

P = TUBES PREVIOUSLY PLUGGED (9)

- TUBES INSPECTED FULL LENGTH (2300)

0 = TUBES INSPECTED PARTIAL LENGTH (2269)

TOTAL TUBES ASSIGNED: 4578

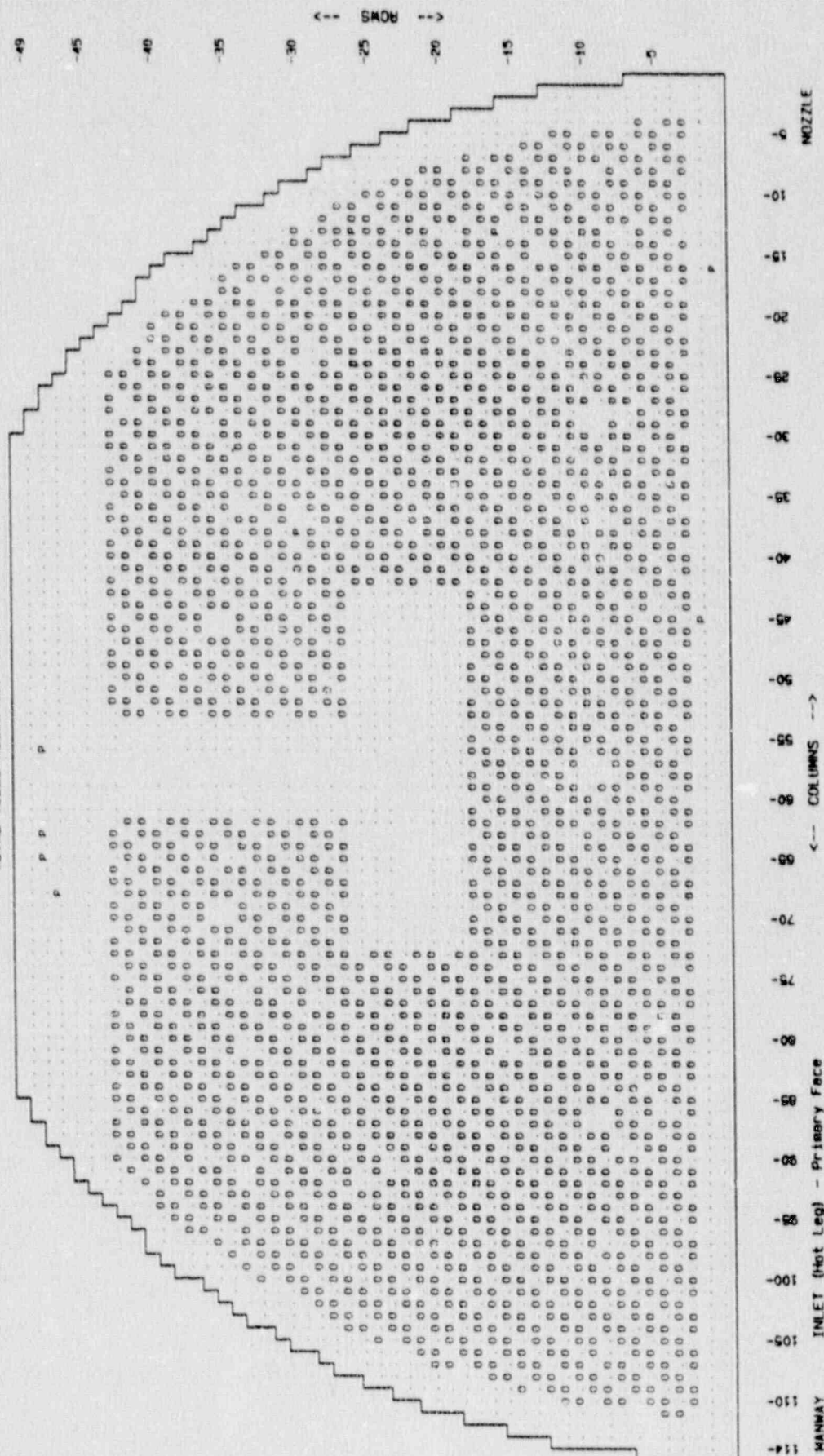


FIGURE 1D

TUBES INSPECTED BY BOBBIN COIL DURING 01/90 RFO

PLANT: BYRON UNIT 1

GENERATOR: D

TOTAL TUBES: 4578

P = TUBES PREVIOUSLY PLUGGED (11)

- TUBES INSPECTED FULL LENGTH (2254)

O = TUBES INSPECTED TEN TO FIVE (2303)

