262 Pages

FORM NIS-1 OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS

As required by the Provisions of the ASME Code Rules

1. **Owner** Duke Power Company, 422 S. Church Street, Charlotte, NC 28242
(Name and Address of Owner)

2. **Plant** Oconee Nuclear Station, Highway 130/183, Seneca, SC 29679
(Name and Address of Plant)

3. **Plant Unit** 3 4. **Owner Certificate of Authorization (if required)** N/A

5. **Commercial Service Date** 12/16/74 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.
See Section 1 Paragraph 1.5 in the Attached Report.				

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. x 11 in., (2) information in items 1 through 6 on this data 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.

FORM NIS-1 (back)

8. Examination Dates 9/21/88 to 12/18/89 9. Inspection Interval from 3/1/84 to 3/1/94

10. Abstract of Examinations. Include a list of examinations and a statement concerning status of work required for current interval. See Attached Report

11. Abstract of Conditions Noted. See Attached Report

12. Abstract of Corrective Measures Recommended and Taken. See Attached 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.

Date 2-23 19 90 Signed Duke Power Co. By [signature]
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 the State or Province of North Carolina and employed by The HSBI & I Co.* of Hartford Conn. have inspected the components described in this Owners' Data Report during the period 9/21/88 to 12/18/89, and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owners' Data 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 Owners' Data 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.

Date FEB. 26 19 90

Rayford P Elgin Commissions NC 828
Inspector's Signature National Board, State, Province and No.

* The Hartford Steam Boiler Inspection & Insurance Company
1117 Perimeter Center W.
Suite E-301
Atlanta, Georgia 30338

INSERVICE INSPECTION REPORT

UNIT 3 OCONEE 1989 REFUELING OUTAGE 11

Location: Oconee County, South Carolina
NRC Docket No. 50-287
Commercial Service Date: December 16, 1974

Owner: Duke Power Company
422 S. Church St.
Charlotte, N. C. 28242

Revision 0

Prepared By: A. J. Hogge, Jr. Date 2-9-90

Reviewed By: R Tyndall Date 2-22-90

Approved By: B Hagan Date 2-23-90

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1.0 Summary of Inservice Inspection

This report describes the Inservice Inspection of Duke Power Company's Oconee Nuclear Station Unit 3 during the 1989 Refueling Outage (also referred to as Outage 11).

Included in this report are the final inservice inspection plan, the inspection results for each item, a summary for each category of examination and corrective action taken when unacceptable conditions were found. In addition, there is a section included for repairs and replacements required since September 21, 1988.

1.1 Class 1 Inspection

The Class 1 Inservice Inspection included examinations on the Reactor Vessel Closure Head Weld, Closure Head to Flange Weld, CRDM J Groove Welds and Incore Monitoring Partial Penetration Nozzle Welds. In addition, examinations were performed on the Reactor Vessel Closure Head Nuts and Studs, Threads in Flange, Closure Washers and Bushings, CRD Housing Bolts and Nut Rings and Reactor Vessel Interior Surfaces. Also, Pressurizer Nozzle to Vessel Welds and Inside Radius Section, Pressurizer Nozzle-to-Safe End Butt Welds, Pressurizer Studs and Bolting and Pressurizer Integrally-Welded attachments were examined. Steam Generator 3A Support Skirt to Head Weld, Steam Generator 3B Tubesheet-to-Head Welds and Nozzle to Vessel Welds including Inside Radius Section and Studs and Nuts received examinations. Letdown Cooler 3B Tubesheet-to-Shell Welds, Nozzle to Vessel Welds and Inside Radius Section were also examined. Dissimilar Metal Butt Welds in the Reactor Coolant System were examined. Reactor Coolant Pump 3B2 Seal Gland Bolts, Nuts and Washers and Valve LP-103 Bolts were also examined. Piping Welds in Reactor Coolant and High Pressure Injection Systems and Socket Welds in the Reactor Coolant System were examined.

Visual examinations were performed on the Class 1 Pressure Boundary during Inservice Leakage Tests. Also, visual examinations were performed on Class 1 Component Supports of the Reactor Coolant, High Pressure Injection and Low Pressure Injection (including Decay Heat) Systems.

The Inconel 600 Tubing in Steam Generators 3A and 3B was inspected by eddy current during Outage 11. The results of the inspections are shown in Section 5 of this report.

Reportable indications were found on the Class 1 Inspections shown in this section. Inspection and evaluation data for each reportable indication found on Class 1 Inspections is included in Section 5 of this report.

A detailed description of each inspection is found in the final Inservice Inspection Plan in Section 3 of this report. Results of each examination are found in Section 4.

1.2 Class 2 Inspection

The Class 2 Inspections included examinations on Steam Generator 3A Shell-to-Shell Weld and Integrally-Welded Attachments. Low Pressure Injection Cooler A Head Flange to Shell Weld and Low Pressure Injection Cooler B Inlet Nozzle to Shell Weld also received examinations. Piping Integrally-Welded Attachments of Main Steam, Main Feedwater, Low Pressure Injection and Reactor Building Spray Systems were examined.

The Pressure Retaining Bolting in Main Steam Stop Valve SV3 was examined. In addition, examinations were performed on circumferential butt welds in Low Pressure Injection, High Pressure Injection, Reactor Building Spray, Auxiliary Feedwater, Main Feedwater and Main Steam Systems. Also, longitudinal butt welds of Low Pressure Injection, Reactor Building Spray and Main Steam Systems were examined.

Visual examinations were performed on the Class 2 Pressure Boundary during system hydrostatic tests. Also, visual examinations were performed on the Class 2 Component Supports of the Main Steam, Main Feedwater, Auxiliary Feedwater, Low Pressure Service Water, Low Pressure Injection and Reactor Building Spray Systems.

Reportable indications were found on the Class 2 Inspections shown in this section. Inspection and evaluation data for each reportable indication found on the Class 2 Inspections is included in Section 6 of this report.

A detailed description of each inspection is found in the final Inservice Inspection Plan in Section 3 of this report. Results of each examination are found in Section 4.

1.3 Augmented Inspection

Augmented inspections at Oconee 3 consisted of Reactor Coolant Pump Flywheel examination, Makeup Nozzle and High Pressure Injection Nozzle Safe-End Examinations, and Thermal Stress Piping Examinations. A detailed description of each examination is found in the final Inservice Inspection Plan in Section 3 of this report. Results are found in Section 4.

1.4 Alternate Inspection

Alternate inspections at Oconee 3 were performed on Reactor Coolant Pumps 3A2 and 3B1 Flange. A detailed description of each examination is found in the final Inservice Inspection Plan in Section 3 of this report. Results are found in Section 4.

1.5 Identification Numbers

Owner: Duke Power Company, 422 S. Church St., Charlotte, NC 28242
Plant: Oconee Nuclear Station, Highway 130/183, Seneca, SC 29679
Plant Unit: 3
Owner Certificate of Authorization: N/A
Commercial Service Date: 12-16-74

Item	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Reactor Vessel	Babcock & Wilcox	620-0009-51-52	N/A	N-125
Steam Generator "A"	Babcock & Wilcox	620-0009-55-1	N/A	N-127
Steam Generator "B"	Babcock & Wilcox	620-0009-55	N/A	N-128
Pressurizer	Babcock & Wilcox	620-0009-59	N/A	N-126

1.6 Authorized Nuclear Inservice Inspection(s)

Name(s): R. F. Elgin Rayford F Elgin, 2-26-90

Employer: The Hartford Steam Boiler
Inspection & Insurance Company

Business Address: The Hartford Steam Boiler
Inspection and Insurance Company
1117 Perimeter Center W., Suite E-301
Atlanta, GA 30338

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 CLASS 1 REPORTABLE ITEMS OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B07.020.000	***PRESSURIZER	BOLTS,STUDS,AND NUTS **********	_____ _____ _____	***	******* _____	***** _____	__.__ __.__	*****	2 IN. AND LESS IN DIAMETER *** ********** _____ _____
B07.030.000	*** STEAM GENERATOR	BOLTS,STUDS AND NUTS _____	_____ _____ _____	***	******* _____	***** _____	__.__ __.__	*****	********** ********** _____ _____
B07.070.000	CLASS 1 VALVES	BOLTS,STUDS,AND NUTS **********	_____ _____ _____	***	******* _____	***** _____	__.__ __.__	*****	********** ********** _____ _____
B07.080.000	**CRD HOUSINGS	BOLTS,STUDS,AND NUTS **********	_____ _____ _____	***	******* _____	***** _____	__.__ __.__	*****	INSPECT ONLY IF HOUSING IS**** DISASSEMBLED********** _____ _____
B07.080.002	3RPV-CRD-RINGS	B&W 149902E B&W 149919E	_____ _____ _____	VT1	QCL-13 _____	CS _____	__.__ __.__	-----	CRD NUT RINGS OD 69 PAIRS 1 PAIR PER HOUSING 14 CONN. INSP. TO DATE PIR#3-089-0188,RELIEF ONS-011

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B16.011.000	*** STEAM GENERATOR	TUBING ********** **********		***	******* *******				**** STRAIGHT TUBE DESIGN **** **********
B16.011.001	3SGA-TUBES			ET	ISI-418	INCO	00.62 00.040		* SELECT CAL. STANDARD PER VOL.1, SECT.10.2 PIR 3-089-0185
B16.011.002	3SGB-TUBES	----------		ET	ISI-418	INCO	00.62 00.040		* SELECT CAL. STANDARD PER VOL.1, SECT.10.2 PIR 3-089-0185

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 CLASS 2 REPORTABLE ITEMS OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C03.010.000	******PRESSURE	VESSELS INTEGRALLY** WELDED ATTACHMENTS**		***	*******	*****	__.__	*****	********** **********
C03.040.000	CLASS 2 PIPING	INTEGRALLY WELDED ATTACHMENTS*********		***	*******	*****	__.__	*****	********** **********
C03.040.055	3-53B-R3	O-2436D		PT	NDE-35	SS	__.__	-----	LPI - RIGID 3-53B-5-O-2436D-R3 PIR# 3-089-0158

2.0 Status of Required Inspections

The completion status of inspections required by the 1980 ASME Section XI Code, including Addenda through Winter 1980, is summarized in this section. The requirements are listed by the ASME Section XI examination category as defined in Table IWB-2500-1 for Class 1 inspections and in IWC-2500-1 for Class 2 inspections. Augmented and alternate inspections are also included.

Class 1 Inspections

Section XI Category	Description	Inspections Required	Inspections Completed	Percentage Completed	Deferral Allowed
B-A	Pressure Retaining Welds in Reactor Vessel	8 Welds	1.666 Welds	20.82%	Yes
B-B	Pressure Retaining Welds in Vessels Other than Reactor Vessel	14 Welds	8 Welds	57.14%	No
B-D	Full Penetration Welds of Nozzles in Vessels	62 Inspections	33 Inspections	53.22%	Partial
B-E	Pressure Retaining Partial Penetration Welds in Vessels	31 Welds	31 Welds	67% Credited	No
B-F	Pressure Retaining Dissimilar Metal Welds	37 Welds	22 Welds	59.45%	No
B-G-1	Pressure Retaining Bolting Greater than 2 Inch Diameter	553 Items	297 Items	53.70%	Yes
B-G-2	Pressure Retaining Bolting 2 Inches and Less in Diameter	*46 Connections	34 Connections	67% Credited	No

*Total connections includes CRDMS that are disassembled

Class 1 Inspections (Continued)

Section XI Category	Description	Inspections Required	Inspections Completed	Percentage Completed	Deferral Allowed
B-H	Integral Attachments for Vessels	12 Attachments	8 Attachments	66.66%	No
B-J	Pressure Retaining Welds in Piping	102 Welds	53 Welds	51.96%	No
B-K-1	Integral Attachments for Piping, Pumps and Valves	1 Attachment	None	0%	No
B-L-1	Pressure Retaining Welds in Pump Casings	1 Weld	1 Weld	100% Credited	Yes
B-L-2	Pump Casings	1 Casing	1 Casing	100% Credited	Yes
B-M-1	Pressure Retaining Welds in Valve Bodies	None	N/A	N/A	N/A
B-M-2	Valve Body > 4 in. Nominal Pipe Size	2 Valves	2 Valves	100% Credited	Yes
B-N-1	Interior of Reactor Vessel	3 Items	2 Items	66.66%	No
B-N-2	Integrally Welded Core Support Structures and Interior Attachments to Reactor Vessels	None	N/A	N/A	N/A
B-N-3	Removable Core Support Structures	1 Item	None	0%	Yes
B-O	Pressure Retaining Welds in Control Rod Housings	3 Housings	2 Housings	66.66%	Yes
B-P	All Pressure Retaining Components	137 Components	77 Components	56.20%	N/A
B-Q	Steam Generator Tubing	100% Station Technical Specifications Met			N/A
F1.01	Class 1 Component Supports	85 Supports	52 Supports	61.17%	No

Class 2 Inspections

Section XI Category	Description	Inspections Required	Inspections Completed	Percentage Completed	Deferral Allowed
C-A	Pressure Retaining Welds in Pressure Vessels	10 Welds	5 Welds	50%	No
C-B	Pressure Retaining Nozzle Welds in Vessels	5 Welds	3 Welds	60%	No
C-C	Integral Attachments for Vessels, Piping, Pumps and Valves	59 Attachments	37 Attachments	62.71%	No
C-D	Pressure Retaining Bolting Exceeding 2 Inches in Diameter	1 Item	1 Item	100% Credited	No
C-F	Pressure Retaining Welds in Piping	227 Welds	120 Welds	52.86%	No
C-G	Pressure Retaining Welds in Pumps and Valves	None	N/A	N/A	N/A
C-H	All Pressure Retaining Components	90 Components	45 Components	50%	No
F1.02	Class 2 Component Supports	351 Supports	227 Supports	64.67%	No

Augmented Inspections

Description	Percentage Complete
Reactor Coolant Pump Flywheels:	100% of Technical Specifications met
High Pressure Injection And Makeup Nozzle Safe-ends	100%
Thermal Stress Piping	100% of requirements of Outage 11

Alternate Inspections

Description	Percentage Complete
Reactor Coolant Pump 3A2 and 3B1 Flange Joint, Studs, Adjacent Areas	100% of requirements for Outage 11

3.0 Final Inservice Inspection Plan For Outage 11

The final ISI plan presented in this section lists all examinations credited for Outage 11 at Oconee Unit 3. This includes ASME Section XI Class 1 and 2, augmented and alternate inspections required by the plant technical specifications.

The information shown below is a field description for the reporting format included in this section of the report:

Item Number	=	ASME Section XI Tables IWB-2500-1 (Class 1), IWC-2500-1 (Class 2), IWD-2500-1 (Class 3), Augmented and Alternate Requirements
ID Number	=	Unique Identification Number
Drawing Number	=	Location and/or Detail Drawing
Locs.	=	Location
Insp. Req.	=	Examination Technique - Magnetic Particle, Dye Penetrant, etc.
Proc. Numbers	=	Examination Procedures
Material Type/Grade	=	General Description of Material
Diam./Thick	=	Diameter/Thickness
Calib. Block	=	Calibration Block
Comments	=	General and/or Detail Description

PROGRAM: NISIRUNB-QAISI02
FILE: C007133
PLANT: OCONEE UNIT 3
KEY: ITEM NUMBER B01

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

DATE 02/09/90

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B01.011.000	REACTOR VESSEL	CIRCUMFERENTIAL***** SHELL WELDS*********		***	*******	*****	__.__	*****	**********
B01.021.000	REACTOR VESSEL	HEAD WELDS********** CIRCUMFERENTIAL*****		***	*******	*****	__.__	*****	**********
B01.021.001A	3RPV-WH5	ISI-OCN3-001		UT	ISI-130	CS	06.625	40387	CLOSURE HEAD PC 23 TO 24 120 TO 240 DEGREES
B01.030.000	REACTOR VESSEL	SHELL TO FLANGE WELD **********		***	*******	*****	__.__	*****	**********
B01.040.000	REACTOR VESSEL	HEAD TO FLANGE WELDS **********		***	*******	*****	__.__	*****	**********
B01.040.001A	3RPV-WH7	ISI-OCN3-001		UT	ISI-130	CS	06.625	40387	PC 22 TO 23 120 TO 240 DEGREES
B01.040.002A	3RPV-WH7	ISI-OCN3-001		MT	NDE-25	CS	06.625	-----	PC 22 TO 23 120 TO 240 DEGREES

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B02.011.000	***PRESSURIZER	SHELL TO HEAD WELDS CIRCUMFERENTIAL*****		***	*******	*****	__.__ __.__	*****	********** **********
B02.012.000	****** PRESSURIZER	SHELL TO HEAD WELDS* LONGTUDINAL ********		***	*******	*****	__.__ __.__	*****	********** **********
B02.031.000	**** STEAM GENERATOR	HEAD WELDS **'****** CIRCUMFERENTIAL ****		***	******* *******		__.__ __.__		********** **********
B02.040.000	********** STEAM	GENERATORS TUBESHEET TO HEAD WELDS*******		***	*******	*****	__.__ __.__	*****	********** **********
B02.040.004	3SGB-WG58-2	ISI-OCN3-004		UT	ISI-130	CS	08.500	40305	STEAM GEN 3B LOWER HEAD TO TUBESHEET PC 9 TO 50
B02.060.000	**** HEAT EXCHANGER	TUBESHEET TO SHELL** OR HEAD WELDS ******		***	*******	*****	__.__ __.__	*****	**** INSPECTOR TO RECORD **** ** COOLER S\N ON INSP. DATA **
B02.060.004	3-LDCB-IN-V3	OM-2201-1419		UT	ISI-120	SS	08.62 00.875	40411	LDC-B INL.TUBE SHT\CHNL. BODY PC.3 TO 2, INSPECTOR REC. S\N

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B03.090.000	REACTOR VESSEL	NOZZLE TO VESSEL**** WELDS**********		***	*******	*****	__.__	*****	********** **********
B03.100.000	REACTOR VESSEL	*******NOZZLE INSIDE RADIUS SECTION******		***	*******	*****	__.__	*****	********** **********
B03.110.000	***PRESSURIZER	NOZZLE TO VESSEL**** WELDS**********		***	*******	*****	__.__	*****	********** **********
B03.110.003	3PZR-WP33-3	ISI-OCN3-002		UT	ISI-130	CS	04.750	40394	PZR RELIEF NOZ BET W & Z ID 31 TO 05
B03.110.006	3PZR-WP26-4	ISI-OCN3-002		UT	ISI-130	CS	06.188	40338	PZR SEN & SAMPLING NOZ BET W&X ID 30 TO 01
B03.110.007	3PZR-WP26-5	ISI-OCN3-002		UT	ISI-130	CS	06.188	40338	PZR SEN & SAMPLING NOZ BET Z&Y ID 30 TO 01
B03.110.008	3PZR-WP26-6	ISI-OCN3-002		UT	ISI-130	CS	06.188	40338	PZR SEN & SAMPLING NOZ BET W&Z ID 30 TO 01
B03.110.010	3PZR-WP26-2	ISI-OCN3-002		UT	ISI-130	CS	06.188	40338	PZR SEN & SAMPLING NOZ BET Y&Z ID 30 TO 04

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B03.120.000	***PRESSURIZER	NOZZLE INSIDE RADIUS SECTION**********		***	*******	*****	__.__ __.__	*****	********** **********
B03.120.003	3PZR-WP33-3	ISI-OCN3-002		UT	ISI-130	CS	04.750	40394	RELIEF NOZZLE BETWEEN W & Z PC 31 TO 5 INSIDE RADIUS
B03.120.006	3PZR-WP26-4	ISI-OCN3-002		UT	ISI-130	CS	06.188	40338	SAMPLING NOZZLE BETWEEN W & X PC 30 TO 1 INSIDE RADIUS
B03.120.007	3PZR-WP26-5	ISI-OCN3-002		UT	ISI-130	CS	06.188	40338	SAMPLING NOZZLE BETWEEN Z & Y PC 30 TO 1 INSIDE RADIUS
B03.120.008	3PZR-WP26-6	ISI-OCN3-002		UT	ISI-130	CS	06.188	40338	SAMPLING NOZZLE BETWEEN W & Z PC 30 TO 1 INSIDE RADIUS
B03.120.010	3PZR-WP26-2	ISI-OCN3-002		UT	ISI-130	CS	06.188	40338	SAMPLING NOZZLE BETWEEN Y & Z PC 30 TO 4 INSIDE RADIUS
B03.130.000	*********STEAM	GENERATOR NOZZLE TO VESSEL WELDS********		***	*******	*****	__.__ __.__	*****	********** **********
B03.130.003	3SGB-WG50-2	ISI-OCN3-004		UT	ISI-130	CS	38.38 08.000	40305	3B W-Z AXIS OUTLET NOZZLE PC 65 TO 07

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B03.130.004	3SGB-WG50-1	ISI-OCN3-004		UT	ISI-130	CS	38.38 08.000	40305	3B Y-Z AXIS OUTLET NOZZLE PC 65 TO 07
B03.140.000	**********STEAM	GENERATOR NOZZLE**** INSIDE RADIUS*******		***	*******	*****	__.__ __.___	*****	********** **********
B03.140.003	3SGB-WG50-2	ISI-OCN3-004		UT	ISI-130	CS	38.38 08.000	40305	3B W-Z AXIS OUT. NOZZLE INSIDE RADIUS SECTION PC 65 TO 07
B03.140.004	3SGB-WG50-1	ISI-OCN3-004		UT	ISI-130	CS	38.38 08.000	40305	3B Y-Z AXIS OUT. NOZZLE INSIDE RADIUS SECTION PC 65 TO 07
B03.150.000	HEAT EXCHANGER	NOZZLE TO VESSEL**** WELDS**********		***	*******	*****	__.__ __.___	*****	**** INSPECTOR TO RECORD ***** ** COOLER S\N ON INSP. DATA **
B03.150.001	3-LDCA-IN-V1	OM-2201-1419		UT	ISI-120	SS	08.62 00.875	40411	LDC-A TUBESIDE INL. NOZ.,PC.5 TO 3, INSPECTOR RECORD S\N
B03.150.002	3-LDCA-OUT-V2	OM-2201-1419		UT	ISI-120	SS	04.00 00.875	40411	LDC-A TUBESIDE OUT. NOZ.,PC.5 TO 3, INSPECTOR RECORD S\N
B03.160.000	HEAT EXCHANGER	NOZZLE INSIDE RADIUS SECTION**********		***	*******	*****	__.__ __.___	*****	**** INSPECTOR TO RECORD ***** ** COOLER S\N ON INSP. DATA **

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B03.160.001	3-LDCA-IN-V1	OM-2201-1419		UT	ISI-120	SS	08.62 00.875	40411	LDC-A INL. NOZ. INSIDE RADIUS PC.5 TO 3, INSPECTOR REC. S\N
B03.160.002	3-LDCA-OUT-V2	OM-2201-1419		UT	ISI-120	SS	04.00 00.875	40411	LDC-A OUT. NOZ. INSIDE RADIUS PC.5 TO 3, INSPECTOR REC. S\N

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B04.012.000	********** PARTIAL	PENETRATION WELDS*** CRD NOZZLES ********		***	*******	*****	__.__	*****	INSPECT AND DOCUMENT 100 % OF NOZZLE WELDS ON NPD PROCEDURE
B04.012.001	3RPV-CRDM	B&W152005E		VT2	ISI-350 QCL-15	-----	__.__	-----	CLOSURE HEAD J GROOVE WELDS 69 TOTAL NOZZLE PENETRATIONS
B04.013.000	********** PARTIAL	PENETRATION WELDS*** INSTRUMENTATION ****		***	*******	*****	__.__	*****	INSPECT AND DOCUMENT 100 % OF NOZZLE WELDS ON NPD PROCEDURE
B04.013.001	3RPV-INCORE	---------- ----------		VT2	QCL-15	INCO	__.__	-----	RV INCORE MONITORING NOZZLES TOTAL 52 NOZ. ALT.EXAM ISI-350

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B05.010.000	REACTOR VESSEL	NOZZLE TO SAFE END** BUTT WELDS**********		***	*******	*****	__.__ __.___	*****	NOMINAL PIPE SIZE GREATER THAN OR EQUAL TO 4 INCH
B05.020.000	***PRESSURIZER	NOZZLE TO SAFE END** BUTT WELDS		***	*******	*****	__.__ __.___	*****	NOMINAL PIPE SIZE > OR EQUAL TO 4 INCHES
B05.021.000	********PRESSURIZER	NOZZLE-TO-SAFE END BUTT WELDS *********		***	******* *******	-----	__.__ __.___	-----	NOMINAL PIPE SIZE < 4 IN. **** **********
B05.021.003	3PZR-WP91-3	ISI-OCN3-002		PT	NDE-35	CS/SS	02.50 00.375	-----	PZR RELIEF NOZZLE SAFE END Z-W AXIS PC 32 TO 31
B05.050.000	CLASS 1 PIPING	DISSIMILAR METAL**** BUTT WELDS**********		***	*******	*****	__.__ __.___	*****	NOMINAL PIPE SIZE 4 IN. & OVER **********
B05.050.009	3PSL-10	ISI-OCN3-015		UT	ISI-120	CS/SS	10.75 01.000	40414	B HOT LEG SURGE LINE NOZ.SE,UT NOZ.SIDE, SELECTION CRIT.4.2.3
B05.050.009A	3PSL-10	ISI-OCN3-015		UT	ISI-120	CS/SS	10.75 01.000	40399	B HOT LEG SURGE LINE NOZ.SE,UT PIPE SIDE,SELECTION CRIT.4.2.3
B05.050.009B	3PSL-10	ISI-OCN3-015		PT	NDE-35	CS/SS	10.75 01.000	-----	B HOT LEG SURGE LINE NOZ.SE,PC 25 TO 85, SELECTION CRIT.4.2.3

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B05.050.011	3-PHB-17	ISI OCN3-006		UT	ISI-120	CS/IN	10.75 01.000	40414	SURGE NOZZLE SE, UT NOZ. SIDE INSPECT WITH B05.050.009
B05.050.011A	3PHB-17	ISI-OCN3-006		UT	ISI-120	CS/IN	10.75 01.000	40399	SURGE NOZZLE SE, UT PIPE SIDE INSPECT WITH B05.050.009A
B05.050.011B	3PHB-17	ISI OCN3-006		PT	NDE-35	CS/IN	10.75 01.000		SURGE NOZZLE SE, INSPECT WITH B05.050.009B
B05.051.000	CLASS 1 PIPING	DISSIMILAR METAL**** BUTT WELDS**********		***	*******	*****	__.__ __.__	*****	NOMINAL PIPE SIZE < 4 INCH**** **********
B05.051.002	3PIA1-9	ISI-OCN3-007		PT	NDE-35	CS/IN	07.50 03.000	-----	A1 SUCTION RTE NOZZLE SAFE END PC 58 TO 56
B05.051.002A	3PDA1-11	ISI-OCN3-011		PT	NDE-35	CS/IN	03.50 00.750	-----	A1 DISCHARGE HPI NOZZLE SAFE END PC 46 TO 47
B05.051.010	3PIB2-9	ISI-OCN3-010		PT	NDE-35	CS/IN	07.50 02.250	-----	B2 SUCTION RTE NOZ SE ON 3B2 SUCTION PC 58 TO 56

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B06.010.000	*****REACTOR VESSEL	CLOSURE HEAD NUTS ** **********							********** **********
B06.010.010	3RPV-26-209-10	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.011	3RPV-26-209-11	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.012	3RPV-26-209-12	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.013	3RPV-26-209-13	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.014	3RPV-26-209-14	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.015	3RPV-26-209-15	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.016	3RPV-26-209-16	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B06.010.017	3RPV-26-209-17	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.018	3RPV-26-209-18	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.019	3RPV-26-209-19	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.020	3RPV-26-209-20	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.021	3RPV-26-209-21	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.022	3RPV-26-209-22	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.023	3RPV-26-209-23	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT
B06.010.024	3RPV-26-209-24	OM-2201-52 B&W 149922		MT	NDE-25	CS	09.25 01.300	-----	NUT

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B06.030.000	REACTOR VESSEL	CLOSURE STUDS******* **********		***	*******	*****	__.__ __.__		WHEN REMOVED********** *** REFERENCE NCI-01498 ******
B06.030.010	3RPV-25-209-10	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.010A	3RPV-25-209-10	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.011	3RPV-25-209-11	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.011A	3RPV-25-209-11	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.012	3RPV-25-209-12	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.012A	3RPV-25-209-12	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.013	3RPV-25-209-13	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B06.030.013A	3RPV-25-209-13	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.014	3RPV-25-209-14	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.014A	3RPV-25-209-14	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.015	3RPV-25-209-15	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.015A	3RPV-25-209-15	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.016	3RPV-25-209-16	OM-2201-62 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.016A	3RPV-25-209-16	OM-2201-62 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.017	3RPV-25-209-17	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B06.030.017A	3RPV-25-209-17	OM-2201-62 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.018	3RPV-25-209-18	OM-2201-62 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.018A	3RPV-25-209-18	OM-2201-62 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.019	3RPV-25-209-19	OM-2201-62 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.019A	3RPV-25-209-19	OM-2201-62 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.020	3RPV-25-209-20	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.020A	3RPV-25-209-20	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.021	3RPV-25-209-21	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B06.030.021A	3RPV-25-209-21	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.022	3RPV-25-209-22	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.022A	3RPV-25-209-22	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.023	3RPV-25-209-23	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.023A	3RPV-25-209-23	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.030.024	3RPV-25-209-24	OM-2201-52 B&W 149922		UT	NDE-44	CS	06.50 63.250	40365	STUD
B06.030.024A	3RPV-25-209-24	OM-2201-52 B&W 149922		MT	NDE-25	CS	06.50 63.250	-----	STUD
B06.040.000	REACTOR VESSEL	THREADS IN FLANGE*** **********		***	*******	*****	__.__ __.__	*****	********** **********

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B06.040.001	3RPV LIGAMENTS	B&W 149904E		UT	ISI-104	CS	12.500	40390	THREADS IN REACTOR VESSEL FLANGE 0 TO 180 DEGREES
B06.050.000	REACTOR VESSEL	CLOSURE WASHERS AND BUSHINGS		***	*******	*****		*****	**********
B06.050.001A	3RPV-WASH-BUSH	B&W 149922E		VTI	QCL-13	CS		-----	STUD HOLES 10-24
B06.060.000	***PRESSURIZER	BOLTS AND STUDS		***	*******	*****		*****	**********
B06.070.000	***PRESSURIZER	FLANGE SURFACES		***	*******	*****		*****	INSPECT WHEN CONNECTION DISASSEMBLED
B06.080.000	***PRESSURIZER	NUTS, BUSHINGS, AND WASHERS		***	*******	*****		*****	**********
B06.180.000	*CLASS 1 PUMPS	BOLTS AND STUDS		***	*******	*****		*****	GREATER THAN 2 INCH
B06.180.008	3RCP-3B2-S	OM-1201-1217 OM-2201-1134-001		UT	NDE-44	CS	02.25 11.750	40359	3B2 SEAL GLAND BOLTS 8 BOLTS TOTAL

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B06.190.000	*CLASS 1 PUMPS	FLANGE SURFACE ***** **********		***	*******	*****	__.__	*****	WHEN CONNECTION DISASSEMBLED** **********
B06.200.000	*CLASS 1 PUMPS	NUTS,BUSHINGS,AND WASHERS **********		***	*******	*****	__.__	*****	********** **********
B06.200.008	3RCP-3B2-WASH	OM-1201-1217 OM-2201-1134-001		VT1	QCL-13	-----	__.__	-----	3RCP B2 SEALGLAND NUTS AND WASHERS 8 EACH OUT.10 IWB-2430(A) 3-088-0196

DUKE POWER COMPANY
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PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B07.020.000	***PRESSURIZER	BOLTS,STUDS,AND NUTS **********		***	*******	*****	__.__ __.__	*****	2 IN. AND LESS IN DIAMETER *** **********
B07.020.002	3PZR-CHB-STUDS	OM-2201-0061		VT1	QCL-13	CS	02.00 17.000	-----	16 STUDS CENTER HEATER BUNDLE PERCENTAGES EXCEEDED OUTAGE 11
B07.020.003	3PZR-LHB-STUDS	OM-2201-0061		VT1	QCL-13	CS	02.00 17.000	-----	16 STUDS LOWER HEATER BUNDLE PERCENTAGES EXCEEDED OUTAGE 11
B07.020.004	3PZR-BOLTING	OM-2201-0229		VT1	QCL-13	CS	__.__ __.__	-----	PZR.REL.NOZ FLG.BOLTING (NOZ BET. W&Z AXIS) B BOLTS, NUTS
B07.030.000	*** STEAM GENERATOR	BOLTS,STUDS AND NUTS		***	*******	*****	__.__ __.__	*****	********** **********
B07.030.003	3SGB-LMW-BOLTS	B&W 145470E		VT1	QCL-13	CS	02.00 11.500	-----	3B SG LOWER HEAD MANWAY STUDS & NUTS, 16 STUDS & NUTS PERCENTAGES EXCEEDED OUTAGE 11
B07.070.000	CLASS 1 VALVES	BOLTS,STUDS,AND NUTS **********		***	*******	*****	__.__ __.__	*****	********** **********
B07.070.009	3-LP-103-BOLT	OM-245-1255		VT1	QCL-13	-----	__.__ __.__	-----	DECAY HEAT EMERGENCY DUMP VALVE 3LP-103 PERCENTAGES EXCEEDED OUTAGE 11

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B07.080.000	**CRD HOUSINGS	BOLTS,STUDS,AND NUTS **********	_____ _____ _____	***	******* _____	***** _____	__.__ __.__	*****	INSPECT ONLY IF HOUSING IS**** DISASSEMBLED**********
B07.080.001	3RPV-CRD-BOLTS	B&W 149902E B&W 149919E	_____ _____ _____	VT1	QCL-13 _____	CS _____	__.__ __.__	-----	CRD HOUSING TO MECHANISM BOLTS 8 BOLTS PER HOUSING 14 CONN. INSP. TO DATE
B07.080.002	3RPV-CRD-RINGS	B&W 149902E B&W 149919E	_____ _____ _____	VT1	QCL-13 _____	CS _____	__.__ __.__	-----	CRD NUT RINGS OD 69 PAIRS 1 PAIR PER HOUSING 14 CONN. INSP. TO DATE PIR 3-089-0188,RELIEF ONS-011

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B08.020.000	***PRESSURIZER	INTEGRALLY WELDED ATTACHMENTS*********		***	*******	*****	__.__	*****	********** **********
B08.020.005	3PZR-WP82-Z	ISI-OCN3-002		MT	NDE-25	CS	03.500	-----	PZR SUPPORT LUG Z-AXIS
B08.020.006	3PZR-WP82-ZW	ISI-OCN3-002		MT	NDE-25	CS	03.500	-----	PZR SUPPORT LUG Z-W AXIS
B08.020.007	3PZR-WP82-W	ISI-OCN3-002		MT	NDE-25	CS	03.500	-----	PZR SUPPORT LUG W-AXIS
B08.030.000	STM GENERATORS	INTEGRALLY WELDED ATTACHMENTS*********		***	*******	*****	__.__	*****	********** **********
B08.030.001	3SGA-WG61	ISI-OCN3-003		MT	NDE-25	CS	01.750	-----	3A SG SUPPORT SKIRT TO HEAD PC 09 TO 96

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B09.011.000	********** CLASS 1	CIRCUMFERENTIAL***** WELDS**********		***	*******	*****	__.__ __.__	*****	NOMINAL PIPE SIZE 4 IN. & OVER **********
B09.011.029	3PIB1-1	ISI-OCN3-009		UT	ISI-182	CS	33.50 03.000	40350	PC 67 TERMINAL END SEE REQUEST FOR RELIEF ONS-003
B09.011.029A	3PIB1-1	ISI-OCN3-009		MT	NDE-25	CS	33.50 03.000	-----	B1 SUCTION TERMINAL END PC 67 TO STEAM GEN NOZZLE
B09.011.068	3PHA-12	ISI-OCN3-005		UT	ISI-182	CS	42.75 03.000	40350	REQ FOR REL ONS-003 TERMINAL END PC 36 TO STM GEN NOZ
B09.011.068A	3PHA-12	ISI-OCN3-005		MT	NDE-25	CS	42.75 03.000	-----	A HOT LEG TERMINAL END PC 36 TO STEAM GEN NOZ.
B09.011.080	3PHB-12	ISI-OCN3-006		UT	ISI-182	CS	42.75 03.000	40350	REQ. FOR REL. ONS-003 TERMINAL END PC 36 TO STM GEN NOZZLE
B09.011.080A	3PHB-12	ISI-OCN3-006		MT	NDE-25	CS	42.75 03.000	-----	B HOT LEG TERMINAL END PC 36 TO STM GEN NOZZLE
B09.011.081	3PSP-3	ISI-OCN3-016		UT	ISI-120	SS	04.50 00.438	40406	PRESSURIZER SPRAY PIPING PC.91 TO 102

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B09.011.081A	3PSP-3	ISI-OCN3-016		PT	NDE-35	SS	04.50 00.438	-----	PRESSURIZER SPRAY PIPING PC.91 TO 102
B09.011.101	3PSL-01	ISI-OCN3-015		UT	ISI-120	SS	10.75 01.000	40399	PRESSURIZER SURGE TERMINAL END SELECTION CRITERIA 4.2.3
B09.011.101A	3PSL-01	ISI-OCN3-015		PT	NDE-35	SS	10.75 01.000	-----	PRESSURIZER SURGE TERMINAL END SELECTION CRITERIA 4.2.3
B09.011.103	3PSL-09	ISI-OCN3-015		UT	ISI-120	SS	10.75 01.000	40399	PRESSURIZER SURGE SELECTION CRITERIA 4.2.3
B09.011.103A	3PSL-09	ISI-OCN3-015		PT	NDE-35	SS	10.75 01.000	-----	PRESSURIZER SURGE SELECTION CRITERIA 4.2.3
B09.012.000	********** CLASS 1	LONGITUDINAL******** WELDS**********		***	*******	*****	__.__ __.___	*****	NOMINAL PIPE SIZE 4 IN. & OVER **********
B09.021.000	********** CLASS 1	CIRCUMFERENTIAL***** WELDS**********		***	*******	*****	__.__ __.___	*****	NOMINAL PIPE SIZE < 4 IN. **** **********
B09.021.001	3PSP-8	ISI-OCN3-016		PT	NDE-35	SS	02.88 00.375	-----	PRESSURIZER SPRAY

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B09.021.002	3PSP-9	ISI-OCN3-016		PT	NDE-35	SS	02.88 00.375	-----	PRESSURIZER SPRAY
B09.021.003	3PSP-11	ISI-OCN3-016		PT	NDE-35	SS	02.88 00.375	-----	PRESSURIZER SPRAY
B09.021.004	3PSP-12	ISI-OCN3-016		PT	NDE-35	SS	02.88 00.375	-----	PRESSURIZER SPRAY
B09.021.005	3PSP-18	ISI-OCN3-016		PT	NDE-35	SS	02.88 00.375	-----	PRESSURIZER SPRAY
B09.021.006	3PSP-21	ISI-OCN3-016		PT	NDE-35	SS	02.88 00.375	-----	PRESSURIZER SPRAY
B09.021.046	3-51A-143-22A	SYS 51A ISO 143		PT	NDE-35	SS	03.00 00.438	-----	LETDOWN COOLER LINE PIPE TO ELBOW TERMINAL END
B09.021.124	3-51A-62-26	SYS 51A ISO 62		PT	NDE-35	SS	02.50 00.375	-----	3B2 HIGH PRESSURE INJECTION SELECTION CRITERIA 4.2.3
B09.031.000	******* BRANCH PIPE	CONNECTION WELDS ***		***	*******	*****	__.__ __.__	*****	NOMINAL PIPE SIZE 4 IN. & OVER

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B09.032.000	******* BRANCH PIPE	CONNECTION WELDS *** **********		***	*******	*****	__.__ __.___	*****	NOMINAL PIPE SIZE < 4 IN. **** **********
B09.040.000	******* SOCKET WELDS	********** **********		***	*******	*****	__.__ __.___	*****	********** **********
B09.040.001	3-50-152-28	SYS 50 ISO 152		PT	NDE-35	SS	01.50 00.281	-----	AUX. PRESSURIZER SPRAY LINE
B09.040.002	3-50-152-03	SYS 50 ISO 152		PT	NDE-35	SS	01.50 00.281	-----	AUX. PRESSURIZER SPRAY LINE
B09.040.005	3-50-152-10	SYS 50 ISO 152		PT	NDE-35	SS	01.50 00.281	-----	AUX. PRESSURIZER SPRAY LINE
B09.040.006	3-50-152-15	SYS 50 ISO 152		PT	NDE-35	SS	01.50 00.281	-----	AUX. PRESSURIZER SPRAY LINE

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B10.010.000	**** CLASS 1 PIPING	INTEGRALLY WELDED ** ATTACHMENTS ********	_____ _____ _____	***	******* _____	***** _____	__.__ __.___	*****	********** ********** _____ _____

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B12.040.000	CLASS 1 VALVE	BODIES EXCEEDING**** 4 INCH NPS**********	_____ _____ _____	***	******* _____	***** _____	__.__ __.__	*****	INSPECT IF DISASSEMBLED******* ********** _____ _____

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B13.010.000	REATOR VESSEL	VESSEL INTERIOR***** **********		***	*******	*****	__.__ __.__	*****	********** ********** _____ _____
B13.010.001	3RPV-INT SUR	ISI-OCN3-001 ----------		VT3	QCL-14	SS	__.__ __.__	-----	INTERIOR SURFACES OF VESSEL USE PROCEDURE ISI-354 ALSO _____ _____
B13.030.000	REACTOR VESSEL	CORE SUPPORT******** STRUCTURE**********		***	*******	*****	__.__ __.__	*****	********** ********** _____ _____

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B14.010.000	REACTOR VESSEL	CRD HOUSING WELDS***	_____	***	*******	*****	__.__	*****	INSPECT IF DISASSEMBLED*******
		**********	_____		_____	_____	__.__		**********
			_____						_____
									_____

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B15.010.000	REACTOR VESSEL	PRESSURE RETAINING** BOUNDARY**********		***	*******	*****	__.__	*****	********** **********
B15.010.001	3RPV-LK-TEST	OFD-100A-3.1		VT2	QCL-15	-----	__.__	-----	RPV SYS LEAK TEST ALT EXAM ISI-350 VT MAY BE USED
B15.011.000	REACTOR VESSEL	PRESSURE RETAINING** BOUNDARY**********		***	*******	*****	__.__	*****	********** **********
B15.020.000	***PRESSURIZER	PRESSURE RETAINING BOUNDARY**********		***	*******	*****	__.__	*****	********** **********
B15.020.001	3PZR-LK-TEST	OFD-100A-3.2		VIS	ISI-350	-----	__.__	-----	PZR SYS LEAK TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.021.000	***PRESSURIZER	PRESSURE RETAINING** BOUNDARY**********		***	*******	*****	__.__	*****	********** **********
B15.030.000	********STEAM	GENERATORS PRESSURE* RETAINING BOUNDARY**		***	*******	*****	__.__	*****	********** **********
B15.030.001	3SGA-LK-TEST	OFD-100A-3.1		VIS	ISI-350	-----	__.__	-----	SGA SYS LEAK TEST ALT EXAM QCL-15 VT2 MAY BE USED