TOTAL TUBES ASSIGNED: 4578

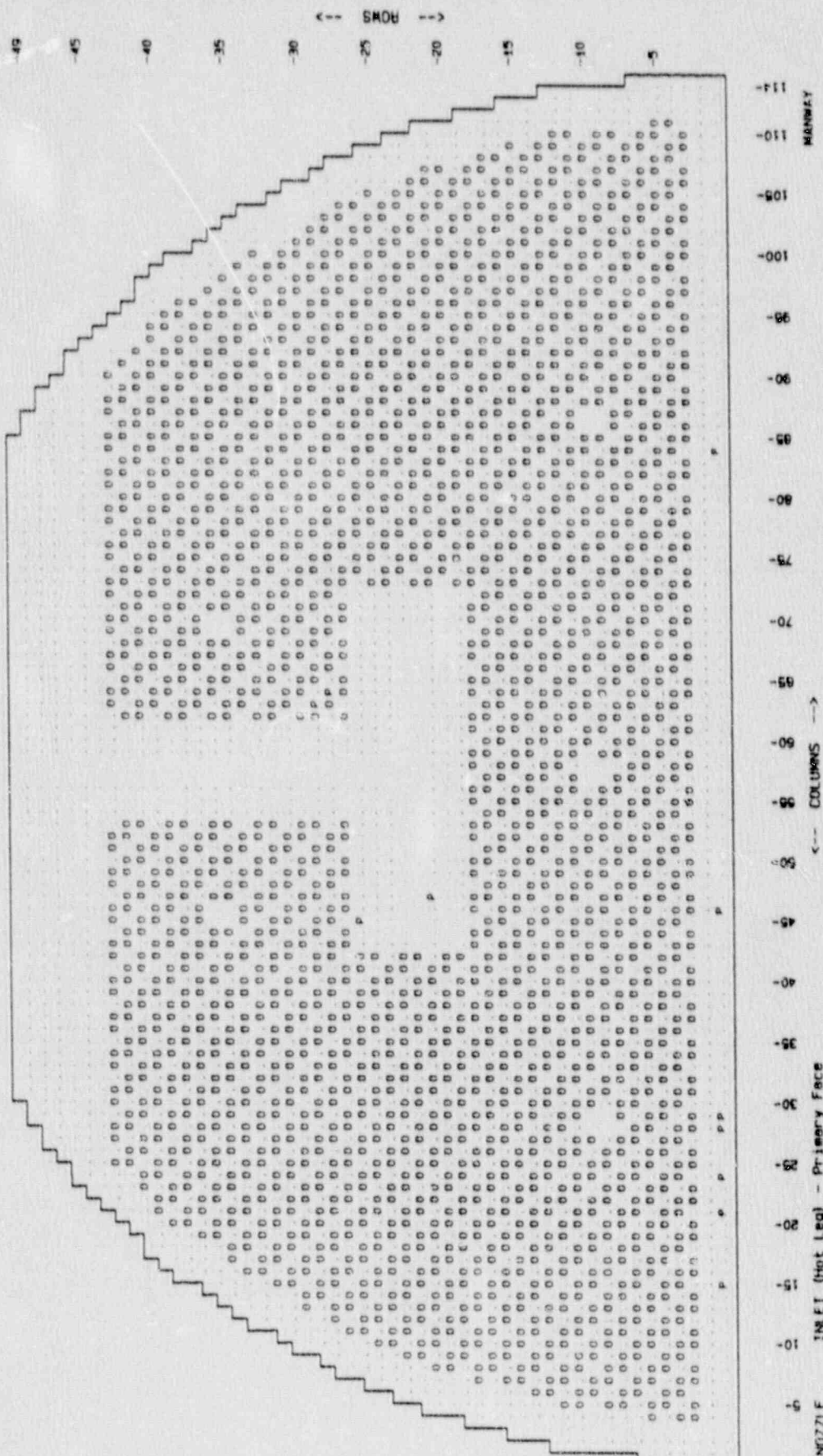


FIGURE 2A

TUBES PLUGGED DURING 01/90 RF0

PLANT: BYRON UNIT 1

GENERATOR: A

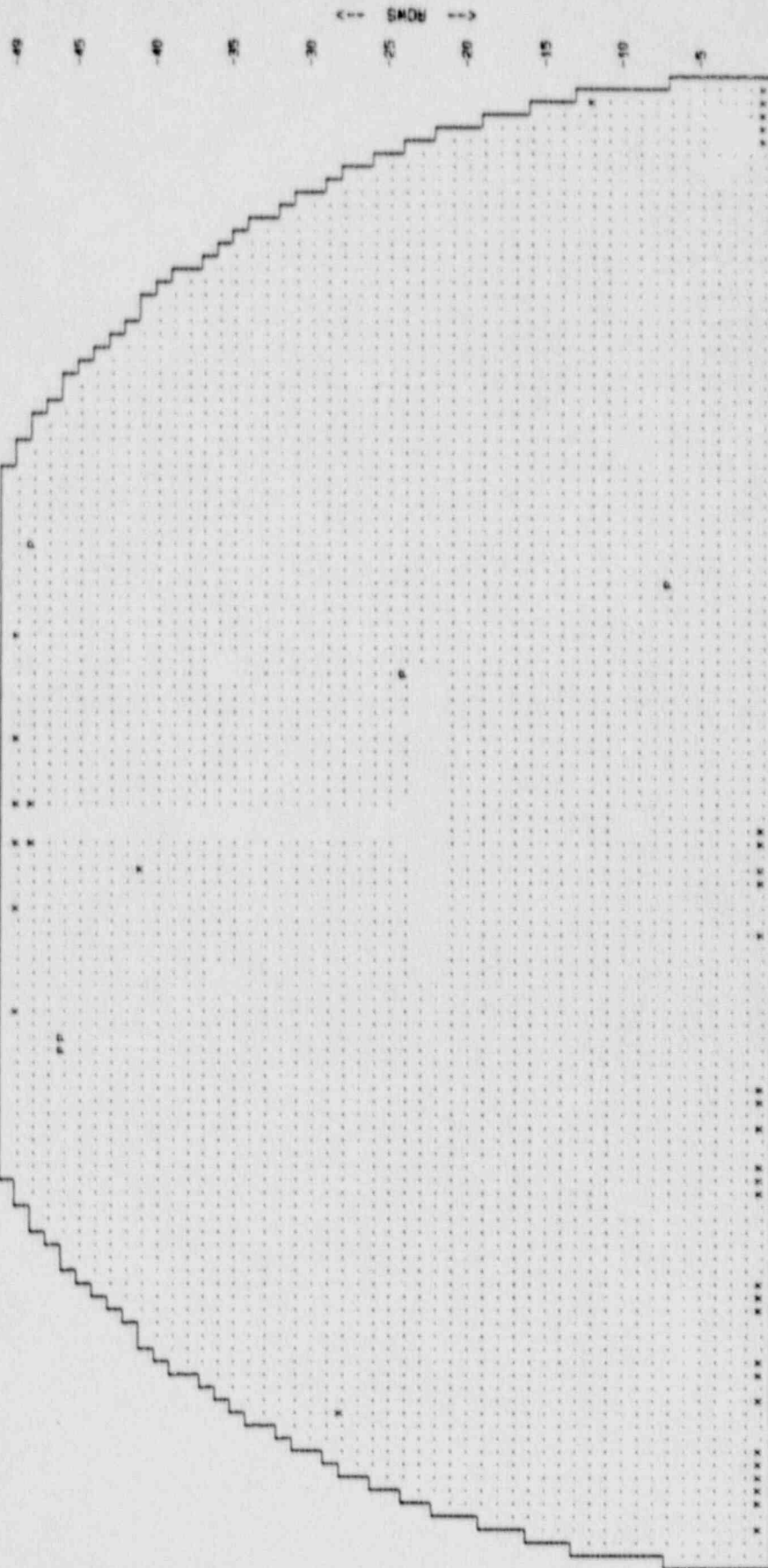
TOTAL TUBES:

4578

X = TUBES PREVIOUSLY PLUGGED (39)

P = TUBES PLUGGED - 01/90 RF0 (5)

TOTAL TUBES ASSIGNED: 44



MANWAY INLET (Hot Leg) - Primary Face NOZZLE

FIGURE 2B

TUBES PLUGGED DURING 01/90 RFO

PLANT: BYRON UNIT 1

GENERATOR: B

TOTAL TUBES:

4578

X = TUBES PREVIOUSLY PLUGGED (16)

P = TUBES PLUGGED - 01/90 RFO (2)