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B15.030.002	3SGB-LK-TEST	OFD-100A-3.1		VIS	ISI-350	-----	__.__	-----	SGB SYS LEAK TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.031.000	**********STEAM	GENERATORS PRESSURE* RETAINING BOUNDARY**		***	*******	*****	__.__	*****	********** **********
B15.040.000	HEAT EXCHANGER	PRESSURE RETAINING BOUNDARY		---	-------	-----	__.__	-----	
B15.040.001	3LDC3A-LK TEST	OFD-101A-3.1		VIS	ISI-350	-----	__.__	-----	LETDOWN COOLER 3A SYS LK TEST ALT EXAM QCL15 VT2 MAY BE USED
B15.040.002	3LDC3B-LK TEST	OFD-101A-3.1		VIS	ISI-350	-----	__.__	-----	LETDOWN COOLER 3B SYS LK TEST ALT EXAM QCL15 VT2 MAY BE USED
B15.041.000	HEAT EXCHANGER	PRESSURE RETAINING BOUNDARY		---	-------	-----	__.__	-----	
B15.050.000	CLASS 1 PIPING	PRESSURE RETAINING** BOUNDARY**********		***	*******	*****	__.__	*****	********** **********
B15.050.001	3-OFD-100A-3.1	OFD-100A-3.1		VIS	ISI-350 QCL-15	-----	__.__	-----	CLASS A SYS LEAK TEST-INCLUDES DWG. NO. O-2422BB-1,2 & 3

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B15.050.001A	3-OFD-100A-3.2	OFD-100A-3.2		VIS	ISI-350 QCL-15				CLASS A SYS LEAK TEST-INCLUDES DWG. NO. O-2422BB-4
B15.050.002	3-OFD-101A-3.1	OFD-101A-3.1		VIS	ISI-350				CLASS A SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.050.003	3-OFD-101A-3.4	OFD-101A-3.4		VT2	ISI-350 QCL-15				CLASS A SYS LEAK TEST-INCLUDES DWG NO. O-2422X-51
B15.050.004	3-OFD-102A-3.1	OFD-102A-3.1		VIS	ISI-350				CLASS A SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.050.005	3-OFD-102A-3.2	OFD-102A-3.2		VIS	ISI-350				CLASS A SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.050.006	3-OFD-102A-3.3	OFD-102A-3.3		VIS	ISI-350				CLASS A SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.050.007	3-OFD-110A-3.1	OFD-110A-3.1		VIS	ISI-350				CLASS A SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.050.009	3-OFD-100A-3.3	OFD-100A-3.3		VIS	ISI-350				CLASS A SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B15.050.010	3-OFD-110A-3.4	OFD-110A-3.4		VT2	QCL-15				CL A SYSTEM LEAKAGE TEST ALT EXAM ISI-350 MAY BE USED
B15.060.000	*CLASS 1 PUMPS	PRESSURE RETAINING** BOUNDARY**********		***	*******	*****		*****	********** **********
B15.060.001	3-RCP-3A1	OFD-100A-3.1		VIS	ISI-350	-----		-----	RCP 3A1 SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.060.002	3-RCP-3A2	OFD-100A-3.1		VIS	ISI-350	-----		-----	RCP 3A2 SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.060.003	3-RCP-3B1	OFD-100A-3.1		VIS	ISI-350	-----		-----	RCP 3B1 SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.060.004	3-RCP-3B2	OFD-100A-3.1		VIS	ISI-350	-----		-----	RCP 3B2 SYS LEAKAGE TEST ALT EXAM QCL-15 VT2 MAY BE USED
B15.061.000	*CLASS 1 PUMPS	PRESSURE RETAINING** BOUNDARY**********		***	*******	*****		*****	********** **********
B15.070.000	CLASS 1 VALVES	PRESSURE RETAINING** BOUNDARY**********		***	*******	*****		*****	COVERED IN B15.050.000 **********

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
B16.011.000	*** STEAM GENERATOR	TUBING ********** **********		***	******* *******		__.__ __.__		**** STRAIGHT TUBE DESIGN **** **********
B16.011.001	3SGA-TUBES			ET	ISI-418	INCO	00.62 00.040		* SELECT CAL. STANDARD PER VOL.1, SECT.10.2 PIR 3-089-0185
B16.011.002	3SGB-TUBES	----------		ET	ISI-418	INCO	00.62 00.040		* SELECT CAL. STANDARD PER VOL.1, SECT.10.2 PIR 3-089-0185

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C01.010.000	*********SHELL	CIRCUMFERENTIAL***** WELDS**********		***	*******	*****	__.__	*****	****** PRESSURE VESSEL *******
C01.010.001	3SGA-WG8-1	ISI-OCN3-003		UT	ISI-130	CS	04.188	40339	GEN A SHELL TO SHELL PC 1 TO 2 ACCEPT,FMA 32-1135539-00
C01.020.000	**********HEAD	CIRCUMFERENTIAL***** WELDS**********		***	*******	*****	__.__	*****	****** PRESSURE VESSELS ******
C01.020.003	3LPCA-HD-SHL	B&W 36-43-004-00		UT	ISI-120	SS	00.600	40385	LP COOLER A HEAD FLG TO STAIN SHELL
C01.030.000	******CLASS 2	TUBESHEET TO SHELL WELDS**********		***	*******	*****	__.__	*****	****** PRESSURE VESSELS ******

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C02.010.000	*******NOZZLES	IN VESSELS********** **********	_____ _____ _____	***	******* _____	***** _____	__.__ __.___	*****	1/2 IN. NOMINAL THICKNESS **** AND LESS **********
C02.010.003	3LPCB-INLET	B&W 36-43-004-00 ----------	_____ _____ _____	PT	NDE-35 _____	SS _____	.500	-----	LP COOLER B INLET NOZZLE TO SHELL
C02.021.000	******NOZZLE	TO SHELL OR HEAD**** WELDS**********	_____ _____ _____	***	******* _____	***** _____	.500	*****	********** **********
C02.022.000	*******NOZZLE	INSIDE RADIUS******* SECTION**********	_____ _____ _____	***	******* _____	***** _____	__.__ __.___	*****	********** **********

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C03.010.000	******PRESSURE	VESSELS INTEGRALLY** WELDED ATTACHMENTS**		***	*******	*****	__.__	*****	********** **********
C03.010.003	3SGA-WG84-YZ	B&W 149824E		MT	NDE-25	CS	01.000	-----	SGA FEEDWATER HDR SUPPORT ATT. Y-Z QUADRANT NEAREST TO Y AXIS
C03.010.004	3SGA-WG84-ZY	B&W 149824E		MT	NDE-25	CS	01.000	-----	SGA FEEDWATER HDR SUPPORT ATT. Y-Z QUADRANT NEAREST TO Z AXIS
C03.040.000	CLASS 2 PIPING	INTEGRALLY WELDED ATTACHMENTS*********		***	*******	*****	__.__	*****	********** **********
C03.040.008	3-01A-H7B	0-2480A		MT	NDE-25	CS	__.__	-----	M.S. SPRING-01A-0-2480A-H7B D.E. STRESS CALC. OSC-1334-06
C03.040.009	3-01A-H9B	0-2481A		MT	NDE-25	CS	__.__	-----	M.S. SPRING-01A-0-2481A-H9B D.E. STRESS CALC. OSC-1334-06
C03.040.010	3-01A-H11B	0-2481B		MT	NDE-25	CS	__.__	-----	M.S. SPRING-01A-0-2481B-H11B D.E. STRESS CALC. OSC-1334-06
C03.040.019	3-01A-H5	0-2401B		MT	NDE25	CS	__.__	-----	MAIN STEAM - SNUBBER 3-01A-0-2401B-H5

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C03.040.033	3-03-H15A	0-2481A		MT	NDE 25	CS	__.__		M.FDWTR.SPRING-03-0-2481A-H15A D.E. STRESS CALC. OSC-1335-06
C03.040.051	3-53B-SR40	0-2436D		PT	NDE-35	SS	__.__	-----	LPI - RIGID 3-53B-5-0-2436D-SR40 ADD RFO 11 PER INC-2430(A)
C03.040.055	3-53B-R3	0-2436D		PT	NDE-35	SS	__.__	-----	LPI - RIGID 3-53B-5-0-2436D-R3 PIR# 3-089-0158
C03.040.073	3-54B-H4B	0-2477		PT	NDE-35	SS	__.__	-----	R.SPRAY SPRING 54B-0-2477-H4B D.E. STRESS CALC. OSC-1350-06
C03.040.087	3SGA-WG87-YZ	B&W-149823E		MT	NDE-25	CS	01.000	-----	SGA FDWTR. HDR. SUPPORT ATTCH. Y-Z QUAD. NEAREST TO Y-AXIS
C03.040.088	3SGA-WG87-ZY	B&W-149823E		MT	NDE-25	CS	01.000	-----	SGA FDWTR. HDR. SUPPORT ATTCH. Z-Y QUAD. NEAREST TO Z-AXIS

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C04.040.000	******** PRESSURE	RETAINING BOLTING ** **********	***** ***** *****	***	******* *******	***** _____	__.__ __.__	_____	**** VALVE BOLTING > 2" **** **********
C04.040.003	3-01A-SV3-STUD	SYS. 01A ISO. 27 OM-200-195	_____ _____ _____	UT	NDE-44 _____	CS _____	02.25 __.__	40417	MAIN STEAM STOP VALVE SV3 REQUEST FOR RELIEF ONS-009

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C05.011.000	**** CLASS 2 PIPING	CIRCUMFERENTIAL WELD **********		***	*******	*****	__.__ __.__	*****	NOMINAL WALL THICKNESS ******* 1/2 IN, OR LESS **********
C05.011.026	3-53B-35-24A	SYS 53B ISO 35		PT	NDE-35	SS	12.00 00.250	-----	
C05.011.034	3-53B-37-51	SYS 53B ISO 37		PT	NDE-35	SS	08.00 00.250	-----	TERMINAL END
C05.011.040	3-53B-44-09	SYS 53B ISO 44		PT	NDE-35	SS	12.00 00.180	-----	SELECTION CRITERIA 5.2
C05.011.041	3-53B-44-13	SYS 53B ISO 44		PT	NDE-35	SS	12.00 00.180	-----	SELECTION CRITERIA 5.2
C05.011.052	3-53B-45-40	SYS 53B ISO 45		PT	NDE-35	SS	08.00 00.250	-----	
C05.011.054	3-53B-47-53A	SYS 53B ISO 47		PT	NDE-35	SS	10.00 00.250	-----	
C05.011.059	3-53B-47-37	SYS 53B ISO 47		PT	NDE-35	SS	10.00 00.250	-----	

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C05.011.068	3-53B-50-13B	SYS 53B ISO 50		PT	NDE-35	SS	08.00 00.250	-----	
C05.011.076	3-53B-51-01	SYS 53B ISO 51		PT	NDE-35	SS	10.00 00.250	-----	TERMINAL END
C05.011.206	3-54A-9-11	SYS 54A ISO 9		PT	NDE-35	SS	08.00 00.250	-----	
C05.011.214	3-54A-11-27	SYS 54A ISO 11		PT	NDE-35	SS	08.00 00.250	-----	
C05.011.225	3-54A-12-27	SYS 54A ISO 12		PT	NDE-35	SS	08.00 00.250	-----	
C05.011.227	3-54A-12-21	SYS 54A ISO 12		PT	NDE-35	SS	08.00 00.250	-----	
C05.011.266	3-51A-50-51	SYS 51A ISO 50		PT	NDE-35	SS	06.00 00.280	-----	
C05.011.267	3-51A-50-50	SYS 51A ISO 50		PT	NDE-35	SS	06.00 00.280	-----	

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C05.011.305	3-03A-146-16	SYS 03A ISO 146		MT	NDE-25	CS	06.00 00.432	-----	
C05.011.306	3-03A-14-01	SYS 03A ISO 14		MT	NDE-25	CS	06.00 00.432	-----	
C05.011.425	3-01A-10-20	SYS 01A ISO 10		MT	NDE-25	CS	06.00 00.432	-----	
C05.012.000	**** CLASS 2 PIPING	LONGITUDINAL WELDS **********		***	******* *******		__.__ __.__		NOMINAL WALL THICKNESS ******* 1/2 IN. OR LESS **********
C05.012.017	3-53B-35-24AL	SYS 53B ISO 35		PT	NDE-35	SS	12.00 00.250		LONG. SEAM FOR C05.011.026
C05.012.018	3-53B-45-40L	SYS 53B ISO 45		PT	NDE-35	SS	08.00 00.250		LONG. SEAM FOR C05.011.052
C05.012.019	3-53B-50-13BL	SYS 53B ISO 50		PT	NDE-35	SS	08.00 00.250		LONG. SEAM FOR C05.011.068
C05.012.020	3-54A-9-11L	SYS 54A ISO 9		PT	NDE-35	SS	08.00 00.250		LONG. SEAM FOR C05.011.206

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C05.012.021	3-53B-47-37L	SYS 53B ISO 47		PT	NDE-35	SS	10.00 00.250		LONG. SEAM FOR C05.011.059
C05.012.022	3-54A-12-27L	SYS 54A ISO 12		PT	NDE-35	SS	08.00 00.250		LONG. SEAM FOR C05.011.225
C05.012.023	3-54A-12-21L	SYS 54A ISO 12		PT	NDE-35	SS	08.00 00.250		LONG. SEAM FOR C05.011.227
C05.012.024	3-53B-44-09L	SYS 53B ISO 44		PT	NDE35	SS	12.00 00.180		LONG. SEAM FOR C05.011.040
C05.012.025	3-53B-44-13L	SYS 53B ISO 44		PT	NDE 35	SS	12.00 00.180		LONG. SEAM FOR C05.011.041
C05.021.000	**** CLASS 2 PIPING	CIRCUMFERENTIAL WELD **********		***	*******	*****	__.__ __.___	*****	NOMINAL WALL THICKNESS ******* > 1/2 INCH **********
C05.021.202	3-03A-17-42	SYS 03A ISO 17 ----------		RT	NDE-12	CS	06.00 00.562	-----	----------
C05.021.202A	3-03A-17-42	SYS 03A ISO 17 ----------		MT	NDE-25	CS	06.00 00.562	-----	----------

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C05.021.203	3-03A-17-08	SYS 03A ISO 17		RT	NDE-12	CS	06.00 00.562	-----	
C05.021.203A	3-03A-17-08	SYS 03A ISO 17		MT	NDE-25	CS	06.00 00.562	-----	
C05.021.309	3-03-3FWD-74-A	SYS 03 3FWD-74		RT	NDE-12	CS	24.00 01.218	-----	
C05.021.309A	3-03-3FWD-74-A	SYS 03 3FWD-74		MT	NDE-25	CS	24.00 01.218	-----	
C05.021.314	3-03-27-21	(ASCII		RT	NDE-12	CS	24.00 01.218	-----	
C05.021.314A	3-03-27-21	SYS 03 ISO 27		MT	NDE-25	CS	24.00 01.218	-----	
C05.021.318	3-03-30-WG91-G	SYS 03 ISO 30		RT	NDE-12	CS	14.00 00.750	-----	
C05.021.318A	3-03-30-WG91-G	SYS 03 ISO 30		MT	NDE-25	CS	14.00 00.750	-----	

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PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C05.021.360	3-01A-23-04	SYS 01A ISO 23		RT	NDE-12	CS	26.00 00.875	-----	
C05.021.360A	3-01A-23-04	SYS 01A ISO 23		MT	NDE-25	CS	26.00 00.875	-----	
C05.021.366	3-01A-13-48	SYS 01A ISO 13		RT	NDE-12	CS	12.00 00.562	-----	
C05.021.366A	3-01A-13-48	SYS 01A ISO 13		MT	NDE-25	CS	12.00 00.562	-----	
C05.021.372	3-01A-24-02	SYS 01A ISO 24		RT	NDE-12	CS	26.00 00.875	-----	
C05.021.372A	3-01A-24-02	SYS 01A ISO 24		MT	NDD-25	CS	26.00 00.875	-----	
C05.021.378	3-01A-24-03	SYS 01A ISO 24		RT	NDE-12	CS	26.00 00.875	-----	
C05.021.378A	3-01A-24-03	SYS 01A ISO 24		MT	NDE-25	CS	26.00 00.875	-----	

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C05.021.382	3-01A-3MS24A-B	SYS 01A 3MS 24A		RT	NDE-12	CS	24.00 00.969	-----	
C05.021.382A	3-01A-3MS24A-B	SYS 01A 3MS 24A		MT	NDE-25	CS	24.00 00.969	-----	
C05.022.000	**** CLASS 2 PIPING	LONGITUDINAL WELDS **********		***	******* *******		__.__ __.__	-----	NOMINAL WALL THICKNESS ******* > 1/2 INCH **********
C05.022.009	3-01A-23-04L	SYS 01A ISO 23		RT	NDE-12	CS	26.00 00.875	-----	MAIN STEAM LONG SEAM
C05.022.009A	3-01A-23-04L	SYS 01A ISO 23		MT	NDE-25	CS	26.00 00.875	-----	MAIN STEAM LONG SEAM
C05.022.013	3-01A-24-02L	SYS 01A ISO 24		RT	NDE-12	CS	26.00 00.875	-----	MAIN STEAM LONG SEAM
C05.022.013A	3-01A-24-02L	SYS 01A ISO 24		MT	NDE-25	CS	26.00 00.875	-----	MAIN STEAM LONG SEAM
C05.022.015	3-01A-24-03L	SYS 01A ISO 24		RT	NDE-12	CS	26.00 00.875	-----	MAIN STEAM LONG SEAM

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C05.022.015A	3-01A-24-03L	SYS 01A ISO 24		MT	NDE-25	CS	26.00 00.875	-----	MAIN STEAM LONG SEAM
C05.031.000	CLASS 2 PIPING	BRANCH CONNECTION WELDS **********		***	*******	*****	__.__ __.___	*****	**********

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C07.010.000	******PRESSURE	VESSELS**********		***	*******	*****	__.__	*****	PRESSURE RETAINING COMPONENTS*
		**********					__.__		**********
C07.011.000	******PRESSURE	VESSELS**********		***	*******	*****	__.__	*****	PRESSURE RETAINING COMPONENTS*
		**********					__.__		**********
C07.011.005	3LPCA	OFD-102-3.2		VT2	QCL-15 ISI-350	-----	__.__	-----	LOW PRESSURE COOLER A SYSTEM HYDRO TEST
		----------					__.__		
C07.011.006	3LPCB	OFD-102-3.2		VT2	QCL-15 ISI-350	-----	__.__	-----	LOW PRESSURE COOLER B SYSTEM HYDRO TEST
		----------					__.__		
C07.020.000	********PIPING	**********		***	*******	*****	__.__	*****	PRESSURE RETAINING COMPONENTS*
		**********					__.__		**********
C07.021.000	********PIPING	**********		***	*******	*****	__.__	*****	PRESSURE RETAINING COMPONENTS*
		**********					__.__		**********
C07.021.003	3-OFD-101A-3.2	OFD-101A-3.2		VT2	QCL-15 ISI-350	-----	__.__	-----	CL. B SYSTEM HYDRO TEST
		----------					__.__		----------
C07.021.004	3-OFD-101A-3.3	OFD-101A-3.3		VT2	QCL-15 ISI-350	-----	__.__	-----	CL. B SYSTEM HYDRO TEST
		----------					__.__		----------

DUKE POWER COMPANY
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OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C07.021.007	3-OFD-102A-3.1	OFD-102A-3.1		VT2	QCL-15 ISI-350	-----	__.__	-----	CL. B SYSTEM HYDRO TEST
C07.021.008	3-OFD-102A-3.2	OFD-102A-3.2		VT2	QCL-15 ISI-350	-----	__.__	-----	CL. B SYSTEM HYDRO TEST INCL. SHEET NO. 2,3,4,5 & 6
C07.021.012	3-OFD-104A-3.2	OFD-104A-3.2		VT2	QCL-15 ISI-350	-----	__.__	-----	CL. B SYSTEM HYDRO TEST
C07.030.000	**********PUMPS	**********		***	*******	*****	__.__	*****	PRESSURE RETAINING COMPONENTS* SYSTEM PRESSURE TEST**********
C07.031.000	**********PUMPS	**********		***	*******	*****	__.__	*****	PRESSURE RETAINING COMPONENTS* SYSTEM HYDRO TEST**********
C07.031.001	3LPI PUMP-3A	OFD-102A-3.2		VT2	QCL-15 ISI-350	-----	__.__	-----	LPI PUMP 3A HYDRO TEST
C07.031.002	3LPI PUMP-3B	OFD-102A-3.2		VT2	QCL-15 ISI-350	-----	__.__	-----	LPI PUMP 3B HYDRO TEST
C07.031.003	3LPI PUMP-3C	OFD-102A-3.2		VT2	QCL-15 ISI-350	-----	__.__	-----	LPI PUMP 3C HYDRO TEST

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
C07.040.000	********VALVES	**********	_____	***	*******	*****	__.__	*****	PRESSURE RETAINING COMPONENTS* COVERED IN C07.020.000
		**********	_____		_____	_____	__.__		
			_____						

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
D01.011.000	********SYSTEM	INSERVICE TEST****** **********		***	*******	*****	__.__ __.___	*****	********** **********
D01.011.002	3-OFD-101A-3.1	OFD-101A-3.1 ----------		VT2	QCL-15 ISI-350	-----	__.__ __.___	-----	CL. C SYSTEM LEAK TEST
D01.011.003	3-OFD-101A-3.2	OFD-101A-3.2 ----------		VT2	QCL-15 ISI-350	-----	__.__ __.___	-----	CL. C SYSTEM LEAK TEST
D01.011.007	3-OFD-106A-3.2	OFD-106A-3.2 ----------		VT2	QCL-15 ISI-350	-----	__.__ __.___	-----	CL. C SYSTEM LEAK TEST
D01.011.008	3-OFD-109A-3.1	OFD-109A-3.1 ----------		VT2	QCL-15 ISI-350	-----	__.__ __.___	-----	CL. C SYSTEM LEAK TEST
D01.011.016	3-OFD-110A-3.1	OFD-110A-3.1		VT2	QCL-15 ISI-350		__.__ __.___		CL. C SYSTEM LEAK TEST
D01.011.020	3-OFD-100A-3.2	OFD-100A-3.2		VT2	QCL-15 ISI-350		__.__ __.___		CL. C SYSTEM LEAK TEST
D01.011.021	3-OFD-107A-3.1	OFD-107A-3.1		VT2	QCL-15 ISI-350		__.__ __.___		CL. C SYSTEM LEAK TEST