TOTAL TUBES ASSIGNED: 18

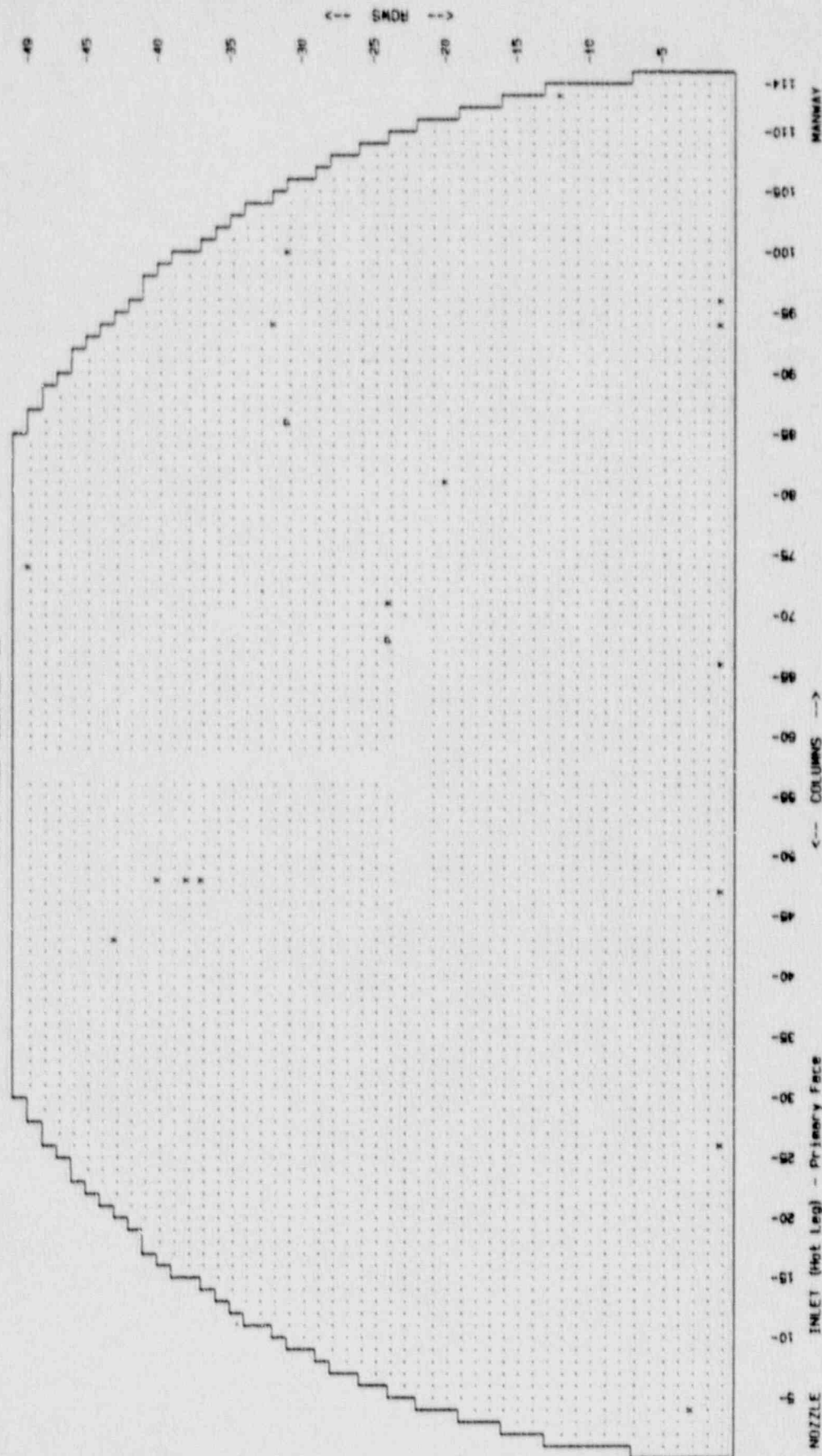


FIGURE 2C

TUBES PLUGGED DURING 01/90 RFO

PLANT: BYRON UNIT 1

GENERATOR: C

TOTAL TUBES:

4578

X = TUBES PREVIOUSLY PLUGGED (9)

P = TUBES PLUGGED - 01/90 RFO (6)

TOTAL TUBES ASSIGNED: 45

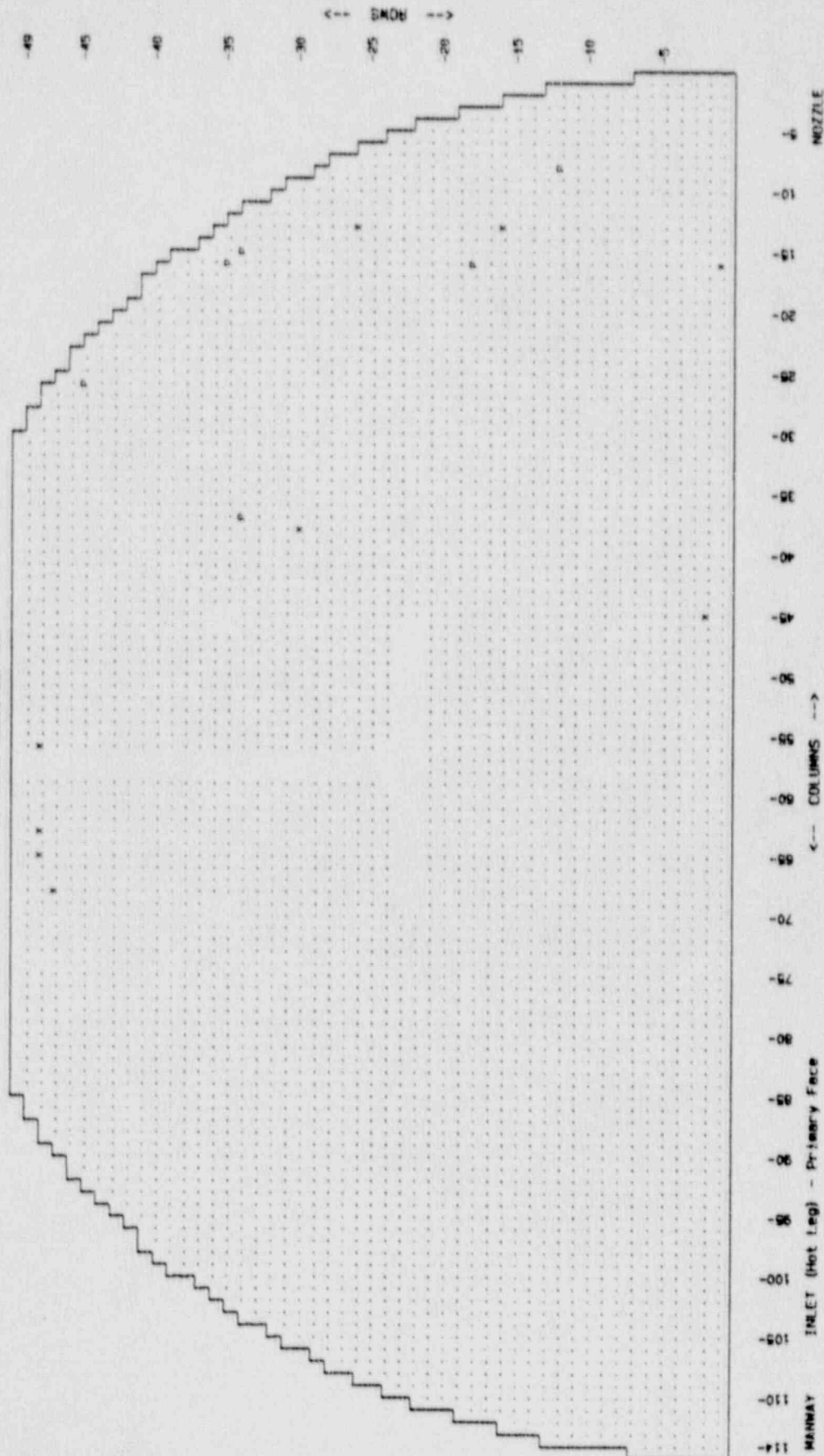


FIGURE 2D

TUBES PLUGGED DURING 01/90 RFO

PLANT: BYRON UNIT 1

GENERATOR: D

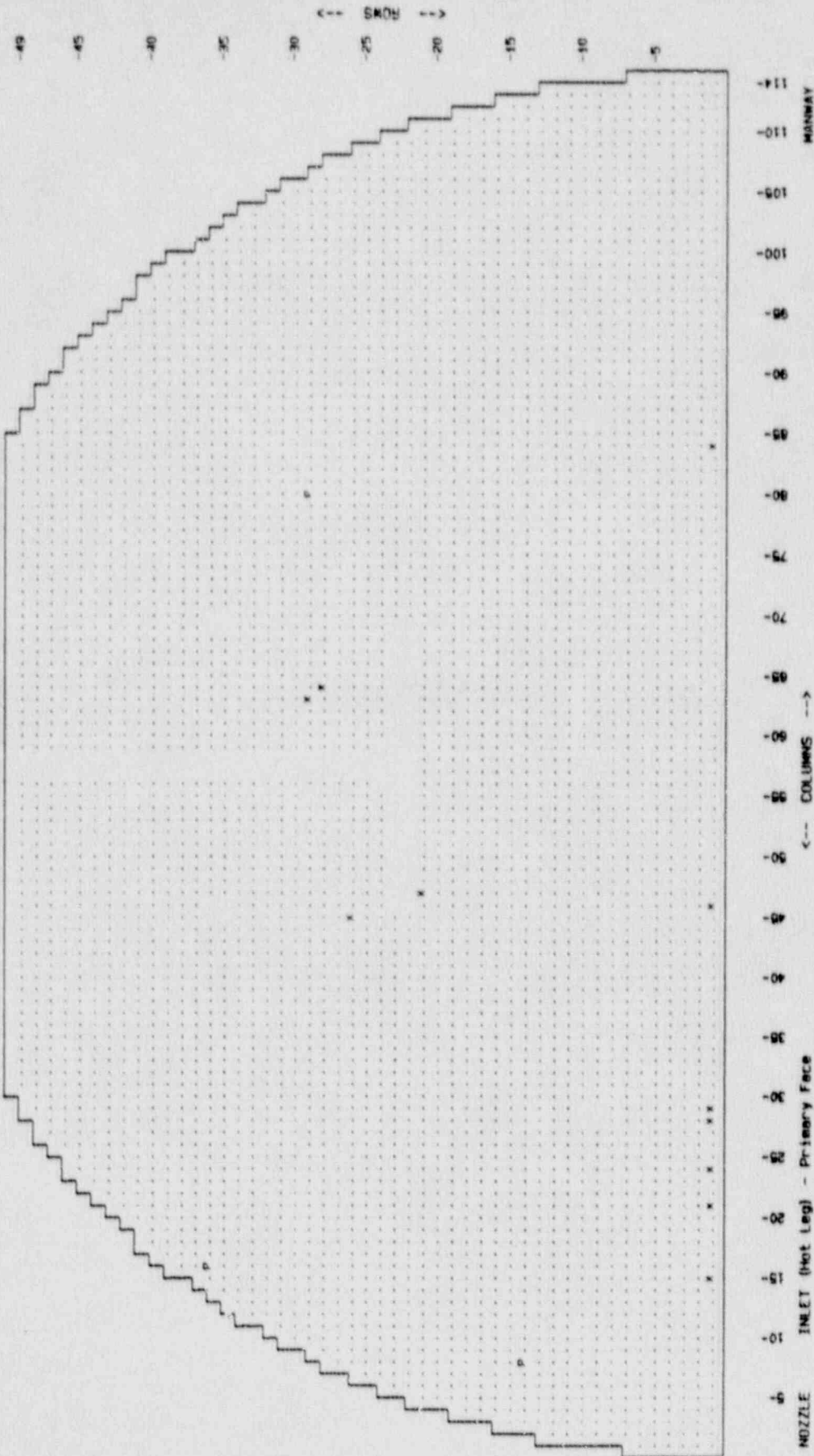
TOTAL TUBES:

4578

X = TUBES PREVIOUSLY PLUGGED (11)

P = TUBES PLUGGED - 01/90 RFO (3)