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
D01.012.017	3-OFD-144A-3.2	OFD-144A-3.2		VT2	QCL-15 ISI-350		__.__ __.__		CL. C SYSTEM HYDRO TEST

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
D02.011.000	******** SYSTEM	FUNCTIONAL ********* TEST **********		***	******* *******		__.__ __.__		********** **********
D02.011.001A	3-OFD-110A-3.3	OFD-110A-3.3		VT2	QCL-15 ISI-350		__.__ __.__		CL. C SYSTEM LEAK TEST
D02.011.005	3-OFD-121B-3.3	OFD-121B-3.3		VT2	QCL-15 ISI-350	-----	__.__ __.__	-----	CL. C SYSTEM LEAK TEST
D02.011.007	3-OFD-121D-3.1	OFD-121D-3.1		VT2	QCL-15 ISI-350	-----	__.__ __.__	-----	CL. C SYSTEM LEAK TEST
D02.011.016	3-OFD-133A-3.1	OFD-133A-3.1		VT2	QCL-15 ISI-350	-----	__.__ __.__	-----	CL. C SYSTEM LEAK TEST
D02.011.017	3-OFD-133A-3.2	OFD-133A-3.2		VT2	QCL-15 ISI-350	-----	__.__ __.__	-----	CL. C SYSTEM LEAK TEST
D02.011.019	3-OFD-133A-3.4	OFD-133A-3.4		VT2	QCL-15 ISI-350		__.__ __.__		CL. C SYSTEM LEAK TEST
D02.011.020	3-OFD-133A-3.3	OFD-133A-3.3		VT2	QCL-15 ISI-350		__.__ __.__		CL. C SYSTEM LEAK TEST

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
D02.020.000	******INTEGRAL	ATTACHMENTS**********		***	*******	*****	__.__	*****	COMPONENT SUPPORTS AND RESTRAINTS**********
D02.020.010	3-03A-H154	0-2400B		VT3	QCL14		06.00		EMER. FDWTR - RIGID 3-03A-1-0-2400B-H154
D02.020.017	3-03A-SR17	0-2401A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S / R 3-03A-1-0-2401A-SR17
D02.020.019	3-03A-SR36	0-2439B		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S / R 3-03A-1-0-2439B-SR36
D02.020.021	3-03A-SR100PØ	0-2401A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S / R 3-03A-1-0-2401A-SR100PØ
D02.020.024	3-03A-SR185	0-2444		VT3	QCL-14	-----	__.__	-----	EMER. FDWTR. - RIGID 3-03A-1-0-2444-SR185
D02.020.038	3-03A-H194	0-2437B		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S / R 3-03A-1-0-2437B-H194
D02.020.041	3-03A-H120	0-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S / R 3-03A-1-0-2400A-H120

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
D02.020.043	3-03A-H118	O-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S / R 3-03A-1-O-2400A-H118
D02.020.044	3-03A-H130	O-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S / R 3-03A-1-O-2400A-H130
D02.020.045	3-03A-SR129	O-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-O-2400A-SR129
D02.020.052	3-03A-SR113	O-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-O-2400A-SR113
D02.020.063	3-03A-H175	O-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-O-2400A-H175
D02.020.064	3-03A-SR122	O-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-O-2400A-SR122
D02.020.067	3-03A-H147	O-2400B		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-O-2400B-H147
D02.020.068	3-03A-SR146	O-2400B		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-O-2400B-SR146

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
D02.020.069	3-03A-SR148	0-2400B		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-0-2400B-SR148
D02.020.070	3-03A-H149	0-2400B		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-0-2400B-H149
D02.020.071	3-03A-H125	0-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-0-2400A-H125
D02.020.072	3-03A-SR55	0-2400A		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-0-2400A-SR55
D02.020.073	3-03A-H10	0-2439B		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-0-2439B-H10
D02.020.081	3-03A-H207	0-2400A		VT3	QCL14		06.00		EMER. FDWTR - RIGID 3-03A-1-0-2400A-H207
D02.020.082	3-03A-H5	0-2439C		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-03A-1-0-2439C-H5
D02.020.083	3-14B-SR9	0-2438B		VT3	QCL-14	-----	__.__	-----	EMERGENCY FDWTR S/R 3-14B-6-0-2438B-SR9

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
D02.020.163	3-14B-7002	0-2437A		VT3	QCL14		06.00		SERVICE WATER - RIGID 3-14B-2437A-WM-7002
D02.020.164	3-14B-SR7	0-2438B		VT3	QCL14		06.00		SERVICE WATER - RIGID 3-14B-6-0-2438B-SR7
D02.020.165	3-14B-SR8	0-2438B		VT3	QCL14		06.00		SERVICE WATER - RIGID 3-14B-6-0-2438B-SR8
D02.030.000	*****INTEGRAL	ATTACHMENTS**********		***	*******	*****	__.__	*****	MECHANICAL AND HYDRAULIC****** SNUBBERS**********
D02.040.000	******INTEGRAL	ATTACHMENTS**********		***	*******	*****	__.__	*****	SPRING TYPE SUPPORTS********** **********

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
D03.011.000	********SYSTEM	INSERVICE TEST****** **********	_____ _____ _____	***	******* _____	***** _____	__.__ __.___	*****	********** ********** _____ _____
D03.011.001	3-OFD-104A-3.1	OFD-104A-3.1 ----------	_____ _____ _____	VT2	QCL-15 ISI-350	----- _____	__.__ __.___	-----	CL. C SYSTEM LEAK TEST _____ _____ _____
D03.011.002	3-OFD-104A-3.2	OFD-104A-3.2 ----------	_____ _____ _____	VT2	QCL-15 ISI-350	----- _____	__.__ __.___	-----	CL. C SYSTEM LEAK TEST _____ _____ _____

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
E01.001.000	REACTOR COOL. PUMP	FLYWHEEL INSPECTIONS		***	*******		__.__		**********
		**********			*******		__.__		**********
E01.001.001	3RCP-3A1	Z-6774		UT	ISI-117	CS	72.00	-----	RC PUMP 3A1 FLYWHEEL
							09.500		
E01.001.002	3RCP-3A2	Z-6774		UT	ISI-117	CS	72.00	-----	RC PUMP 3A2 FLYWHEEL
							09.500		
E01.001.003	3RCP-3B1	Z-6774		UT	ISI-117	CS	72.00	-----	RC PUMP 3B1 FLYWHEEL
							09.500		
E01.001.004	3RCP-3B2	Z-6774		UT	ISI-117	CS	72.00	-----	RC PUMP 3B2 FLYWHEEL
							09.500		

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
E03.001.000	*****ALTERNATE	EXAMINATIONS******** **********		***	*******	*****	__.__ __.___	*****	********** **********
E03.001.003	3RCP-3A2	0M1201-1217		VT1	QCL-13	SS	__.__ __.___		INSP. FLG. JOINT,STUDS AND ADJ AREA PER REQ. FOR REL. ONS.010
E03.001.004	3RCP-3B1	0M1201-1217		VT1	QCL-13	SS	__.__ __.___		INSP. FLG. JOINT,STUDS AND ADJ AREA PER REQ. FOR REL. ONS-010

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
E04.001.000	***** HPI SAFE END	EXAMINATIONS ******* **********		***	******* *******		__.__ __.__		********** **********
E04.001.001	3PDA1-47	ISI-OCN3-011		UT	ISI-120	SS	03.50 00.750	40343	A1 DISCHARGE MAKE UP NOZZLE SAFE END PC 47 CAL.BLOCK 40416
E04.001.001A	3PDA1-47	ISI-OCN3-011		RT	NDE-12	SS	03.50 00.750		A1 DISCHARGE MAKE UP NOZ.SE PC.47 USE NDE-12 AS GUIDELINE
E04.001.002	3PDA2-47	ISI-OCN3-012		UT	ISI-120	SS	03.50 00.750	40343	A2 DISCHARGE MAKE UP NOZZLE SAFE END PC 47 CAL.BLOCK 40416
E04.001.002A	3PDA2-47	ISI-OCN3-012		RT	NDE-12	SS	03.50 00.750		A2 DISCHARGE MAKE UP NOZ. SE PC.47 USE NDE-12 AS GUIDELINE
E04.001.003	3PDB1-47	ISI-OCN3-013		RT	NDE-12	SS	03.50 00.750		B1 DISCHARGE HPI NOZ. SE PC.47 USE NDE-12 AS GUIDELINE
E04.001.004	3PDB2-47	ISI-OCN3-014		RT	NDE-12	SS	03.50 00.750		B2 DISCHARGE HPI NOZ. SE PC.47 USE NDE-12 AS GUIDELINE

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
E07.001.000	***** THERMAL STRESS	PIPING ********** EXAMINATIONS *******	***** ***** *****	***	******* *******	***** **********	__.__ __.___	____	**** NRC BULLENTIN 88-08 ***** **********
E07.001.001	3-51A-61-43	SYS. 51A ISO. 61		UT	ISI-120	SS	02.50 00.375	40378	INSP. 100% OF WELD & 1" B.M. (AXIAL & CIRC.)
E07.001.002	3-51A-61-43C	SYS. 51A ISO. 61		UT	ISI-120	SS	02.50 00.375	40378	INSP. 100% OF WELD & 1" B.M. (AXIAL & CIRC.)
E07.001.003	3-51A-61-44A	SYS. 51A ISO. 61		UT	ISI-120	SS	02.50 00.375	40378	INSP. 100% OF WELD & 1" B.M. (AXIAL & CIRC.)
E07.001.004	3-51A-62-25	SYS. 51A ISO. 62		UT	ISI-120	SS	02.50 00.375	40378	INSP. 100% OF WELD & 1" B.M. (AXIAL & CIRC.)
E07.001.005	3-51A-62-26	SYS. 51A ISO. 62		UT	ISI-120	SS	02.50 00.375	40378	INSP. 100% OF WELD & 1" B.M. (AXIAL & CIRC.)
E07.001.006	3PDB1-11	ISI-OCN3-13		UT	ISI-120	CS\SS	03.50 00.750	40416	INSP.100% WELD & 1"B.M. (AXIAL & CIRC.) 15 DAY REPORT REQ.
E07.001.007	3PDB2-11	ISI-OCN3-014		UT	ISI-120	CS\SS	03.50 00.750	40416	INSP.100% WELD & 1"B.M. (AXIAL & CIRC.) 15 DAY REPORT REQ.

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.01.000	********** CLASS 1	SUPPORTS ********** **********		***	******* *******				********** **********
F1.01.027	3-50-H7	0-2481A		VT	QCL-14	-----	02.50	-----	PRESS. SPRAY - SNUBBER 3-50-0-2481A-H7
F1.01.029	3-50-H9	0-2480A		VT	QCL-14	-----	02.50	-----	PRESS. SPRAY - SNUBBER 3-50-0-2480A-H9
F1.01.030	3-50-H10	0-2480A		VT	QCL-14	-----	02.50	-----	PRESS. SPRAY - SNUBBER 3-50-0-2480A-H10
F1.01.032	3-50-H12	0-2479A		VT	QCL-14	-----	02.50	-----	PRESS. SPRAY - SNUBBER 3-50-0-2479A-H12
F1.01.054	3-51A-H4A	0-2479A		VT	QCL-14	-----	02.50	-----	HPI - RIGID 3-51A-0-2479A-H4A
F1.01.067	3-51A-H1B	0-2479A		VT	QCL-14	-----	02.50	-----	HPI - SPRING 3-51A-0-2479A-H1B
F1.01.076	3-51A-H10B	0-2479A		VT	QCL-14	-----	02.50	-----	HPI - X RIGID 3-51A-0-2479A-H10B

DUKE POWER COMPANY
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OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.01.079	3-51A-H13B	0-2479A		VT	QCL-14	-----	02.50	-----	HPI - SPRING 3-51A-0-2479A-H13B
F1.01.080	3-51A-H14B	0-2479A		VT	QCL-14	-----	02.50	-----	HPI - Z RIGID 3-51A-0-2479A-H14B
F1.01.082	3-51A-H16B	0-2479A		VT	QCL-14	-----	02.50	-----	HPI - Y RIGID 3-51A-0-2479A-H16B
F1.01.128	3-53-H2	0-2478A		VT	QCL-14	-----	12.00	-----	DECAY HEAT - X RIGID 3-53-0-2478A-H2
F1.01.129	3-53-H3	0-2478A		VT	QCL-14	-----	12.00	-----	DECAY HEAT - SNUBBER 53-0-2478A-H3
F1.01.132	3-53A-H4B	0-2478A		VT	QCL-14	-----	10.00	-----	LPI - Y RIGID 3-53A-0-2478A-H4B
F1.01.133	3-53A-H5B	0-2478A		VT	QCL-14	-----	10.00	-----	LPI - SPRING 3-53A-0-2478A-H5B
F1.02.000	********** CLASS 2	SUPPORTS ********** **********		***	******* *******		__.__		**********

DUKE POWER COMPANY
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PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.02.020	3-01A-H20	0-2401B		VT	QCL-14	-----	36.50	-----	MAIN STEAM - RIGID 3-01A-0-2401B-H20
F1.02.021	3-01A-H21	0-2401B		VT	QCL-14	-----	36.50	-----	MAIN STEAM - RIGID 3-01A-0-2401B-H21
F1.02.023	3-01A-H23	0-2401B		VT	QCL-14	-----	36.50	-----	MAIN STEAM - SPRING 3-01A-0-2401B-H23
F1.02.025	3-01A-R2	0-2441		VT	QCL-14	-----	36.50	-----	MAIN STEAM - SNUBBER 3-01A-0-2441-R2
F1.02.026	3-01A-R3	0-2401B		VT	QCL-14	-----	36.50	-----	MAIN STEAM - SNUBBER 3-01A-0-2401B-R3
F1.02.029	3-01A-R6	0-2401B		VT	QCL-14	-----	36.50	-----	MAIN STEAM - SNUBBER 3-01A-0-2401B-R6
F1.02.057	3-01A-H7B	0-2480A		VT	QCL-14	-----	26.12	-----	MAIN STEAM - SPRING 3-01A-0-2480A-H7B
F1.02.059	3-01A-H9B	0-2481A		VT	QCL-14	-----	26.12	-----	MAIN STEAM - SPRING 3-01A-0-2481A-H9B

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OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.02.061	3-01A-H11B	0-2481B		VT	QCL-14	-----	36.32	-----	MAIN STEAM - SPRING 3-01A-0-2481B-H11B
F1.02.152	3-03-H1B	0-2479A		VT	QCL-14	-----	14.00	-----	MAIN FDWTR - X RIGID 3-03-0-2479A-H1B REP.OUT.8,NCI-0-1471 INSP.OUT.11 PER IWF-2420(B)
F1.02.157	3-03-H6B	0-2480A		VT	QCL-14	-----	20.00	-----	MAIN FDWTR - SNUBBER 03-0-2480A-H6B REP.OUT.9, PIR# 3-087-0020 INSP.OUT.11 PER IWF-2420(B)
F1.02.161	3-03-H1A	0-2479A		VT	QCL-14	-----	14.00	-----	MAIN FDWTR - X RIGID 3-03-0-2479A-H1A REP.OUT.8 NCI01497,ORIG.SCH.13 INSP.OUT.11 PER IWF-2420(B)
F1.02.175	3-03-H15A	0-2481A		VT	QCL-14	-----	24.00	-----	MAIN FDWTR - SPRING 03-0-2481A-H15A
F1.02.203	3-03A-3001	0-2439A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2439A-LDD-3001
F1.02.204	3-14B-DE082	0-2439A		VT	QCL-14	-----	06.00	-----	L.P. SERVICE WATER - RIGID 3-14B-0-2439A-DE082
F1.02.261	3-53B-DE030	0-2435B		VT	QCL-14	-----	10.00	-----	LPI - SWAY STRUT 3-53B-2435B-DE030

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.02.275	3-53B-H120	0-2435B		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2435B-H120
F1.02.278	3-53B-DE001	0-2436D		VT	QCL-14	-----	08.00	-----	LPI - RIGID 3-53B-2436D-DE001
F1.02.281	3-53B-H2	0-2435B		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2435B-H2
F1.02.282	3-53B-H18	0-2444		VT	QCL-14	-----	10.00	-----	LPI - SPRING 3-53B-5-0-2444-H18
F1.02.283	3-53B-H44	0-2436D		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2436D-H44
F1.02.291	3-53B-SR35	0-2436D		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2436D-SR35
F1.02.312	3-53B-H26	0-2435B		VT	QCL-14	-----	14.00	-----	LPI - RIGID 3-53B-4-2435B-H26
F1.02.329	3-53B-H49	0-2436D		VT	QCL-14	-----	10.00	-----	LPI - SPRING 3-53B-5-0-2436D-H49

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.02.340	3-53B-R13	0-2439B		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2439B-R13
F1.02.350	3-53B-H98	0-2439B		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2439B-H98
F1.02.354	3-53B-R3	0-2436D		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2436D-R3
F1.02.355	3-53B-R17	0-2444		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2444-R17
F1.02.356	3-53B-R18	0-2444		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2444-R18
F1.02.357	3-53B-R19	0-2439A		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2439A-R19
F1.02.359	3-53B-H102	0-2439B		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-6-0-2439B-H102
F1.02.360	3-53B-H103	0-2439C		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-6-0-2439C-H103

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OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.02.361	3-53B-H104	0-2439C		VT	QCL-14	-----	10.00	-----	LPI - RIGID 3-53B-5-0-2439C-H104
F1.02.365	3-53B-H108	0-2439C		VT	QCL-14	-----	10.00	-----	LPI - SPRING 3-53B-6-0-2439C-H108
F1.02.396	3-54B-H1A	0-2477		VT	QCL 14	8.00			REACTOR BLDG. SPRAY - RIGID 54B-0-2477-H1A
F1.02.401	3-54A-H31	0-2435B		VT	QCL-14	-----	10.00	-----	REACTOR BLDG. SPRAY - SPRING 3-54A-2-0-2435B-H31
F1.02.402	3-54A-H32	0-2435B		VT	QCL-14	-----	10.00	-----	REACTOR BLDG. SPRAY - SPRING 3-54A-2-0-2435B-H32
F1.02.403	3-54A-DE014	0-2435B		VT	QCL-14	-----	10.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-2435B-DE014
F1.02.404	3-54A-DE015	0-2435B		VT	QCL-14	-----	10.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-2435B-DE015
F1.02.411	3-54B-H7A	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - Z RIGID 3-54B-0-2477-H7A

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.02.412	3-54B-H8A	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - SPRING 3-54B-0-2477-H8A
F1.02.413	3-54B-H10A	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - X RIGID 3-54B-0-2477-H10A
F1.02.414	3-54B-H11A	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - X RIGID 3-54B-0-2477-H11A
F1.02.415	3-54B-H12A	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - X RIGID 3-54B-0-2477-H12A
F1.02.418	3-54B-H15A	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - Y RIGID 3-54B-0-2477-H15A
F1.02.420	3-54B-H3B	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - X RIGID 3-54B-0-2477-H3B
F1.02.421	3-54B-H4B	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - SPRING 3-54B-0-2477-H4B
F1.02.423	3-54B-H6B	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - X RIGID 3-54B-0-2477-H6B

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.02.424	3-54B-H7B	0-2477		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - SPRING 3-54B-0-2477-H7B
F1.02.441	3-54A-H2	0-2435B		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - SPRING 3-54A-3-0-2435B-H2
F1.02.446	3-54A-SR22	0-2435B		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - SNUBBER 3-54A-3-0-2435B-SR22
F1.02.448	3-54A-R1001	0-2435B		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - SNUBBER 3-54A-3-0-2435B-R1001
F1.02.451	3-54A-SR9	0-2444		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - ANCHOR 3-54A-3-0-2444-SR9
F1.02.457	3-54A-H42	0-2435B		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2435B-H42
F1.02.472	3-54A-SR13	0-2439A		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2439A-SR13
F1.02.473	3-54A-H23	0-2439A		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2439A-H23

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.02.476	3-54A-SR11	0-2444		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2444-SR11
F1.02.478	3-54A-H50	0-2438A		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - SPRING 3-54A-3-0-2438A-H50
F1.02.486	3-54A-SR18	0-2439B		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2439B-SR18
F1.02.490	3-54A-H13	0-2439B		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2439B-H13
F1.02.492	3-54A-SR21	0-2439C		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2439C-SR21
F1.02.493	3-54A-H11	0-2439C		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2439C-H11
F1.02.495	3-54A-H9	0-2439C		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2439C-H9
F1.02.498	3-54A-H6	0-2439C		VT	QCL-14	-----	08.00	-----	REACTOR BLDG. SPRAY - RIGID 3-54A-3-0-2439C-H6

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.000	********** CLASS 3	SUPPORTS ********** **********		***	******* *******		__.__ __.__		********** **********
F1.03.019	3-01A-1607	0-2403D		VT	QCL-14	-----	06.00	-----	MAIN STEAM - RIGID 3-01A-2403D-LC-1607
F1.03.081	3-03A-H6257	0-2480A		VT	QCL-14	-----	06.00	-----	MAIN FEEDWATER - RIGID 3-03A-2480A-H6257
F1.03.082	3-03A-H3A	0-2480A		VT	QCL-14	-----	06.00	-----	MAIN FEEDWATER - SPRING 3-03A-0-2480A-H3A
F1.03.099	3-14-H6025	0-2478F		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14-2478F-H6025
F1.03.102	3-03A-DE025	0-2401B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401B-DE025
F1.03.103	3-03A-DE026	0-2401B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401B-DE026
F1.03.104	3-03A-SP14	0-2401B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2401B-SP14