TOTAL TUBES ASSIGNED: 14



Attachment 1

FORM NIS-2 OWNER'S REPORT FOR REPAIRS OR REPLACEMENTS

As Required by the Provisions of the ASME Code Section XI 22-10

1. Owner COMMONWEALTH EDISON COMPANY Date 2/17/90
ONE FIRST NATIONAL PLAZA; CHICAGO, IL 60690 Sheet 1 of 1
 Address
2. Plant BYRON NUCLEAR POWER STATION Unit 1
4450 N. GERMAN CHURCH RD; BYRON, IL 61010 NWR 367917
 Address Repair Organization P.O. No., Job No., etc.
3. Work Performed by BABCOCK & WILCOX Type Code Symbol Stamp NOT APPLICABLE
3110 ODDFELLOWS RD; LYNCHBURG, VA 24501 Authorization No. NOT APPLICABLE
 Address Expiration Date NOT APPLICABLE
4. Identification of System RC
5. (a) Applicable Construction Code ASME SECT III 19 71 Edition S'72, *W'74 Addenda 1355, 1493-1 Code Case 1484, 1528
 (b) Applicable Edition of Section XI Utilized for Repairs or Replacements 19 83/5'83

6. Identification of Components Repaired or Replaced and Replacement Components

Name of Component	Name of Manufacturer	Manufacturer Serial No.	National Board No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
1A STM. GEN.	WESTINGHOUSE	1732	W15218	1RC013A	1977	REPAIRED	YES

7. Description of Work INSTALLED INCONEL-690 PLUGS IN TUBES 7-39, 24-46, 46-74, 46-75, 48-36 (HOT & COLD LE)

8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐
 None Other ☐ Pressure _____ psi Test Temp. _____ °F

NOTE: Supplemental sheets in form of lists, sketches, or drawings may be used, provided (1) size is 8 1/2 in. x 11 in., (2) information in items 1 through 6 on this report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

(12/82)

This Form (E00030) may be obtained from the Order Dept., ASME, 345 E. 47th St., New York, N.Y. 10017

*W'74 APPLICABLE TO UNIT FOR NB-2331(D), NB-2332(A)(2), NB-4332, NB-4334.1, 4334.2, NB-4335.1, 4335.2, 4335.3, NB4335.

FORM NIS-2 (Back)

B67917

9. Remarks Plug Material: ASME SB-166 Inconel 690 2.75" ASME Sect III Cl 1 1986 Ed. Heat 7058-13

Applicable Manufacturer's Data Reports to be attached

PAID M60-1A Rev AT, E1 390 R12 Reactor Bldg

CERTIFICATE OF COMPLIANCE

We certify that the statements made in the report are correct and this Repair conforms to the rules of the ASME Code, Section XI. repair or replacement

Type Code Symbol Stamp Not ApplicableCertificate of Authorization No. Not Applicable Expiration Date Not ApplicableSigned A. J. Schwartz Production Supt. Date 2-24, 19 90
Owner or Owner's Designee, Title

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Illinois and employed by Hartford Stm. & H. Eng'g & Ins. Co. of Hartford, Connecticut have inspected the components described in this Owner's Report during the period 2/5/90 to 3/4/90, and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owner's Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owner's 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.

Gregory J. Hendrick Commissions ILL-1254
Inspector's Signature National Board, State, Province, and Endorsements

Date March 2, 19 90

Attachment 2

FORM NIS-2 OWNER'S REPORT FOR REPAIRS OR REPLACEMENTS
 As Required by the Provisions of the ASME Code Section XI

1. Owner COMMONWEALTH EDISON COMPANY Date 2/4/90
Name
ONE FIRST NATIONAL PLAZA; CHICAGO, IL 60690 Sheet 1 of 1
Address
 2. Plant BYRON NUCLEAR POWER STATION Unit 1
Name
4450 N. GERMAN CHURCH RD; BYRON, IL 61010 NWR 367918
Address Repair Organization P.C. No., Job No., etc.
 3. Work Performed by BABCOCK & WILCOX Type Code Symbol Stamp NOT APPLICABLE
Name Authorization No. NOT APPLICABLE
3110 ODDFELLOWS RD; LYNCHBURG, VA 24501 Expiration Date NOT APPLICABLE
Address
 4. Identification of System RC
 5. (a) Applicable Construction Code ASME SECT III 1971 Edition 572, *W'74 Addenda 155, 1493-1 Code Case 1484, 1528
 (b) Applicable Edition of Section XI Utilized for Repairs or Replacements 19 83/5'83

6. Identification of Components Repaired or Replaced and Replacement Components

Name of Component	Name of Manufacturer	Manufacturer Serial No.	National Board No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
1/3 STEAM GENERATOR	WESTINGHOUSE	1731	W15217	IRCO1B3	1977	REPAIRED	YES

7. Description of Work INSTALLED MONEL-690 PLUGS IN HUTY COLD LEGS OF TUBES 24-68 & 31-86.

8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐
 None Other ☐ Pressure _____ psi Test Temp. _____ °F

NOTE: Supplemental sheets in form of lists, sketches, or drawings may be used, provided (1) size is 8 1/2 in. x 11 in., (2) information in items 1 through 8 on this report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

(12/82)

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*W'74 APPLICABLE TO UNIT FOR NB-2331(D), NB-2332(A)(2), NB-4332, NB-4334.1, 4334.2, NB-4335.1, 4335.2, 4335.3, NB 4335.

FORM NIS-2 (Back)

9. Remarks Plug Material: ASME SB-116 Inconel 690, 0.75" Mechanical, Heat 7058-13
Applicable Manufacturer's Data Reports to be attached
ASME Section III 1984 Ed No Addenda
B67918 PRSD M6D-2 Rev AL; EL 390 RI30 Reactor Bldg

CERTIFICATE OF COMPLIANCE

We certify that the statements made in the report are correct and this Repair conforms to the rules of the ASME Code, Section XI.
repair or replacement

Type Code Symbol Stamp Not Applicable

* Certificate of Authorization No. Not Applicable Expiration Date Not Applicable

Signed G. J. Schwartz Production Supt. Date 2-24 19 90
Owner or Owner's Designee Title

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Illinois and employed by Hartford Stm. Co. Insp. & Ins. Co. of Hartford, Connecticut have inspected the components described in this Owner's Report during the period 2/6/90 to 3/2/90 and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owner's Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owner's 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.

Gregory L. Handrich Commissions 166-1254
Inspector's Signature National Board, State, Province, and Endorsements

Date March 2 19 90

Attachment 3

FORM NIS-2 OWNER'S REPORT FOR REPAIRS OR REPLACEMENTS
As Required by the Provisions of the ASME Code Section XI

1. Owner COMMONWEALTH EDISON COMPANY Date 2/13/90
ONE FIRST NATIONAL PLAZA; CHICAGO, IL 60690
 2. Plant BYRON NUCLEAR POWER STATION Sheet 1 of 1
4450 N. GERMAN CHURCH RD; BYRON, IL 61010 Unit 1
 3. Work Performed by BABCOCK & WILCOX Type Code Symbol Stamp NOT APPLICABLE
3110 ODDFELLOWS RD; LYNCHBURG, VA 24501 Authorization No. NOT APPLICABLE
 4. Identification of System RC Expiration Date NOT APPLICABLE
 5. (a) Applicable Construction Code ASME SECT III 19 71 Edition S72, *W'74 Addenda 1355, 1493-1 Code Case 484, 1528
 (b) Applicable Edition of Section XI Utilized for Repairs or Replacements 19 83/5'83

6. Identification of Components Repaired or Replaced and Replacement Components

Name of Component	Name of Manufacturer	Manufacturer Serial No.	National Board No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
1C STEAM GENERATOR	WESTINGHOUSE	1734	WIS220	IRCOIBC	1977	REPAIRED	YES

7. Description of Work INSTALLED 5-690 PLUGS IN HOT LEGS & COLD LEGS OF TUBES 12-8, 18-16, 34-15, 35-16, 45-26, 34-37.

8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Normal Operating Pressure ☐
 None Other ☐ Pressure _____ psi Test Temp. _____ °F

NOTE: Supplemental sheets in form of lists, sketches, or drawings may be used, provided (1) size is 8 1/2 in. x 11 in., (2) information in items 1 through 6 on this report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

(12/82)

This Form (E00030) may be obtained from the Order Dept., ASME, 345 E. 47th St., New York, N.Y. 10017

*W'74 APPLICABLE TO UNIT FOR NB-2331(D), NB-2332(A)(2), NB-4332, NB-4334.1, 4334.2, NB-4335.1, 4335.2, 4335.3, NB-4335.

B67919

FORM NIS-2 (Back)

9. Remarks Plug Material: ① ASME SB-166 Inconel 690 0.750 mechanical Heat 7058-13
Applicable Manufacturer's Data Reports to be attached
ASME Sect III 1986 Ed No Addenda ② ASME SB-166 Inconel 690
0.750" mechanical orificed plug Heat 7058-13
PRD M60-3 REV AK, EL 390 RI-3 Reactor Bldg

CERTIFICATE OF COMPLIANCE

We certify that the statements made in the report are correct and this Repair conforms to the rules of the ASME Code, Section XI. repair or replacement

Type Code Symbol Stamp Not Applicable
 Certificate of Authorization No. Not Applicable Expiration Date Not Applicable
 Signed AX Schwartz Preparation Supt. Date 2-24, 19 90
Owner or Owner's Designee, Title

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Illinois and employed by Hartford Steam & Ice Co. of Hartford Connecticut have inspected the components described in this Owner's Report during the period 2/2/90 to 3/2/90 and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owner's Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owner's 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.