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.105	3-03A-DE027	O-2401B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401B-DE027
F1.03.107	3-03A-DE028	O-2401B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401B-DE028
F1.03.110	3-03A-DE031	O-2401B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401B-DE031
F1.03.118	3-03A-DE034	O-2401B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401B-DE034
F1.03.124	3-03A-H61	O-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-O-2401A-H61
F1.03.131	3-03A-3101	O-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-O-2401A-DOD-3101
F1.03.141	3-03A-DE011	O-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401A-DE011
F1.03.143	3-03A-DE056	O-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401A-DE056

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.146	3-03A-DE045	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401A-DE045
F1.03.152	3-03A-3004	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401A-WDB-3004
F1.03.154	3-03A-SR21	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2401A-SR21
F1.03.157	3-03A-SR17	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2401A-SR17
F1.03.170	3-03A-SR36	0-2439B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2439B-SR36
F1.03.183	3-03A-SR100PO	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR-SNUBBER 3-03A-1-0-2401A-SR100PO
F1.03.196	3-03A-SR185	0-2444		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2444-SR185
F1.03.201	3-03A-H180	0-2439B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2439B-H180

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.219	3-14B-SR19	0-2439A		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14B-6-0-2439A-SR19
F1.03.233	3-03A-H120	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H120
F1.03.235	3-03A-H118	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H118
F1.03.236	3-03A-H130	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H130
F1.03.237	3-03A-SR129	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-SR129
F1.03.244	3-03A-SR113	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-SR113
F1.03.259	3-03A-H162	0-2401B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2401B-H162
F1.03.286	3-03A-H242	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H242

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OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.287	3-03A-H202	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H202
F1.03.288	3-03A-H203	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H203
F1.03.289	3-03A-H204	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR. - SNUBBER 3-03A-1-0-2400A-H204
F1.03.290	3-03A-H249	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H249
F1.03.291	3-03A-H248	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H248
F1.03.292	3-03A-H175	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H175
F1.03.293	3-03A-SR122	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-SR122
F1.03.294	3-03A-H250	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H250

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.296	3-03A-H208	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H208
F1.03.298	3-03A-H212	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H212
F1.03.299	3-03A-H210	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H210
F1.03.300	3-03A-H211	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H211
F1.03.301	3-03A-H213	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H213
F1.03.303	3-03A-H205	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H205
F1.03.305	3-03A-H207	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H207
F1.03.306	3-03A-H147	0-2400B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400B-H147

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ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.307	3-03A-SR146	0-2400B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400B-SR146
F1.03.308	3-03A-SR148	0-2400B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400B-SR148
F1.03.310	3-03A-H125	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H125
F1.03.312	3-03A-SR55	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-SR55
F1.03.323	3-03A-H252	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H252
F1.03.324	3-03A-H10	0-2439B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2439B-H10
F1.03.335	3-03A-H5035	0-2439F		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2439F-H5035
F1.03.338	3-03A-H5	0-2439C		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2439C-H5

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.341	3-03A-H5034	0-2439F		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2439F-H5034
F1.03.342	3-14B-H5174	0-2437A		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14B-2437A-H5174
F1.03.343	3-14B-7002	0-2437A		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14B-2437A-WM-7002
F1.03.345	3-14B-2603	0-2438B		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14B-2438B-DJB-2603
F1.03.346	3-14B-SR10	0-2438B		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14B-6-0-2438B-SR10
F1.03.347	3-14B-SR7	0-2438B		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14B-6-0-2438B-SR7
F1.03.348	3-14B-8000	0-2438B		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14B-2438B-ML-8000
F1.03.350	3-14B-SR8	0-2438B		VT	QCL-14	-----	06.00	-----	SERVICE WATER - RIGID 3-14B-6-0-2438B-SR8

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OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.351	3-03A-H5173	0-2439F		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2439F-H5173
F1.03.352	3-03A-H5172	0-2439F		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2439F-H5172
F1.03.353	3-03A-H5171	0-2439F		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2439F-H5171
F1.03.359	3-07A-DE027	0-2400A		VT	QCL-14	-----	08.00	-----	CONDENSATE L.P.MECH.S.S. 3-07A-2400A-DE027
F1.03.360	3-07A-2401	0-2400A		VT	QCL-14	-----	08.00	-----	CONDENSATE L.P.- RIGID 3-07A-2400A-LC-2401
F1.03.361	3-07A-H6	0-2402A		VT	QCL-14	-----	24.00	-----	CONDENSATE - SPRING 3-07A-6-0-2402A-H6
F1.03.378	3-07A-2103	0-2400A		VT	QCL-14	-----	12.00	-----	CONDENSATE - RIGID 3-07A-2400A-BM-2103
F1.03.388	3-07A-H77	0-2400A		VT	QCL-14	-----	20.00	-----	CONDENSATE - SPRING 3-07A-6-0-2400A-H77

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.391	3-07A-H62	0-2400A		VT	QCL-14	-----	12.00	-----	CONDENSATE - RIGID 3-07A-6-0-2400A-H62
F1.03.394	3-07A-H65	0-2400A		VT	QCL-14	-----	08.00	-----	CONDENSATE - SPRING 3-07A-6-0-2400A-H65
F1.03.396	3-07A-H68	0-2400A		VT	QCL-14	-----	12.00	-----	CONDENSATE - RIGID 3-07A-6-0-2400A-H68
F1.03.397	3-07A-H69	0-2400A		VT	QCL-14	-----	10.00	-----	CONDENSATE - RIGID 3-07A-6-0-2400A-H69
F1.03.435	3-07A-DE033	0-2400A		VT	QCL-14	-----	24.00	-----	CONDENSATE - RIGID 3-07A-0-2400A-DE033
F1.03.436	3-07A-H17	0-2400A		VT	QCL-14	-----	08.00	-----	CONDENSATE - SPRING 3-07A-0-2400A-H17
F1.03.481	3-08-H22	0-2401A		VT	QCL-14	-----	10.00	-----	TURB.EXHAUST - SNUBBER 3-08-2401A-H22
F1.03.501	3-14B-SR18	0-2444		VT	QCL-14		06.00		AUX SERVICE WATER -RIGID 3-14B-6-0-2444-SR18

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OCONEE 3 INSERVICE INSPECTION LISTING - OUTAGE 11

ITEM NUMBER	ID. NUMBER	DRAWING NUMBERS	LOCS.	INSP REQ.	PROC. NUMBERS	MATERIAL TYPE/GRADE	DIAM./ THICK	CALIB BLOCK	COMMENTS
F1.03.506	3-03A-3001	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR S.STRUT-RIGID 3-03A-2401A-WDB-3001
F1.03.509	3-03A-DE016	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401A-DE016
F1.03.510	3-03A-DE017	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401A-DE017
F1.03.511	3-03A-DE020	0-2401A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-2401A-DE020
F1.03.517	3-03A-H154	0-2400B		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400B-H154
F1.03.518	3-03A-H109	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR - RIGID 3-03A-1-0-2400A-H109
F1.03.520	3-03A-H244	0-2400A		VT	QCL-14	-----	06.00	-----	EMERGENCY FDWTR S.STRUT-RIGID 3-03A-1-0-2400A-H244

4.0 Results Of Inspections Performed During Outage 11

The results of each inspection shown in the final ISI Plan (Section 3 of this report) are included in this section. The completion date and status for each inspection are shown. All inspections revealing reportable indications are described in further detail in Section 5, 6, or 7 as applicable.

The information shown below is a field description for the reporting format included in this section of the report:

Item Number = ASME Section XI Tables IWB-2500-1 (Class 1), IWC-2500-1 (Class 2), IWD-2500-1 (Class 3), Augmented and Alternate Requirements

ID Number = Unique Identification Number

Inspection Date = Date of Examination

Inspection Status
- CLR = Clear
- REC = Recordable
- REP = Reportable

Inspection Limited
- L = Limited
- - = No

Geo. Ref. = Geometric Reflector
- N = No
- Y = Yes

Comments = General and/or Detail Description

PROGRAM: NISIRUND-QAISI04
FILE: C007133
PLANT: OCONEE UNIT 3
KEY: ITEM NUMBER B01

DUKE POWER COMPANY
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PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
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DATE 02/08/90

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B01.021.001A	3RPV-WH5	11/23/89	CLR	L	N	
B01.040.001A	3RPV-WH7	11/23/89	CLR	L	N	
B01.040.002A	3RPV-WH7	11/22/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B02.040.004	3SGB-WG58-2	12/02/89	CLR	L	Y	
B02.060.004	3-LDCB-IN-V3	11/29/89	CLR	L	Y	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B03.110.003	3PZR-WP33-3	12/02/89	CLR	L	N	
B03.110.006	3PZR-WP26-4	11/22/89	CLR	L	N	
B03.110.007	3PZR-WP26-5	11/22/89	CLR	L	N	
B03.110.008	3PZR-WP26-6	11/24/89	CLR	L	N	
B03.110.010	3PZR-WP26-2	12/02/89	CLR	L	N	
B03.120.003	3PZR-WP33-3	12/02/89	CLR	_	N	
B03.120.006	3PZR-WP26-4	11/22/89	CLR	_	N	
B03.120.007	3PZR-WP26-5	11/22/89	CLR	_	N	
B03.120.008	3PZR-WP26-6	11/24/89	CLR	_	N	
B03.120.010	3PZR-WP26-2	12/02/89	CLR	_	N	
B03.130.003	3SGB-WG50-2	12/01/89	CLR	L	N	
B03.130.004	3SGB-WG50-1	12/01/89	CLR	L	N	
B03.140.003	3SGB-WG50-2	12/01/89	CLR	L	N	
B03.140.004	3SGB-WG50-1	12/01/89	CLR	L	N	
B03.150.001	3-LDCA-IN-V1	11/29/89	CLR	L	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B03.150.002	3-LDCA-OUT-V2	11/29/89	CLR	L	N	
B03.160.001	3-LDCA-IN-V1	11/29/89	CLR	_	N	
B03.160.002	3-LDCA-OUT-V2	11/29/89	CLR	L	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B04.012.001	3RPV-CRDM	12/18/89	CLR	_	N	
B04.013.001	3RPV-INCORE	12/18/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B05.021.003	3PZR-WP91-3	11/30/89	CLR	_	N	
B05.050.009	3PSL-10	11/29/89	CLR	_	N	
B05.050.009A	3PSL-10	11/29/89	CLR	_	Y	
B05.050.009B	3PSL-10	11/23/89	CLR	_	N	
B05.050.011	3-PHB-17	11/29/89	CLR	L	Y	
B05.050.011A	3PHB-17	11/29/89	CLR	_	N	
B05.050.011B	3PHB-17	11/23/89	CLR	_	N	
B05.051.002	3PIA1-9	11/14/89	CLR	_	N	
B05.051.002A	3PDA1-11	11/14/89	CLR	_	N	
B05.051.010	3PIB2-9	11/15/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B06.010.010	3RPV-26-209-10	11/21/89	CLR	_	N	
B06.010.011	3RPV-26-209-11	11/21/89	CLR	_	N	
B06.010.012	3RPV-26-209-12	11/21/89	CLR	_	N	
B06.010.013	3RPV-26-209-13	11/21/89	CLR	_	N	
B06.010.014	3RPV-26-209-14	11/21/89	CLR	_	N	
B06.010.015	3RPV-26-209-15	11/21/89	CLR	_	N	
B06.010.016	3RPV-26-209-16	11/21/89	CLR	_	N	
B06.010.017	3RPV-26-209-17	11/21/89	CLR	_	N	
B06.010.018	3RPV-26-209-18	11/21/89	CLR	_	N	
B06.010.019	3RPV-26-209-19	11/21/89	CLR	_	N	
B06.010.020	3RPV-26-209-20	11/21/89	CLR	_	N	
B06.010.021	3RPV-26-209-21	11/21/89	CLR	_	N	
B06.010.022	3RPV-26-209-22	11/21/89	CLR	_	N	
B06.010.023	3RPV-26-209-23	11/21/89	CLR	_	N	
B06.010.024	3RPV-26-209-24	11/21/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B06.030.010	3RPV-25-209-10	11/21/89	CLR	_	N	
B06.030.010A	3RPV-25-209-10	11/21/89	CLR	_	N	
B06.030.011	3RPV-25-209-11	11/21/89	CLR	_	N	
B06.030.011A	3RPV-25-209-11	11/21/89	CLR	_	N	
B06.030.012	3RPV-25-209-12	11/21/89	CLR	_	N	
B06.030.012A	3RPV-25-209-12	11/21/89	CLR	_	N	
B06.030.013	3RPV-25-209-13	11/21/89	CLR	_	N	
B06.030.013A	3RPV-25-209-13	11/21/89	CLR	_	N	
B06.030.014	3RPV-25-209-14	11/21/89	CLR	_	N	
B06.030.014A	3RPV-25-209-14	11/21/89	CLR	_	N	
B06.030.015	3RPV-25-209-15	11/21/89	CLR	_	N	
B06.030.015A	3RPV-25-209-15	11/21/89	CLR	_	N	
B06.030.016	3RPV-25-209-16	11/21/89	CLR	_	N	
B06.030.016A	3RPV-25-209-16	11/21/89	CLR	_	N	
B06.030.017	3RPV-25-209-17	11/21/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEØ. REF.	COMMENTS
B06.030.017A	3RPV-25-209-17	11/21/89	CLR	_	N	
B06.030.018	3RPV-25-209-18	11/21/89	CLR	_	N	
B06.030.018A	3RPV-25-209-18	11/21/89	CLR	_	N	
B06.030.019	3RPV-25-209-19	11/21/89	CLR	_	N	
B06.030.019A	3RPV-25-209-19	11/21/89	CLR	_	N	
B06.030.020	3RPV-25-209-20	11/21/89	CLR	_	N	
B06.030.020A	3RPV-25-209-20	11/21/89	CLR	_	N	
B06.030.021	3RPV-25-209-21	11/21/89	CLR	_	N	
B06.030.021A	3RPV-25-209-21	11/21/89	CLR	_	N	
B06.030.022	3RPV-25-209-22	11/21/89	CLR	_	N	
B06.030.022A	3RPV-25-209-22	11/21/89	CLR	_	N	
B06.030.023	3RPV-25-209-23	11/21/89	CLR	_	N	
B06.030.023A	3RPV-25-209-23	11/21/89	CLR	_	N	
B06.030.024	3RPV-25-209-24	11/21/89	CLR	_	N	
B06.030.024A	3RPV-25-209-24	11/21/89	CLR	_	N	

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OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B06.040.001	3RPV LIGAMENTS	12/01/89	CLR	L	N	
B06.050.001A	3RPV-WASH-BUSH	11/21/89	CLR	_	N	
B06.180.008	3RCP-3B2-S	11/24/89	CLR	_	N	
B06.200.008	3RCP-3B2-WASH	11/28/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B07.020.002	3PZR-CHB-STUDS	11/18/89	CLR	_	N	
B07.020.003	3PZR-LHB-STUDS	11/18/89	CLR	_	N	
B07.020.004	3PZR-BOLTING	11/18/89	CLR	_	N	
B07.030.003	3SGB-LMW-BOLTS	11/22/89	CLR	_	N	
B07.070.009	3-LP-103-BOLT	11/30/89	CLR	_	N	
B07.080.001	3RPV-CRD-BOLTS	12/05/89	REC	_	N	
B07.080.002	3RPV-CRD-RINGS	12/05/89	REP	_	N	PIR 3-089-0188,RELIEF ONS-011

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B08.020.005	3PZR-WP82-Z	12/03/89	CLR	_	N	
B08.020.006	3PZR-WP82-ZW	12/04/89	CLR	_	N	
B08.020.007	3PZR-WP82-W	12/03/89	CLR	_	N	
B08.030.001	3SGA-WG61	12/03/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B09.011.029	3PIB1-1	12/02/89	CLR	L	N	
B09.011.029A	3PIB1-1	12/02/89	CLR	_	N	
B09.011.068	3PHA-12	11/23/89	CLR	L	N	
B09.011.068A	3PHA-12	11/20/89	CLR	_	N	
B09.011.080	3PHB-12	11/23/89	CLR	L	N	
B09.011.080A	3PHB-12	11/20/89	CLR	_	N	
B09.011.081	3PSP-3	11/28/89	CLR	_	Y	
B09.011.081A	3PSP-3	11/29/89	CLR	_	N	
B09.011.101	3PSL-01	11/29/89	CLR	_	Y	
B09.011.101A	3PSL-01	11/27/89	CLR	_	N	
B09.011.103	3PSL-09	11/29/89	CLR	_	N	
B09.011.103A	3PSL-09	11/23/89	CLR	_	N	
B09.021.001	3PSP-8	11/29/89	CLR	_	N	
B09.021.002	3PSP-9	11/29/89	CLR	_	N	
B09.021.003	3PSP-11	11/28/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B09.021.004	3PSP-12	11/28/89	CLR	_	N	
B09.021.005	3PSP-18	11/30/89	CLR	_	N	
B09.021.006	3PSP-21	11/27/89	CLR	_	N	
B09.021.046	3-51A-143-22A	12/04/89	CLR	_	N	
B09.021.124	3-51A-62-26	11/15/89	CLR	_	N	
B09.040.001	3-50-152-28	11/27/89	CLR	_	N	
B09.040.002	3-50-152-03	11/27/89	CLR	_	N	
B09.040.005	3-50-152-10	11/27/89	CLR	_	N	
B09.040.006	3-50-152-15	11/27/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B13.010.001	3RPV-INT SUR	11/28/89	CLR	L	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B15.010.001	3RPV-LK-TEST	12/18/89	CLR	_	N	
B15.020.001	3PZR-LK-TEST	12/18/89	CLR	_	N	
B15.030.001	3SGA-LK-TEST	12/18/89	CLR	_	N	
B15.030.002	3SGB-LK-TEST	12/18/89	CLR	_	N	
B15.040.001	3LDC3A-LK TEST	12/18/89	CLR	_	N	
B15.040.002	3LDC3B-LK TEST	12/18/89	CLR	_	N	
B15.050.001	3-OFD-100A-3.1	12/18/89	REC	_	N	
B15.050.001A	3-OFD-100A-3.2	12/18/89	CLR	_	N	
B15.050.002	3-OFD-101A-3.1	12/18/89	CLR	_	N	
B15.050.003	3-OFD-101A-3.4	12/18/89	REC	_	N	
B15.050.004	3-OFD-102A-3.1	12/18/89	REC	_	N	
B15.050.005	3-OFD-102A-3.2	12/18/89	CLR	_	N	
B15.050.006	3-OFD-102A-3.3	12/18/89	CLR	_	N	
B15.050.007	3-OFD-110A-3.1	12/18/89	CLR	_	N	
B15.050.009	3-OFD-100A-3.3	12/18/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B15.050.010	3-OFD-110A-3.4	12/18/89	CLR	_	N	
B15.060.001	3-RCP-3A1	12/18/89	CLR	_	N	
B15.060.002	3-RCP-3A2	12/18/89	CLR	_	N	
B15.060.003	3-RCP-3B1	12/18/89	CLR	_	N	
B15.060.004	3-RCP-3B2	12/18/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
B16.011.001	3SGA-TUBES	11/29/89	REP	_	N	PIR 3-089-0185
B16.011.002	3SGB-TUBES	11/29/89	REP	_	N	PIR 3-089-0185

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
C01.010.001	3SGA-WG8-1	11/19/89	REC	L	N	ACCEPT,FMA 32-1135539-00
C01.020.003	3LPCA-HD-SHL	10/16/89	CLR	L	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
C02.010.003	3LPCB-INLET	10/23/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
C03.010.003	3SGA-WG84-YZ	11/22/89	CLR	_	N	
C03.010.004	3SGA-WG84-ZY	12/03/89	CLR	_	N	
C03.040.008	3-01A-H7B	12/03/89	CLR	_	N	
C03.040.009	3-01A-H9B	12/03/89	CLR	_	N	
C03.040.010	3-01A-H11B	12/03/89	CLR	_	N	
C03.040.019	3-01A-H5	12/04/89	CLR	_	N	
C03.040.033	3-03-H15A	12/02/89	CLR	_	N	
C03.040.051	3-53B-SR40	11/08/89	CLR	_	N	ADD RFO 11 PER IWC-2430(A)
C03.040.055	3-53B-R3	10/18/89	REP	_	N	PIR# 3-089-0158
C03.040.073	3-54B-H4B	12/01/89	CLR	_	N	
C03.040.087	3SGA-WG87-YZ	11/22/89	CLR	_	N	
C03.040.088	3SGA-WG87-ZY	12/03/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
C04.040.003	3-01A-SV3-STUD	12/03/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
C05.011.026	3-53B-35-24A	10/23/89	CLR	_	N	
C05.011.034	3-53B-37-51	10/23/89	CLR	_	N	
C05.011.040	3-53B-44-09	11/27/89	CLR	_	N	
C05.011.041	3-53B-44-13	11/27/89	CLR	_	N	
C05.011.052	3-53B-45-40	10/23/89	CLR	_	N	
C05.011.054	3-53B-47-53A	10/19/89	CLR	_	N	
C05.011.059	3-53B-47-37	11/02/89	CLR	_	N	
C05.011.068	3-53B-50-13B	10/23/89	CLR	_	N	
C05.011.076	3-53B-51-01	10/23/89	CLR	_	N	
C05.011.206	3-54A-9-11	10/23/89	CLR	_	N	
C05.011.214	3-54A-11-27	11/02/89	CLR	_	N	
C05.011.225	3-54A-12-27	11/02/89	CLR	_	N	
C05.011.227	3-54A-12-21	11/02/89	CLR	_	N	
C05.011.266	3-51A-50-51	11/02/89	CLR	_	N	
C05.011.267	3-51A-50-50	11/02/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
C05.011.305	3-03A-146-16	12/03/89	CLR	_	N	
C05.011.306	3-03A-14-01	12/03/89	CLR	_	N	
C05.011.425	3-01A-10-20	11/29/89	CLR	_	N	
C05.012.017	3-53B-35-24AL	10/23/89	CLR	_	N	
C05.012.018	3-53B-45-40L	10/23/89	CLR	_	N	
C05.012.019	3-53B-50-13BL	10/23/89	CLR	_	N	
C05.012.020	3-54A-9-11L	10/23/89	CLR	_	N	
C05.012.021	3-53B-47-37L	11/02/89	CLR	_	N	
C05.012.022	3-54A-12-27L	11/02/89	CLR	_	N	
C05.012.023	3-54A-12-21L	11/02/89	CLR	_	N	
C05.012.024	3-53B-44-09L	11/27/89	CLR	_	N	
C05.012.025	3-53B-44-13L	11/27/89	CLR	_	N	
C05.021.202	3-03A-17-42	12/01/89	CLR	_	N	
C05.021.202A	3-03A-17-42	12/02/89	CLR	_	N	
C05.021.203	3-03A-17-08	12/01/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
C05.021.203A	3-03A-17-08	11/09/89	CLR	_	N	
C05.021.309	3-03-3FWD-74-A	11/26/89	CLR	_	N	
C05.021.309A	3-03-3FWD-74-A	11/27/89	CLR	_	N	
C05.021.314	3-03-27-21	11/29/89	CLR	_	N	
C05.021.314A	3-03-27-21	11/27/89	CLR	_	N	
C05.021.318	3-03-30-WG91-G	11/30/89	CLR	_	N	
C05.021.318A	3-03-30-WG91-G	11/27/89	CLR	_	N	
C05.021.360	3-01A-23-04	11/19/89	CLR	_	N	
C05.021.360A	3-01A-23-04	11/17/89	CLR	_	N	
C05.021.366	3-01A-13-48	11/30/89	CLR	_	N	
C05.021.366A	3-01A-13-48	11/26/89	CLR	_	N	
C05.021.372	3-01A-24-02	11/26/89	CLR	_	N	
C05.021.372A	3-01A-24-02	11/18/89	CLR	_	N	
C05.021.378	3-01A-24-03	11/19/89	CLR	_	N	
C05.021.378A	3-01A-24-03	11/18/89	CLR	_	N	

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C05.021.382	3-01A-3MS24A-B	12/01/89	CLR	_	N	
C05.021.382A	3-01A-3MS24A-B	11/29/89	CLR	_	N	
C05.022.009	3-01A-23-04L	11/19/89	CLR	_	N	
C05.022.009A	3-01A-23-04L	11/17/89	CLR	_	N	
C05.022.013	3-01A-24-02L	11/19/89	CLR	_	N	
C05.022.013A	3-01A-24-02L	11/18/89	CLR	_	N	
C05.022.015	3-01A-24-03L	11/19/89	CLR	_	N	
C05.022.015A	3-01A-24-03L	11/18/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
C07.011.005	3LPCA	09/07/89	CLR	_	N	
C07.011.006	3LPCB	09/13/89	REC	_	N	
C07.021.003	3-OFD-101A-3.2	12/16/89	CLR	_	N	
C07.021.004	3-OFD-101A-3.3	11/16/89	CLR	_	N	
C07.021.007	3-OFD-102A-3.1	12/16/89	CLR	_	N	
C07.021.008	3-OFD-102A-3.2	09/13/89	CLR	_	N	
C07.021.012	3-OFD-104A-3.2	12/16/89	CLR	_	N	
C07.031.001	3LPI PUMP-3A	09/07/89	REC	_	N	
C07.031.002	3LPI PUMP-3B	09/13/89	CLR	_	N	
C07.031.003	3LPI PUMP-3C	09/06/89	REC	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
D01.011.002	3-OFD-101A-3.1	09/30/88	CLR	_	N	
D01.011.003	3-OFD-101A-3.2	10/03/88	CLR	_	N	
D01.011.007	3-OFD-106A-3.2	10/27/88	CLR	_	N	
D01.011.008	3-OFD-109A-3.1	09/30/88	CLR	_	N	
D01.011.016	3-OFD-110A-3.1	09/30/88	CLR	_	N	
D01.011.020	3-OFD-100A-3.2	12/18/89	CLR	_	N	
D01.011.021	3-OFD-107A-3.1	12/18/89	CLR	_	N	
D01.012.017	3-OFD-144A-3.2	11/16/89	REC	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
D02.011.001A	3-OFD-110A-3.3	10/26/88	CLR	_	N	
D02.011.005	3-OFD-121B-3.3	10/19/88	CLR	_	N	
D02.011.007	3-OFD-121D-3.1	10/19/88	CLR	_	N	
D02.011.016	3-OFD-133A-3.1	11/11/89	CLR	_	N	
D02.011.017	3-OFD-133A-3.2	11/11/89	CLR	_	N	
D02.011.019	3-OFD-133A-3.4	11/11/89	CLR	_	N	
D02.011.020	3-OFD-133A-3.3	11/11/89	CLR	_	N	
D02.020.010	3-03A-H154	09/20/89	CLR	_	N	
D02.020.017	3-03A-SR17	11/12/89	CLR	_	N	
D02.020.019	3-03A-SR36	11/11/89	CLR	_	N	
D02.020.021	3-03A-SR100PO	09/19/89	CLR	_	N	
D02.020.024	3-03A-SR185	11/30/89	CLR	_	N	
D02.020.038	3-03A-H194	10/31/89	CLR	_	N	
D02.020.041	3-03A-H120	11/06/89	CLR	_	N	
D02.020.043	3-03A-H118	11/06/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
D02.020.044	3-03A-H130	09/19/89	CLR	_	N	
D02.020.045	3-03A-SR129	11/06/89	CLR	_	N	
D02.020.052	3-03A-SR113	09/20/89	CLR	_	N	
D02.020.063	3-03A-H175	09/19/89	CLR	_	N	
D02.020.064	3-03A-SR122	09/20/89	CLR	_	N	
D02.020.067	3-03A-H147	09/19/89	CLR	_	N	
D02.020.068	3-03A-SR146	10/10/89	CLR	_	N	
D02.020.069	3-03A-SR148	10/10/89	CLR	_	N	
D02.020.070	3-03A-H149	09/19/89	CLR	_	N	
D02.020.071	3-03A-H125	11/12/89	CLR	_	N	
D02.020.072	3-03A-SR55	09/19/89	CLR	_	N	
D02.020.073	3-03A-H10	11/13/89	CLR	_	N	
D02.020.081	3-03A-H207	09/19/89	CLR	_	N	
D02.020.082	3-03A-H5	11/12/89	REC	_	N	
D02.020.083	3-14B-SR9	09/19/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
D02.020.163	3-14B-7002	10/27/89	CLR	_	N	
D02.020.164	3-14B-SR7	09/19/89	CLR	_	N	
D02.020.165	3-14B-SR8	09/19/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
D03.011.001	3-OFD-104A-3.1	09/13/89	REC	_	N	
D03.011.002	3-OFD-104A-3.2	09/12/89	REC	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
E01.001.001	3RCP-3A1	12/06/89	CLR	L	N	
E01.001.002	3RCP-3A2	11/28/89	CLR	L	N	
E01.001.003	3RCP-3B1	12/06/89	CLR	L	N	
E01.001.004	3RCP-3B2	12/06/89	CLR	L	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
E03.001.003	3RCP-3A2	11/28/89	CLR	_	N	
E03.001.004	3RCP-3B1	11/29/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
E04.001.001	3PDA1-47	11/16/89	CLR	_	Y	
E04.001.001A	3PDA1-47	11/26/89	CLR	_	N	
E04.001.002	3PDA2-47	11/16/89	CLR	_	N	
E04.001.002A	3PDA2-47	11/26/89	CLR	_	N	
E04.001.003	3PDB1-47	11/26/89	CLR	_	N	
E04.001.004	3PDB2-47	11/26/89	CLR	_	N	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
E07.001.001	3-51A-61-43	11/17/89	CLR	L	N	
E07.001.002	3-51A-61-43C	11/17/89	CLR	L	N	
E07.001.003	3-51A-61-44A	11/17/89	CLR	L	N	
E07.001.004	3-51A-62-25	11/16/89	CLR	L	N	
E07.001.005	3-51A-62-26	11/16/89	CLR	L	N	
E07.001.006	3PDB1-11	11/16/89	CLR	_	Y	
E07.001.007	3PDB2-11	11/16/89	CLR	_	Y	

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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.01.027	3-50-H7	11/18/89	CLR	_	N	
F1.01.029	3-50-H9	11/18/89	CLR	_	N	
F1.01.030	3-50-H10	11/18/89	REC	_	N	
F1.01.032	3-50-H12	11/18/89	REC	_	N	
F1.01.054	3-51A-H4A	11/20/89	CLR	_	N	
F1.01.067	3-51A-H1B	11/18/89	CLR	_	N	
F1.01.076	3-51A-H10B	11/18/89	CLR	_	N	
F1.01.079	3-51A-H13B	11/18/89	REC	_	N	
F1.01.080	3-51A-H14B	11/18/89	CLR	_	N	
F1.01.082	3-51A-H16B	11/19/89	CLR	_	N	
F1.01.128	3-53-H2	11/23/89	REC	_	N	
F1.01.129	3-53-H3	11/19/89	CLR	_	N	
F1.01.132	3-53A-H4B	11/19/89	REC	_	N	
F1.01.133	3-53A-H5B	11/20/89	CLR	_	N	
F1.02.020	3-01A-H20	11/12/89	CLR	_	N	

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.02.021	3-01A-H21	11/12/89	CLR	_	N	
F1.02.023	3-01A-H23	08/23/89	CLR	_	N	
F1.02.025	3-01A-R2	11/13/89	CLR	_	N	
F1.02.026	3-01A-R3	11/12/89	CLR	_	N	
F1.02.029	3-01A-R6	11/12/89	CLR	_	N	
F1.02.057	3-01A-H7B	11/20/89	CLR	_	N	
F1.02.059	3-01A-H9B	11/20/89	CLR	_	N	
F1.02.061	3-01A-H11B	11/19/89	REC	_	N	
F1.02.152	3-03-H1B	11/20/89	CLR	_	N	INSP.OUT.11 PER IWF-2420(B)
F1.02.157	3-03-H6B	11/20/89	CLR	_	N	INSP.OUT.11 PER IWF-2420(B)
F1.02.161	3-03-H1A	11/18/89	CLR	_	N	INSP.OUT.11 PER IWF-2420(B)
F1.02.175	3-03-H15A	11/20/89	REC	_	N	
F1.02.203	3-03A-3001	10/24/89	CLR	_	N	
F1.02.204	3-14B-DE082	11/12/89	REC	_	N	
F1.02.261	3-53B-DE030	10/23/89	CLR	_	N	

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OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.02.275	3-53B-H120	09/14/89	CLR	_	N	
F1.02.278	3-53B-DE001	10/27/89	CLR	_	N	
F1.02.281	3-53B-H2	09/14/89	CLR	_	N	
F1.02.282	3-53B-H18	11/11/89	REC	_	N	
F1.02.283	3-53B-H44	09/14/89	REC	_	N	
F1.02.291	3-53B-SR35	10/27/89	CLR	_	N	
F1.02.312	3-53B-H26	10/23/89	CLR	_	N	
F1.02.329	3-53B-H49	10/27/89	CLR	_	N	
F1.02.340	3-53B-R13	11/12/89	CLR	_	N	
F1.02.350	3-53B-H98	11/12/89	REC	_	N	
F1.02.354	3-53B-R3	10/27/89	CLR	_	N	
F1.02.355	3-53B-R17	11/11/89	CLR	_	N	
F1.02.356	3-53B-R18	11/11/89	CLR	_	N	
F1.02.357	3-53B-R19	11/11/89	CLR	_	N	
F1.02.359	3-53B-H102	11/12/89	CLR	_	N	

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.02.360	3-53B-H103	11/12/89	CLR	_	N	
F1.02.361	3-53B-H104	11/23/89	CLR	_	N	
F1.02.365	3-53B-H108	11/12/89	CLR	_	N	
F1.02.396	3-54B-H1A	12/01/89	CLR	_	N	
F1.02.401	3-54A-H31	09/18/89	REC	_	N	
F1.02.402	3-54A-H32	09/14/89	CLR	_	N	
F1.02.403	3-54A-DE014	10/23/89	CLR	_	N	
F1.02.404	3-54A-DE015	10/23/89	CLR	_	N	
F1.02.411	3-54B-H7A	11/19/89	CLR	_	N	
F1.02.412	3-54B-H8A	11/19/89	CLR	_	N	
F1.02.413	3-54B-H10A	11/19/89	CLR	_	N	
F1.02.414	3-54B-H11A	11/19/89	CLR	_	N	
F1.02.415	3-54B-H12A	11/19/89	CLR	_	N	
F1.02.418	3-54B-H15A	11/20/89	CLR	_	N	
F1.02.420	3-54B-H3B	12/01/89	CLR	_	N	

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.02.421	3-54B-H4B	12/01/89	REC	_	N	
F1.02.423	3-54B-H6B	11/18/89	CLR	_	N	
F1.02.424	3-54B-H7B	11/18/89	CLR	_	N	
F1.02.441	3-54A-H2	11/15/89	CLR	_	N	
F1.02.446	3-54A-SR22	10/23/89	CLR	_	N	
F1.02.448	3-54A-R1001	10/23/89	CLR	_	N	
F1.02.451	3-54A-SR9	11/11/89	CLR	_	N	
F1.02.457	3-54A-H42	11/15/89	CLR	_	N	
F1.02.472	3-54A-SR13	11/13/89	REC	_	N	
F1.02.473	3-54A-H23	11/12/89	REC	_	N	
F1.02.476	3-54A-SR11	11/28/89	CLR	_	N	
F1.02.478	3-54A-H50	11/11/89	CLR	_	N	
F1.02.486	3-54A-SR18	11/13/89	REC	_	N	
F1.02.490	3-54A-H13	11/12/89	CLR	_	N	
F1.02.492	3-54A-SR21	11/28/89	CLR	_	N	

DUKE POWER COMPANY
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PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.02.493	3-54A-H11	11/28/89	CLR	_	N	
F1.02.495	3-54A-H9	11/12/89	CLR	_	N	
F1.02.498	3-54A-H6	11/12/89	CLR	_	N	
F1.03.019	3-01A-1607	11/06/89	REC	_	N	
F1.03.081	3-03A-H6257	11/18/89	CLR	_	N	
F1.03.082	3-03A-H3A	11/18/89	CLR	_	N	
F1.03.099	3-14-H6025	11/19/89	CLR	_	N	
F1.03.102	3-03A-DE025	08/29/89	REC	_	N	
F1.03.103	3-03A-DE026	09/06/89	REC	_	N	
F1.03.104	3-03A-SP14	09/19/89	CLR	_	N	
F1.03.105	3-03A-DE027	08/29/89	REC	_	N	
F1.03.107	3-03A-DE028	08/29/89	CLR	_	N	
F1.03.110	3-03A-DE031	08/31/89	CLR	_	N	
F1.03.118	3-03A-DE034	11/12/89	CLR	_	N	
F1.03.124	3-03A-H61	11/06/89	CLR	_	N	

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
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OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.03.131	3-03A-3101	08/31/89	CLR	_	N	
F1.03.141	3-03A-DE011	08/28/89	REC	_	N	
F1.03.143	3-03A-DE056	08/29/89	CLR	_	N	
F1.03.146	3-03A-DE045	12/02/89	REC	_	N	
F1.03.152	3-03A-3004	08/30/89	CLR	_	N	
F1.03.154	3-03A-SR21	09/19/89	CLR	_	N	
F1.03.157	3-03A-SR17	11/12/89	CLR	_	N	
F1.03.170	3-03A-SR36	11/11/89	REC	_	N	
F1.03.183	3-03A-SR100PO	09/19/89	CLR	_	N	
F1.03.196	3-03A-SR185	11/30/89	REC	_	N	
F1.03.201	3-03A-H180	11/12/89	REC	_	N	
F1.03.219	3-14B-SR19	10/24/89	CLR	_	N	
F1.03.233	3-03A-H120	11/06/89	CLR	_	N	
F1.03.235	3-03A-H118	11/06/89	REC	_	N	
F1.03.236	3-03A-H130	09/19/89	REC	_	N	

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
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OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.03.237	3-03A-SR129	11/06/89	REC	_	N	
F1.03.244	3-03A-SR113	09/20/89	CLR	_	N	
F1.03.259	3-03A-H162	11/06/89	REC	_	N	
F1.03.286	3-03A-H242	08/31/89	REC	_	N	
F1.03.287	3-03A-H202	09/06/89	CLR	_	N	
F1.03.288	3-03A-H203	09/07/89	CLR	_	N	
F1.03.289	3-03A-H204	09/07/89	REC	_	N	
F1.03.290	3-03A-H249	09/19/89	CLR	_	N	
F1.03.291	3-03A-H248	09/19/89	CLR	_	N	
F1.03.292	3-03A-H175	09/19/89	CLR	_	N	
F1.03.293	3-03A-SR122	09/19/89	CLR	_	N	
F1.03.294	3-03A-H250	09/14/89	CLR	_	N	
F1.03.296	3-03A-H208	09/06/89	CLR	_	N	
F1.03.298	3-03A-H212	09/06/89	CLR	_	N	
F1.03.299	3-03A-H210	09/06/89	CLR	_	N	

DUKE POWER COMPANY
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PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
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ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.03.300	3-03A-H211	09/06/89	REC	_	N	
F1.03.301	3-03A-H213	08/29/89	CLR	_	N	
F1.03.303	3-03A-H205	09/06/89	CLR	_	N	
F1.03.305	3-03A-H207	09/14/89	CLR	_	N	
F1.03.306	3-03A-H147	09/19/89	CLR	_	N	
F1.03.307	3-03A-SR146	10/10/89	CLR	_	N	
F1.03.308	3-03A-SR148	10/10/89	REC	_	N	
F1.03.310	3-03A-H125	11/12/89	REC	_	N	
F1.03.312	3-03A-SR55	09/19/89	REC	_	N	
F1.03.323	3-03A-H252	12/02/89	REC	_	N	
F1.03.324	3-03A-H10	11/12/89	CLR	_	N	
F1.03.335	3-03A-H5035	11/12/89	CLR	_	N	
F1.03.338	3-03A-H5	11/12/89	CLR	_	N	
F1.03.341	3-03A-H5034	11/12/89	CLR	_	N	
F1.03.342	3-14B-H5174	10/27/89	CLR	_	N	

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.03.343	3-14B-7002	10/27/89	CLR	_	N	
F1.03.345	3-14B-2603	09/19/89	REC	_	N	
F1.03.346	3-14B-SR10	09/19/89	REC	_	N	
F1.03.347	3-14B-SR7	09/19/89	CLR	_	N	
F1.03.348	3-14B-8000	09/19/89	CLR	_	N	
F1.03.350	3-14B-SR8	09/19/89	REC	_	N	
F1.03.351	3-03A-H5173	11/12/89	CLR	_	N	
F1.03.352	3-03A-H5172	11/12/89	CLR	_	N	
F1.03.353	3-03A-H5171	11/12/89	CLR	_	N	
F1.03.359	3-07A-DE027	09/06/89	CLR	_	N	
F1.03.360	3-07A-2401	09/18/89	REC	_	N	
F1.03.361	3-07A-H6	09/07/89	CLR	_	N	
F1.03.378	3-07A-2103	08/29/89	CLR	_	N	
F1.03.388	3-07A-H77	09/20/89	CLR	_	N	
F1.03.391	3-07A-H62	09/14/89	CLR	_	N	

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
PRE-SERVICE AND IN-SERVICE INSPECTION SYSTEM
OCONEE 3 INSERVICE INSPECTION RESULTS OUTAGE 11

ITEM NUMBER	ID NUMBER	INSPECTION DATE	INSPECTION STATUS	INSPECTION LIMITED	GEO. REF.	COMMENTS
F1.03.394	3-07A-H65	11/12/89	CLR	_	N	
F1.03.396	3-07A-H68	09/13/89	CLR	_	N	
F1.03.397	3-07A-H69	09/14/89	CLR	_	N	
F1.03.435	3-07A-DE033	09/06/89	CLR	_	N	
F1.03.436	3-07A-H17	09/13/89	REC	_	N	
F1.03.481	3-08-H22	09/19/89	CLR	_	N	
F1.03.501	3-14B-SR18	11/11/89	REC	_	N	
F1.03.506	3-03A-3001	08/30/89	CLR	_	N	
F1.03.509	3-03A-DE016	08/23/89	CLR	_	N	
F1.03.510	3-03A-DE017	09/19/89	REC	_	N	
F1.03.511	3-03A-DE020	08/30/89	CLR	_	N	
F1.03.517	3-03A-H154	09/20/89	CLR	_	N	
F1.03.518	3-03A-H109	09/19/89	CLR	_	N	
F1.03.520	3-03A-H244	09/14/89	CLR	_	N	

5.0 Class 1 Inspection Results

Examinations were performed during Outage 11 on the Reactor Vessel, CRDMs, Pressurizer, Steam Generators 3A and 3B, Letdown Cooler 3B, Class 1 Piping, Pump Bolting, Valve Bolting and Supports.

5.1 Reactor Vessel

The Reactor Vessel Closure Head Weld from 120 to 240 degrees received an ultrasonic examination. The Reactor Vessel Head to Flange Weld from 120 to 240 degrees received an ultrasonic and a magnetic particle examination. Fifteen (15) Reactor Vessel Closure Head Nuts received a magnetic particle examination. Fifteen (15) Reactor Vessel Closure Studs received an ultrasonic and a magnetic particle examination. Stud hole threads in the Reactor Vessel Flange from 0 to 180 degrees received an ultrasonic examination. No reportable indications were found.

Closure Washers and Bushings for fifteen (15) stud holes received a visual examination. No reportable conditions were found.

Sixty-nine (69) partial penetration CRDM Nozzle J-Groove Welds received a visual examination.

Fifty-two (52) partial penetration Reactor Vessel Incore Monitoring Nozzle Welds received a visual examination. No reportable conditions were found.

CRD Housing to Mechanism Bolts for CRD Numbers 23, 24, 29, 42, 43, 45, 46, 49, 60, 64, and 67 received a visual examination. No reportable conditions were found.