Spuy L. Handrich Commissions ILL-1254
Inspector's Signature National Board, State, Province, and Endorsements
 Date March 2, 19 90

Attachment 4

FORM NB-2 OWNER'S REPORT FOR REPAIRS OR REPLACEMENTS
 As Required by the Provisions of the ASME Code Section XI 223-70

1. Owner COMMONWEALTH EDISON COMPANY Date 2/13/90
Name
ONE FIRST NATIONAL PLAZA; CHICAGO, IL 60690 Sheet 1 of 2
Address
 2. Plant BYRON NUCLEAR POWER STATION Unit 1
Name
4450 N. GERMAN CHURCH RD; BYRON, IL 61010 NWR 367920
Address Repair Organization P.O. No., Job No., etc.
 3. Work Performed by BABCOCK & WILCOX Type Code Symbol Stamp NOT APPLICABLE
Name Authorization No. NOT APPLICABLE
3110 ODDFELLOWS RD; LYNCHBURG, VA 24501 Expiration Date NOT APPLICABLE
Address
 4. Identification of System RC
 5. (a) Applicable Construction Code ASME SECTION III 19 71 Edition 5'72, 6'W'74 Addenda 1355, 1493-1 Code Case 1484, 1528
 (b) Applicable Edition of Section XI Utilized for Repairs or Replacements 19 83/5'83

6. Identification of Components Repaired or Replaced and Replacement Components

Name of Component	Name of Manufacturer	Manufacturer Serial No.	National Board No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
1 D STEAM GENERATOR	WESTINGHOUSE	1733	W15219	IRCC13D	1977	REPAIRED	YES

7. Description of Work INLET G90 PLUGS INSTALLED IN HOT LEG & COLD LEG OF TUBES 14-9, 29-30, & 36-16.

8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐
 None Other ☐ Pressure _____ psi Test Temp. _____ °F

NOTE: Supplemental sheets in form of lists, sketches, or drawings may be used, provided (1) size is 8 1/2 in. x 11 in., (2) information in Items 1 through 6 on this report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

(12/82) This Form (E00030) may be obtained from the Order Dept., ASME, 345 E. 47th St., New York, N.Y. 10017
 *W'74 APPLICABLE TO UNIT FOR NB-2331(D), NB-2332(A)(2), NB-4332, NB-4334.1, 4334.2, NB-4335.1, 4335.2, 4335.3 NB-4335.

FORM NIS-2 (Back)

B67920

9. Remarks Plug Material ASME SB-116 Inconel 690 0.750" mechanical Plugs
Heat 7059-13 ASME Sect III 1986 Ed No Addenda
M60-4 Rev A6 EL 390 RI10 Reactor Bldg

CERTIFICATE OF COMPLIANCE

We certify that the statements made in the report are correct and this Repair conforms to the rules of the ASME Code, Section XI.

Type Code Symbol Stamp Not Applicable
 Certificate of Authorization No. Not Applicable Expiration Date Not Applicable
 Signed AX Schwartz Production Supt. Date 2-24, 19 90
 Owner or Owner's Designee Title

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Illinois and employed by Hartford Stm. & Engr. & Ins. Co. of Hartford, Connecticut have inspected the components described in this Owner's Report during the period 2/2/90 to 3/2/90 and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owner's Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owner's 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.

Spuy L. Handrick Commissions 166-1258
 Inspector's Signature National Board, State, Province, and Endorsements
 Date March 2, 19 90

FORM NIS-1 OWNER'S REPORT FOR INSERVICE INSPECTIONS
As required by the Provisions of the ASME Code Rules

[illegible]

This Form (E00029) may be obtained from the Order Dept., ASME, 345 E. 47th St., New York, N.Y. 10017

FORM NIS-1 (Back)

8. Examination Dates 11/09/88 to 03/04/90 9. Inspection Interval from 09/16/85 to 09/16/95
10. Abstract of Examinations. Include a list of examinations and a statement concerning status of work required for current interval. Refer to the Outage Summary Report and In Service Inspection Program Plan
11. Abstract of Conditions Noted Refer to the Outage Summary Report
12. Abstract of Corrective Measures Recommended and Taken
Refer to the Outage Summary Report

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.

Certificate of Authorization No. (if applicable) N/A Expiration Date N/A
Date 4-11 19 90 Signed Commonwealth Edison By [Signature]
Owner Company

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Illinois and employed by HSBI & I Co. of Hartford, Conn. have inspected the components described in this Owner's Report during the period 11/09/88 to 03/04/90, and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owner's Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owner's 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.

[Signature] Commissions ILL-1254
Inspector's Signature National Board, State, Province, and Endorsements
Date April 27 19 90

TABLE 5

EDDY CURRENT PERSONNEL CERTIFICATION LIST

The following personnel performed eddy current examinations at Byron Station during the January 1990 Unit Refueling Outage:

Name	Level	ID Number
L. E. Colado	II	C9318
L. R. Cooper	II	C9813
P. J. Digiorgio	II	D9866
D. J. Dyson	II	D7109
J. L. Gardner	II	G9389
E. Korkowski	IT	K7060
G. R. Livesay	II	L4332
J. L. Mitchell	I	M5765
J. C. Oliver	I	O1057
J. M. Parrish	I	P5436
R. Pavkovich	I	P4559
W. R. Perkins	I	P2952
M. F. Pierce	I	P4104
J. S. Schwenn	IIA	S1848
T. G. Washburn	I	W4896
C. H. Whatley	II	W9213
D. W. Williams	II	W6563
* R. M. Barnes	III	B0690
* R. J. Himmelspace	IIA	H8259
* M. S. Loer	IIA	L7871
* T. A. Ribaric	IIA	R6452
* H. L. Smith	III	S2680
* M. M. Storey	IIA	S4373
* E. P. Lopez	IIA	L1263
* V. S. Lynn	IIA	L1107

* Performed eddy current data analysis