CRD Housing to Mechanism Nut Rings for CRD Numbers 23, 24, 29, 42, 43, 45, 46, 49, 60, 64, and 67 received a visual examination. Reportable conditions were found on one (1) CRD Nut Ring (Item Number B07.080.002). The reportable conditions received corrective action. Refer to Problem Investigation Report Number 3-089-0188 found in Section 9 of this report. As a result of the reportable conditions found, ASME Section XI, Paragraph IWB 2430(a) requires an additional sample of CRD's to be examined. The requirements of Paragraph IWB 2430(a) were determined to be impractical. Refer to Request for Relief ONS-011, NPD Licensing Serial No. 89-10, included in Section 10 of this report. The inspection data sheets for Item Number B07.080.002 are included in this section of the report.

The accessible internal surfaces of the Reactor Vessel were visually inspected. No reportable conditions were found.

5.2 Pressurizer

One (1) Pressurizer Relief Nozzle to Vessel Welds and Inside Radius Section located between W & Z axis received an ultrasonic examination. Four (4) Pressurizer Sensing and Sampling Nozzle to Head Welds and Inside Radius Sections, located between W & X, Z & Y, W & Z and Y & Z axis received an ultrasonic examination. No reportable indications were found.

Pressurizer Relief Nozzle to Safe End Weld located between Z-W axis received a dye penetrant examination. No reportable indications were found.

Three (3) Pressurizer Support Lug Welds located at Z-axis, between Z-W axis and at W-axis received a magnetic particle examination. No reportable indications were found.

Studs and Nuts in each of the Pressurizer Center and Lower Heater Bundles and the Flange Bolting on Pressurizer Relief Nozzle located between W & Z axis received visual examinations. No reportable conditions were found.

5.3 Steam Generators

Steam Generator 3B Lower Head to Tubesheet Weld received an ultrasonic examination. No reportable indications were found.

Steam Generator 3B Outlet Nozzle to Vessel Welds and Inside Radius Sections located between W-Z and Y-Z axis received ultrasonic examinations. No reportable indications were found.

Steam Generator 3A Support Skirt to Head Weld received a magnetic particle examination. No reportable indications were found.

Sixteen (16) Steam Generator 3B Lower Head Manway Studs and Nuts received a visual examination. No reportable conditions were found.

5.4 Letdown Coolers

Letdown Cooler 3B Inlet Tubesheet-to-Channel Body Weld received an ultrasonic examination. Letdown Cooler 3A Tubeside Inlet and Outlet Nozzles to Channel Head and Inside Radius Sections received ultrasonic examinations. No reportable indications were found.

5.5 Pumps

Eight (8) Reactor Coolant Pump 3B2 Seal Gland Bolts received an ultrasonic examination. No reportable indications were found.

Eight (8) Reactor Coolant Pump 3B2 Seal Gland Nuts and Washers received a visual examination. No reportable conditions were found.

5.6 Valves

Bolting for Valve 3LP-103 received a visual examination. No reportable conditions were found.

5.7 Piping

Dissimilar Metal Butt Welds:

Two (2) B Hotleg Surge Line Nozzle Safe End Welds four inches and greater received an ultrasonic examination and a dye penetrant examination. Two

(2) Reactor Coolant System RTE Nozzle Safe End Welds and one (1) HPI Nozzle Safe End Weld less than four inches received a dye penetrant examination. No reportable indications were found.

Similar Metal Butt Welds:

Three (3) circumferential welds four inches and greater received ultrasonic and magnetic particle examinations. Three (3) circumferential welds four inches and greater received ultrasonic and dye penetrant examinations. Eight (8) circumferential welds less than four inches received a dye penetrant examination. Four (4) socket welds received a dye penetrant examination. No reportable indications were found.

Piping Supports:

Fourteen (14) Class 1 Component Supports received a visual examination as required by ASME Section XI, Article IWF-2000. No reportable conditions were found.

5.8 Steam Generator Tubing

The tubing in once-through Steam Generators (OTSGs) "A" and "B" at Oconee Unit 3 was inspected using eddy current bobbin coil multifrequency techniques and B&Ws Eddy-360 rotating pancake coil probe. The sleeves in both OTSGs were also inspected with bobbin coil and crosswound probes. The eddy current examinations began on November 15, 1989 and were completed on November 29, 1989. A brief summary of the eddy current examinations follows:

OTSG "A"

Tubing Examination:

9218 tubes were examined using the standard bobbin coil technique.

7 tubes exhibited degradation = >40% through wall (TW). Two (2) of these tubes (4-5 and 4-6) contained wear indications sized <40% TW by Eddy-360 and were not removed from service.

21 tubes exhibited degradation 20-39% TW.

97 tubes were examined by Eddy-360.

3 tubes exhibited degradation = >40% TW by Eddy-360.

20 tubes exhibited degradation 20-39% TW by Eddy-360.

The following six tubes were removed from service in OTSG "A" due to indications exceeding the plugging limit, or from good engineering practices:

3-19	45-5
10-25	67-14
33-20	80-11

Sleeve Examination:

149 sleeves were examined using both standard bobbin coil and crosswound probes.

0 sleeves exhibited degradation = >40% TW.

0 sleeves exhibited degradation 20-39% TW.

No sleeves were removed from service in OTSG "A".

OTSG "B"

9233 tubes were examined using the standard bobbin coil technique.

11 tubes exhibited degradation = >40% TW.

21 tubes exhibited degradation 20-39% TW.

211 tubes were examined by Eddy-360.

8 tubes exhibited degradation = >40% TW by Eddy-360.

31 tubes exhibited degradation 20-39% TW by Eddy-360.

The following fifteen (15) tubes were removed from service in OTSG "B" due to indications exceeding the plugging limit, or from good engineering practices:

16-65	46-106	54-47	90-128
27-88	50-59	64-1	118-88
35-3	52-5	65-3	142-6
44-20	52-6	74-24	

Sleeve examination:

97 sleeves were examined using both standard bobbin coil and crosswound probes.

0 sleeves exhibited degradation = >40% TW.

0 sleeves exhibited degradation 20-39% TW.

No sleeves were removed from service in OTSG "B".

The lists in this section include all tubes in Steam Generators 3A and 3B showing degradation 20% and greater through-wall (TW).

5.9 System Leakage Tests

The Class 1 Pressure Boundary was subjected to a system leakage test as required by ASME Section XI, Article IBW-5000. No reportable conditions were found.

5.10 Class 1 Repairs and Replacements

Repairs and replacements for work performed from September 22, 1988 to December 18, 1989 are itemized in Section 11 of this report.

26427 (R12-86)

FORM QCL-13A	REV. 2

DUKE POWER COMPANY
STATION ONS UNIT 3

ISI VISUAL EXAMINATION, VT-1

W. R. # NA

Page 1 of 1

INSPECTOR	LEVEL	DATE:	PROCEDURE:	REV:
		12-5-89	QCL-13	6
AE Bagwell	II	THICKNESS: NA	VISUAL METHOD: DIRECT ☑ REMOTE ☐	
Johnny Faris	II	MATERIAL TYPE: NA	VISUAL AIDS/M & TE SN: FLASHLIGHT	
		SURFACE: ID ☑ OD ☑		

ID NUMBER: 3 RPV - CRD Rings

ITEM NO. B07.080.002

☐ PSI ☑ ISI

ITEMS INSPECTED: 11 SETS OF CRD NUT RINGS

IND. NO.	INDICATION TYPE	LENGTH	WIDTH	REMARKS
1				EXCESSIVE CORROSION, RUST ON RINGS
				BOLT holes had RUST INSIDE and
				WERE CORRODED

RESULTS: ☐ ACCEPTABLE ☑ UNACCEPTABLE, REQUIRES NDE/EVALUATION OR REPAIR

COMMENTS/DISPOSITION: Split Rings for CRDs #23, #24, #29, #42, #43, #45, #46, #49, #60, #64, #67

PIR# 3-089-0188

ANII REVIEW R F Elgin DATE 12-6-89

QA REVIEW T. L. Coleman DATE 12-6-89

RESPONSE TO PIR 3-089-0188

UNIT 3 EOC 11 REFUELING OUTAGE START-UP

Response to Section VI (revised):

The material identified in this PIR has been replaced. With the exception of one half of one nut ring all material would have been acceptable for continued operation if they had not been damaged during disassembly. One half of one nut ring was severely corroded, and would not have been acceptable for re-use.

The corrosion and rust found on the bolts and nut rings was caused by the water and boric acid in the Reactor coolant system that had leaked out. The root cause of why these joints leaked is unknown, however since December 1980 when this potential problem was identified the CRDM flanges have been inspected for leaks, CRDM's identified as having leaks have been removed and repaired.

The missing threads, rounded threads, damaged threads, etc., in the bolts and nut rings and the "bolt cut into during disassembly" were damaged during disassembly. The root cause for these problems is galling of 2 metal parts as they slide across each other.

The problem of Boric Acid leakage is a generic problem previously identified in IE Bulletin 82-02, NRC Generic Letter 88-05, numerous SER's, SOER's, and earlier PIR's.

The problem of galling of metal parts is a generic problem.

By: Basil W. Cam Date: 12/15/89

Approved By: [signature] Date: 12/15/89

Plant: Oconee Unit 3 Steam Generator: A
Outage: 11/89 RFO

QUERY: LIST OF ALL DEFECTS =>40% TW FOR BOBBIN COIL DATA

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION		EXTENT	TAPE	ANLST	COMMENTS
FINAL DATA	4	5	WAR	48	2.60	M1	91	11TH TSP+	0.80	FL	107	S2680	
FINAL DATA	4	6	WAR	55	2.47	M 1	86	12TH TSP+	0.00	FL	107	S2680	
FINAL DATA			WAR	58	1.74	M 1	84	11TH TSP+	0.00	FL	107	S2680	
FINAL DATA	10	25	ODI	41	1.60	3	100	15TH TSP+	1.50	FL	111	S2680	
FINAL DATA	33	20	ODI	47	1.10	M1	89	14TH TSP+	0.90	FL	115	L7871	
FINAL DATA	45	5	ODI	44	2.70	M1	87	14TH TSP+	0.70	FL	127	B0690	
FINAL DATA	67	14	WAR	50	1.30	M1	84	10TH TSP+	0.00	FL	108	N0942	
FINAL DATA			WAR	59	1.20	M1	83	10TH TSP+	0.00	FL	135	N0942	
FINAL DATA	80	11	ODI	42	1.20	M1	94	14TH TSP-	0.50	FL	3	N0942	

TOTAL TUBES FOUND = 7
TOTAL INDICATIONS FOUND = 9
TOTAL TUBES IN INPUT FILE = 15531

Plant: Oconee Unit 3 Steam Generator: A
Outage: 11/89 RFO

QUERY: LIST OF ALL DEFECTS 20% TO 39% TW FOR BOBBIN COIL DATA

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION		EXTENT	TAPE	ANLST	COMMENTS
FINAL DATA	3	11	ODI	26	1.40	3	107	12TH TSP+	1.40	FL	8	S7675	
FINAL DATA	3	19	ODI	37	1.20	M1	94	LTSF +	0.40	FL	42	L7871	
FINAL DATA	10	19	ODI	27	0.70	M1	102	9TH TSP -	0.40	FL	111	S7675	
FINAL DATA	16	79	ODI	26	1.20	M1	97	14TH TSP+	0.80	FL	47	N0942	
FINAL DATA			ODI	24	1.40	3	107	LTSF +	0.80	FL	47	N0942	
FINAL DATA	23	67	IDI	33	1.20	3	15	3RD TSP +	12.00	FL	51	S7675	
FINAL DATA			IDI	28	1.00	3	13	3RD TSP +	11.00	FL	51	S7675	
FINAL DATA	26	1	ODI	25	0.80	3	106	14TH TSP+	2.40	FL	128	N0942	
FINAL DATA	29	1	ODI	27	1.04	3	105	15TH TSP+	1.23	FL	130	B2860	
FINAL DATA	34	20	ODI	36	1.30	M1	92	15TH TSP+	0.70	FL	115	N0942	
FINAL DATA	45	4	ODI	37	1.70	3	97	14TH TSP+	1.30	FL	127	N0942	
FINAL DATA	62	129	ODI	28	1.20	M1	102	12TH TSP+	0.90	FL	80	B0690	
FINAL DATA	75	6	IDI	30	1.30	3	14	6TH TSP -	16.00	14TH TSP	1	H8259	
FINAL DATA			IDI	25	1.00	3	12	6TH TSP -	16.50	14TH TSP	1	B2860	
FINAL DATA	81	40	ODI	27	0.80	M1	104	10TH TSP+	0.60	FL	40	S7675	
FINAL DATA	87	126	ODI	25	0.70	3	107	14TH TSP+	1.89	FL	99	N0942	
FINAL DATA	91	126	ODI	23	1.80	3	113	14TH TSP+	1.90	FL	100	S2680	
FINAL DATA	92	2	ODI	29	1.10	M1	99	11TH TSP+	0.70	FL	38	S7675	
FINAL DATA	103	3	ODI	37	0.70	M1	92	10TH TSP+	0.70	FL	33	S2680	
FINAL DATA	116	1	ODI	21	2.60	3	111	15TH TSP+	20.00	FL	28	H8259	
FINAL DATA	124	73	AXI	27	1.80	3	105	LTSF +	21.80TO+ 27.00	FL	88	N0942	
FINAL DATA	147	16	ODI	31	1.00	M1	95	14TH TSP+	1.50	FL	16	N0942	MULT
FINAL DATA	149	10	ODI	32	1.30	3	101	14TH TSP+	1.20	FL	15	S7675	
FINAL DATA	151	15	WAR	29	1.10	M1	97	12TH TSP+	0.00	FL	74	N0942	

TOTAL TUBES FOUND = 21
TOTAL INDICATIONS FOUND = 24
TOTAL TUBES IN INPUT FILE = 15531

Plant: Oconee Unit 3 Steam Generator: A
Outage: 11/89 RFO

QUERY: LIST OF ALL DEFECTS =>40% TW FOR EDDY-360

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION		EXTENT	TAPE	ANLST	COMMENTS
FINAL E360	3	19	ODI	40	10.59	1	135	LTSF	0.00	LTSF	4	B2860	
FINAL E360	45	5	ODI	51	13.34	1	107	14TH TSP+	0.70	14TH TSP	1	B0690	
FINAL E360	80	11	ODI	40	2.14	1	163	14TH TSP-	0.70	14TH TSP	1	B0690	

TOTAL TUBES FOUND = 3
TOTAL INDICATIONS FOUND = 3
TOTAL TUBES IN INPUT FILE = 15531

Plant: Oconee Unit 3 Steam Generator: A
Outage: 11/89 RFO

QUERY: LIST OF ALL DEFECTS 20% TO 39% FROM E360.

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION		EXTENT	TAPE	ANLST	COMMENTS
FINAL E360	3	11	ODI	26	1.07	1	108	12TH TSP+	1.20	12TH TSP	1	B0690	
FINAL E360	4	5	WAR	29	4.90	1	151	11TH TSP+	0.00	11TH TSP	1	B0690	
FINAL E360	4	6	WAR	26	3.76	1	150	11TH TSP+	0.00	11TH TSP	1	B0690	
FINAL E360			WAR	37	7.45	1	142	12TH TSP+	0.00	12TH TSP	1	B0690	
FINAL E360	10	25	ODI	28	1.67	1	72	15TH TSP+	1.30	15TH TSP	4	B2860	
FINAL E360	16	79	ODI	31	1.45	1	68	14TH TSP+	0.80	14TH TSP	1	B0690	
FINAL E360			ODI	30	1.79	1	72	LTSF +	0.60	1ST TSP	4	B2860	
FINAL E360	17	75	AXI	25	0.93		144	9TH TSP +	20.90TO+ 23.00	9TH TSP	1	B0690	
FINAL E360	26	1	ODI	26	1.05	1	85	14TH TSP+	1.50	14TH TSP	1	N0942	
FINAL E360	29	1	ODI	30	1.36	1	62	15TH TSP+	1.20	15TH TSP	1	S2680	
FINAL E360	33	20	ODI	33	1.64	1	68	14TH TSP+	0.90	14TH TSP	1	S2680	
FINAL E360	34	20	ODI	32	1.56	1	141	15TH TSP+	0.90	15TH TSP	1	S2680	
FINAL E360	45	4	ODI	23	0.78	1	82	14TH TSP+	1.00	14TH TSP	1	B0690	
FINAL E360	62	129	ODI	25	3.49	1	163	12TH TSP+	0.90	12TH TSP	1	B0690	
FINAL E360	67	14	WAR	35	6.84	1	152	10TH TSP-	1.00	10TH TSP	1	B0690	
UNSLV 360	80	11	ODI	33	1.21	1	40	15TH TSP-	0.30	15TH TSP	1	N0942	
FINAL E360	91	126	ODI	22	2.87	1	44	14TH TSP+	1.80	14TH TSP	1	B0690	
FINAL E360	109	115	ODI	30	4.95	1	83	13TH TSP+	0.40	13TH TSP	1	B0690	
FINAL E360	113	77	ODI	28	5.49	1	123	1ST TSP -	18.50TO- 24.40	1ST TSP	4	B2860	
FINAL E360	130	1	ODI	24	3.24	1	61	13TH TSP+	3.10	13TH TSP	1	B0690	
FINAL E360	149	10	ODI	29	1.93	1	100	14TH TSP+	1.10	14TH TSP	2	S2680	
FINAL E360	151	15	WAR	22	2.86	1	163	12TH TSP+	0.00	12TH TSP	1	B0690	

TOTAL TUBES FOUND = 20
TOTAL INDICATIONS FOUND = 22
TOTAL TUBES IN INPUT FILE = 15531

Plant: Oconee Unit 3 Steam Generator: B
Outage: 11/89 RFO

QUERY: LIST OF ALL DEFECTS =>40% TW FOR BOBBIN COIL DATA

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT	TAPE	ANLST	COMMENTS
FINAL DATA	16	65	IDI	43	3.10	3	18	10TH TSP- 3.80	FL	61	H8259	
FINAL DATA	27	88	ODI	40	1.00	M1	94	13TH TSP+ 0.80	FL	68	S4373	
FINAL DATA	35	3	WAR	50	2.40	M1	90	14TH TSP+ 0.00	FL	123	N0942	
FINAL DATA	44	20	ODI	49	0.50	3	92	10TH TSP+ 25.60	FL	131	B2860	
FINAL DATA	46	106	IDI	49	2.10	3	21	7TH TSP - 1.60	FL	76	H8259	
FINAL DATA	50	59	IDI	56	1.60	3	20	14TH TSP+ 6.00	FL	110	H8259	
FINAL DATA	52	5	ODI	88	28.60	M1	61	13TH TSP+ 0.80	FL	108	H8259	
FINAL DATA			ODI	61	6.20	M1	80	13TH TSP+ 1.60	FL	108	H8259	
FINAL DATA	54	47	ODI	46	1.10	3	95	14TH TSP- 16.00	FL	108	H8259	
FINAL DATA	65	3	ODI	43	1.31	M 1	88	14TH TSP+ 0.82	FL	8	N0942	
FINAL DATA	118	88	ODI	45	4.90	M 1	86	14TH TSP+ 0.81	FL	22	B2860	
FINAL DATA	142	6	ODI	45	2.80	M1	92	9TH TSP + 1.10	FL	42	N0942	

TOTAL TUBES FOUND = 11
TOTAL INDICATIONS FOUND = 12
TOTAL TUBES IN INPUT FILE = 15531

Plant: Oconee Unit 3 Steam Generator: B
Outage: 11/89 RFO

QUERY: LIST OF ALL DEFECTS 20% TO 39% TW FOR BOBBIN COIL DATA

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION		EXTENT	TAPE	ANLST	COMMENTS
FINAL DATA	6	6	ODI	22	0.82	3	111	10TH TSP-	2.50	FL	112	S2680	
FINAL DATA	22	92	ODI	24	0.80	M1	102	6TH TSP +	1.50	FL	65	S4373	
FINAL DATA	35	3	ODI	37	3.00	3	101	14TH TSP+	1.40	FL	123	N0942	
FINAL DATA	37	5	ODI	33	1.20	3	102	14TH TSP+	1.30	FL	123	N0942	
FINAL DATA	40	1	ODI	29	0.80	3	107	14TH TSP+	1.40	FL	126	N0942	
FINAL DATA	52	6	ODI	31	2.10	3	101	13TH TSP+	1.70	FL	108	H8259	
FINAL DATA	72	41	ODI	36	1.50	M1	97	10TH TSP+	0.70	FL	99	S2680	
FINAL DATA	78	28	ODI	22	1.30	M1	112	15TH TSP+	0.60	FL	5	H8259	
FINAL DATA	82	124	ODI	22	1.30	3	108	14TH TSP+	1.40	FL	134	B2860	MBM
FINAL DATA	88	129	ODI	26	0.70	3	109	15TH TSP+	34.30	FL	137	B2860	
FINAL DATA	90	128	ODI	39	1.10	3	99	14TH TSP+	1.20	FL	137	B2860	
FINAL DATA	115	111	ODI	22	2.70	M1	107	8TH TSP -	0.50	FL	23	H8259	
FINAL DATA	116	97	ODI	20	1.40	M1	112	14TH TSP+	0.80	FL	22	B2860	
FINAL DATA	119	106	ODI	32	2.20	M1	103	8TH TSP -	0.60	FL	20	S7675	
FINAL DATA	120	105	ODI	32	2.00	M1	102	8TH TSP -	0.50	FL	20	S7675	
FINAL DATA	122	103	ODI	28	1.30	M1	95	8TH TSP -	0.80	FL	19	N0942	
FINAL DATA	124	38	ODI	33	0.60	3	102	14TH TSP+	2.20	FL	128	B2860	
FINAL DATA	133	35	ODI	22	0.60	3	105	2ND TSP +	16.30	FL	142	B2860	
FINAL DATA	142	6	ODI	31	1.20	3	105	9TH TSP +	1.40	FL	42	N0942	
FINAL DATA	142	27	ODI	26	1.04	3	101	6TH TSP -	11.80	FL	40	H8259	0
FINAL DATA	150	15	ODI	35	1.40	3	99	10TH TSP+	1.30	FL	30	S2680	

TOTAL TUBES FOUND = 21
TOTAL INDICATIONS FOUND = 21
TOTAL TUBES IN INPUT FILE = 15531

Plant: Oconee Unit 3 Steam Generator: B
Outage: 11/89 RFO

QUERY: LIST OF ALL DEFECTS =>40% TW FROM E360.

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION		EXTENT	TAPE	ANLST	COMMENTS
FINAL E360	27	88	ODI	54	3.85	1	44	13TH TSP+	0.70	13TH TSP	1	B0690	
FINAL E360	35	3	ODI	41	10.91	1	54	14TH TSP+	0.70	14TH TSP	1	N0942	
FINAL E360	46	106	IDI	44	2.49	1	19	7TH TSP -	1.80	7TH TSP	2	B0690	
FINAL E360	52	5	ODI	100	33.34	1	40	13TH TSP+	0.90	13TH TSP	1	N0942	
UNSLV 360	64	1	ODI	54	4.68	1	71	15TH TSP+	0.00	15TH TSP	1	S2680	
UNSLV 360	74	24	ODI	54	3.46	1	123	15TH TSP+	0.00	15TH TSP	3	B0690	0
FINAL E360	118	88	ODI	42	10.95	1	60	14TH TSP+	0.90	14TH TSP	1	S2680	
FINAL E360	142	6	ODI	48	14.04	1	75	9TH TSP +	0.90	9TH TSP	1	S2680	

TOTAL TUBES FOUND = 8
TOTAL INDICATIONS FOUND = 8
TOTAL TUBES IN INPUT FILE = 15531

Plant: Oconee Unit 3 Steam Generator: B
Outage: 11/89 RFO

QUERY: LIST OF ALL DEFECTS 20% TO 39% TW FROM E360.

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT	TAPE	ANLST	COMMENTS
FINAL E360	22	74	AXI	26	4.99	1	93	1ST TSP - 16.90TO- 25.00	LTSF	1	B0690	
FINAL E360	22	92	ODI	25	4.41	1	159	6TH TSP + 1.30	6TH TSP	1	B0690	
FINAL E360	35	3	ODI	33	7.76	1	55	14TH TSP+ 1.50	14TH TSP	1	B0690	
FINAL E360	37	5	ODI	33	1.70	1	65	14TH TSP+ 1.10	14TH TSP	1	N0942	
FINAL E360	39	12	AXI	20	3.31	1	95	1ST TSP - 16.20TO- 24.00	1ST TSP	1	N0942	
FINAL E360	40	1	ODI	29	1.02	1	142	14TH TSP+ 1.00	14TH TSP	1	B0690	
FINAL E360	54	47	ODI	34	1.29	1	68	14TH TSP- 16.00	14TH TSP	1	N0942	
FINAL E360	54	127	ODI	21	3.44	1	65	13TH TSP+ 3.50	13TH TSP	1	S2680	
FINAL E360	65	3	ODI	38	1.47	1	119	14TH TSP- 1.10	14TH TSP	1	B0690	
UNSLV 360	67	1	ODI	25	1.74	1	154	15TH TSP+ 0.00	15TH TSP	1	S2680	
UNSLV 360	67	2	ODI	29	1.96	1	142	15TH TSP+ 0.70	15TH TSP	1	S2680	
UNSLV 360	71	7	ODI	22	1.58	1	70	15TH TSP- 0.20	15TH TSP	1	S2680	
UNSLV 360	72	4	ODI	26	1.81	1	131	15TH TSP+ 0.70	15TH TSP	1	S2680	
FINAL E360	72	41	ODI	26	0.67	1	150	10TH TSP+ 0.60	10TH TSP	1	N0942	
UNSLV 360	74	20	ODI	26	1.79	1	96	15TH TSP+ 0.30	15TH TSP	1	S2680	
UNSLV 360	74	21	ODI	29	1.96	1	129	15TH TSP+ 0.10	15TH TSP	1	S2680	
FINAL E360	78	28	ODI	21	3.51	1	157	15TH TSP- 1.50	15TH TSP	1	N0942	
UNSLV 360			ODI	29	1.18	1	147	15TH TSP- 0.30	15TH TSP	2	S2680	
FINAL E360	78	32	ODI	24	4.12	1	142	15TH TSP+ 0.00	15TH TSP	1	S2680	
FINAL E360	82	5	AXI	28	5.88	1	50	10TH TSP+ 5.20TO+ 8.00	10TH TSP	1	N0942	
FINAL E360	88	129	ODI	32	1.48	1	128	UTSF - 12.50	UTSF	2	B0690	
UNSLV 360	90	1	ODI	31	1.34	1	140	15TH TSP+ 0.30	15TH TSP	2	B0690	
UNSLV 360			ODI	33	1.42	1	120	15TH TSP+ 0.60	15TH TSP	2	B0690	
FINAL E360	90	128	ODI	27	1.43	1	58	14TH TSP+ 1.90	14TH TSP	2	N0942	
FINAL E360	115	111	ODI	29	6.11	1	124	8TH TSP + 0.60	8TH TSP	1	S2680	
FINAL E360	120	105	ODI	26	5.03	1	89	8TH TSP - 0.60	8TH TSP	1	S2680	
FINAL E360	122	103	ODI	25	4.72	1	135	8TH TSP - 1.00	8TH TSP	1	S2680	
FINAL E360	124	38	ODI	34	1.27	1	91	14TH TSP+ 2.20	14TH TSP	1	B0690	
FINAL E360	137	33	AXI	32	7.21	1	111	4TH TSP + 10.50TO+ 15.00	4TH TSP	1	B0690	
FINAL E360	138	2	AXI	24	4.31	1	135	1ST TSP - 27.50TO- 18.00	1ST TSP	1	S2680	
FINAL E360	142	27	ODI	28	5.61	1	106	6TH TSP - 11.70	6TH TSP	1	S2680	
FINAL E360	150	15	ODI	26	5.00	1	83	10TH TSP+ 1.10	10TH TSP	1	S2680	
FINAL E360	151	16	ODI	22	3.62	1	53	15TH TSP- 1.10	15TH TSP	1	S2680	

TOTAL TUBES FOUND = 31
TOTAL INDICATIONS FOUND = 33
TOTAL TUBES IN INPUT FILE = 15531

6.0 Class 2 Inspection Results

Inspections were performed during Outage 11 on Steam Generator 3A, Low Pressure Injection Cooler 3A and 3B, integrally welded attachments, piping and supports.

6.1 Steam Generators and LP Cooler

Reportable indication in the Steam Generator 3A Shell-to-Shell Weld (Weld 3SGA-WG8-1, Item Number C01.010.001) detected during Outage 6 was re-examined during Outage 11 for ASME Section XI, Paragraph IWC-2420(b). Indication was compared with previously accepted data from Fracture Mechanics B&W Analysis Report #32-1135539-00 included in previously submitted reports for Refueling Outages 6 and 7 and included in Section 10 of this report. Evaluation indicated no significant weld indication growth and, therefore declared acceptable. Refer to Babcock and Wilcox Volumetric Examination Evaluation Report 893-004 included in Section 10 of this report.

Steam Generator 3A Feedwater Header Support Attachment Welds located between Y-Z quadrant received magnetic particle examinations. No reportable indications were found.

LP Cooler 3A Head to Shell Weld received an ultrasonic examination. LP Cooler 3B Inlet Nozzle to Shell Weld received a dye penetrant examination. No reportable indications were found.

6.2 Piping

Welds one-half inch and less nominal wall thickness:

Fifteen (15) circumferential welds received a dye penetrant examination. Three (3) circumferential welds received a magnetic particle examination. Nine (9) longitudinal welds received a dye penetrant examination. No reportable indications were found.

Welds greater than one-half inch nominal wall thickness:

Ten (10) circumferential and three (3) longitudinal welds received radiographic and magnetic particle examinations. No reportable indications were found.

Piping Integrally-Welded Attachments:

Seven (7) integrally-welded attachments (four (4) on Main Steam System and three (3) on Main Feedwater System) received magnetic particle examinations. Three (3) integrally-welded attachments (two (2) on Low Pressure Injection System and one (1) on Reactor Building Spray System) received dye penetrant examinations. A reportable indication was found on Weld 3-53B-R3, (Item Number C03.040.055). The weld indication was repaired and re-examined and found acceptable (Refer to Problem Investigation Report 3-089-0158 included in Section 9 of this report).

The scope of inspection was extended to include one (1) additional attachment weld, per ASME Section XI, Paragraph IWC-2430(a). The inspection data sheet is included in this section of the report.

No other reportable indications were found.

6.3 Valves

Main Steam Turbine Stop Valve Upper Head-to-Body Studs received an ultrasonic examination in place. The examination was performed from the top of the studs to the last two (2) threads engaged in the valve body. (Refer to Request for Relief ONS-009, NPD Licensing Serial No. 89-04, included in Section 10 of this report). No reportable indications were found.

6.4 Component Supports

Sixty-one (61) Class 2 Component Supports received a visual examination as required by ASME Section XI, Article IWF-2000.

Reportable conditions for Component Supports 3-03-H1B (Item Number F1.02.152) and 3-03-H1A (Item Number F1.02.161) detected during Outage 8 were re-examined during Outage 11 per ASME Section XI, Paragraph IWF-2420(b). No reportable conditions were found.

Reportable conditions for Component Support 3-03-H6B (Item Number F1.02.157) detected during Outage 9 were re-examined during Outage 11 per ASME Section XI, Paragraph IWF-2420(b). No reportable conditions were found.

6.5 System or Component Hydrostatic Test

Class 2 Hydrostatic Tests were performed as required by ASME Section XI, Article IWC-5000. No reportable conditions were found.

6.6 Class 2 Repairs and Replacements

Repairs and replacements for work performed from September 22, 1988 to December 18, 1989 are itemized in Section 11 of this report.

26294 (10-85) | FORM NDE-25A | REVISION 0

DUKE POWER COMPANY

PROJECT OCONEE

MAGNETIC PARTICLE/LIQUID PENETRANT EXAMINATION REPORT FOR PRESERVICE AND INSERVICE INSPECTION

Weld No. 3-53B-R3 Item No. C03.040.055 Unit No. 3

Pipe Diameter 10"ø Remarks:

Wall Section Thickness PIPE = .250"

Date 10-18-89

NDE Proc. NDE 35A/H Rev. 11

NDE Inspectors/Level

J W Setzer / II

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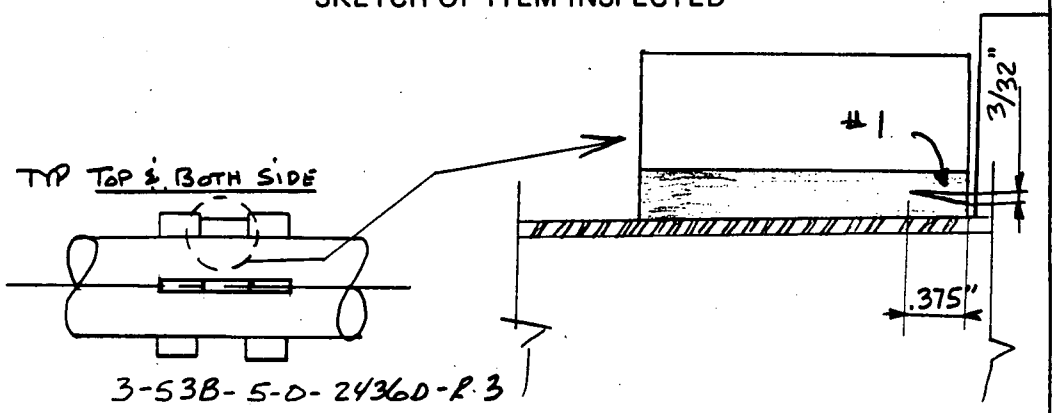
/

SKETCH OF ITEM INSPECTED



Indication Number	Type of Indication	Length/Diameter	Width	Acceptable	Reportable	Reference Documents
#1	SINGLE LINEAR	.375 /	.0937		✓	NDE 35 A/H

MT Unit Serial

MT Method ☐Fluorescent ☐Nonfluorescent

MT Prepared Bath Batch No.:

MT Technique Used:

☐Circular

☐Direct Contact Amp

☐Central Conductor Amp

☐Yoke

☐Prod

☐Longitudinal Amp Turns

Wet Particle Batch No.

Dry Particle Batch No.

Serial No. Light Meter

Serial No. Black Light

Black Light Intensity Verified

Time Date

Time Date

PT Batch Number

Cleaner 89C011

Penetrant 87K043

Remover

Developer 89B05K

☐Fluorescent ☒Nonfluorescent

Comments: NO OTHER RECORDABLE INDICATIONS FOUND. Ref. PIR # 3-089-0158

ANI Review R F Elgin ANI ANII Date 10-30-89

Final QA Review T. J. Coleman Date 10-30-89

26294 (10-85) | FORM NDE-25A | REVISION 0

DUKE POWER COMPANY

PROJECT Oconee

MAGNETIC PARTICLE/LIQUID PENETRANT EXAMINATION REPORT FOR PRESERVICE AND INSERVICE INSPECTION

Weld No. 53B-47-40AZ Item No. C03.040.055 Unit No. 3

Pipe Diameter 10" Remarks: WR053598 1

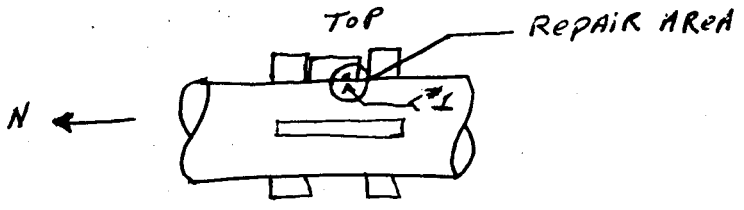
Wall Section Thickness .250

Date 11-22-89

NDE Proc. 35A/H Rev. 11

NDE Inspectors/Level
J. Prater / II
/
/
/
/
/

SKETCH OF ITEM INSPECTED



Indication Number	Type of Indication	Length/Diameter	Width	Acceptable	Reportable	Reference Documents
#1	Round	L 1/16	< 1/16	✓		

MT Unit Serial

MT Method ☐Fluorescent ☐Nonfluorescent

MT Prepared Bath Batch No.:

MT Technique Used:

☐Circular

☐Direct Contact Amp

☐Central Conductor Amp

☐Yoke

☐Prod

☐Longitudinal Amp Turns

Wet Particle Batch No.

Dry Particle Batch No.

Serial No. Light Meter

Serial No. Black Light

Black Light Intensity Verified

Time Date

Time Date

PT Batch Number

Cleaner 89C011

Penetrant 87K043

Remover

Developer 89B05K

☐Fluorescent ☒Nonfluorescent

Comments:

ANI Review RFC Date 12-11-89

Final QA Review Date 12/11/89

7.0 Augmented Inspection and Alternate Examination Results

Augmented inspections were performed on the Reactor Coolant Pump Flywheels, Make-up and High Pressure Injection Nozzle Safe-Ends, and Thermal Stress Piping.

Alternate examinations were performed on Reactor Coolant Pumps 3A2 and 3B1.

7.1 Reactor Coolant Pump Flywheels

Reactor Coolant Pumps 3A1, 3A2, 3B1, and 3B2 Flywheels received an ultrasonic examination in place. No reportable indications were found.

7.2 Make-up and High Pressure Injection Nozzle Safe-Ends

Ultrasonic and radiographic examinations were performed on 3A1 and 3A2 Make-up Nozzle Safe-End. A radiographic examination was performed on 3B1 and 3B2 Discharge High Pressure Injection Nozzle Safe-Ends. No reportable indications were found.

7.3 Thermal Stress Piping

Seven (7) welds received an ultrasonic examination as required by NRC Bulletin 88-08. No reportable indications were found.

7.4 Alternate Examinations

Reactor Coolant Pumps 3A2 and 3B1 Flange Joint, Studs and adjacent areas received visual examinations. Visual examinations were performed with the connection under tension in lieu of removal of the Studs as performed during Outage 9. In compliance with the Inservice Inspection Program, Request for Relief ONS-010, NPD Licensing Serial No. 89-08, was submitted to the NRC. The Relief is included in Section 10 and a copy of the inspection data sheets is included in this section of the report.

No reportable conditions were found during the visual examinations.

26427 (R12-86)

FORM QCL-13A	REV. 2

DUKE POWER COMPANY
STATION Oconee UNIT 3

ISI VISUAL EXAMINATION, VT-1

W. R. # N/A

Page 1 of 3

INSPECTOR	LEVEL	DATE:	PROCEDURE:	REV:
T.R. Bowen	II	11-28-89	QCL-13	6
		THICKNESS: N/A	VISUAL METHOD: DIRECT ☑ REMOTE ☐	
		MATERIAL TYPE: SS	VISUAL AIDS/M & TE SN: Flashlight	
		SURFACE: ID ☐ OD ☑		

ID NUMBER: 3-RCP-3A2

ITEM NO. E03.001.003 ☐ PSI ☑ ISI

ITEMS INSPECTED: Reactor Coolant Pump Studs 3A2

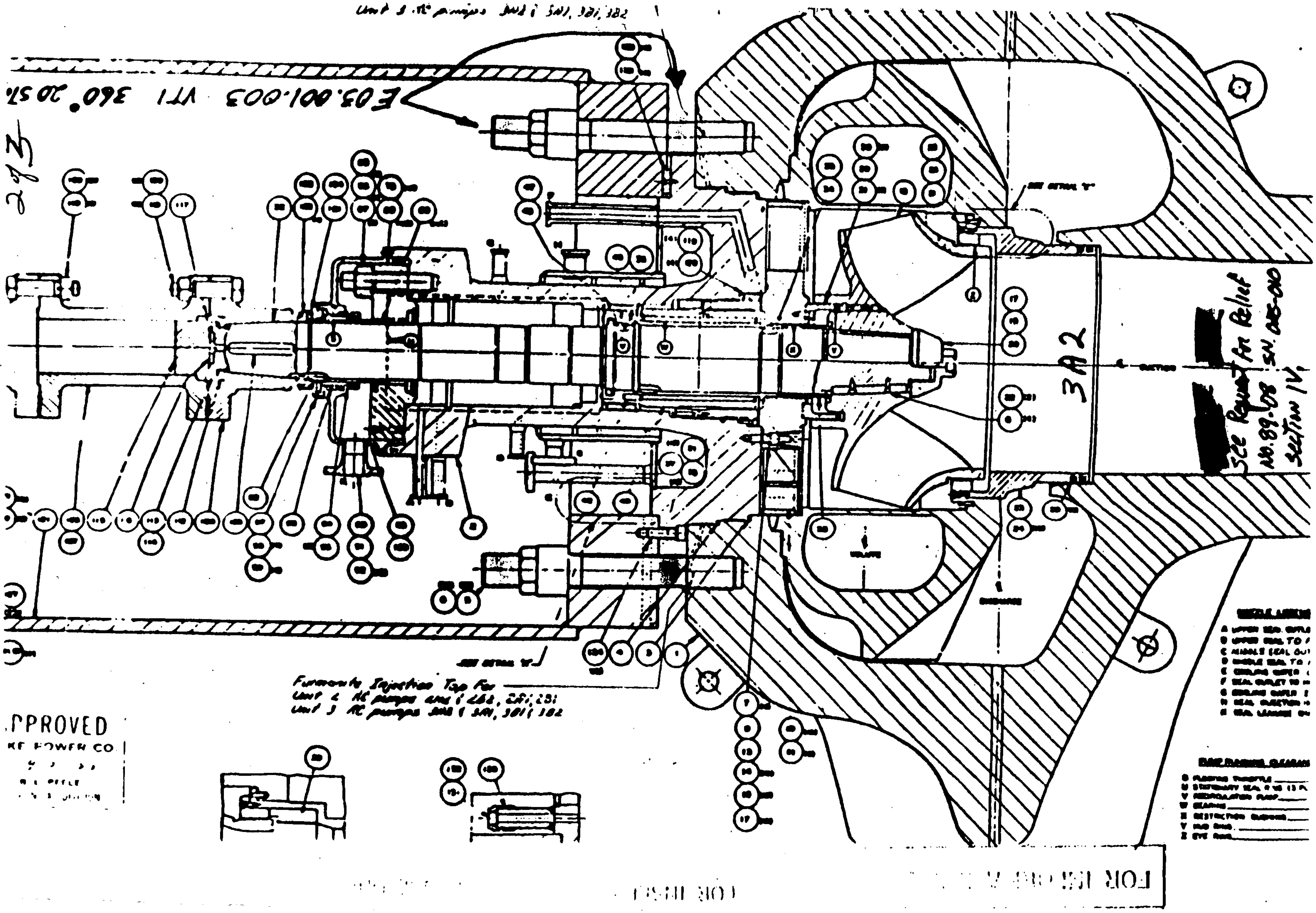
IND. NO.	INDICATION TYPE	LENGTH	WIDTH	REMARKS
	N/A			

RESULTS: ☑ ACCEPTABLE ☐ UNACCEPTABLE, REQUIRES NDE/EVALUATION OR REPAIR

COMMENTS/DISPOSITION: Area of Inspection is Highlited on Attached Sketch. In the Area of Inspection there were no signs of Boron or Stud degradation.

ANII REVIEW R E Elgin ANI/ANII DATE 12-4-89

QA REVIEW T. J. Robinson DATE 12-4-89



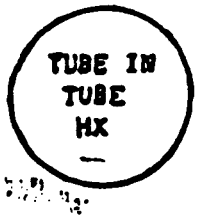
Unit 3 RC pumps 3A2 (3A1, 3B1, 3B2
E03.001.003 VT1 360° 2057
2 of 2
3A2
SEE Request for Relief NO. 89-08 SN. 085-010 SECTION IV.
Furmanite Injection Tap For
Unit 2 RC pumps 2A2 (2B2, 2A1, 2B1
Unit 3 RC pumps 3A2 (3A1, 3B1, 3B2
APPROVED
KE POWER CO.
FOR INFORMATION

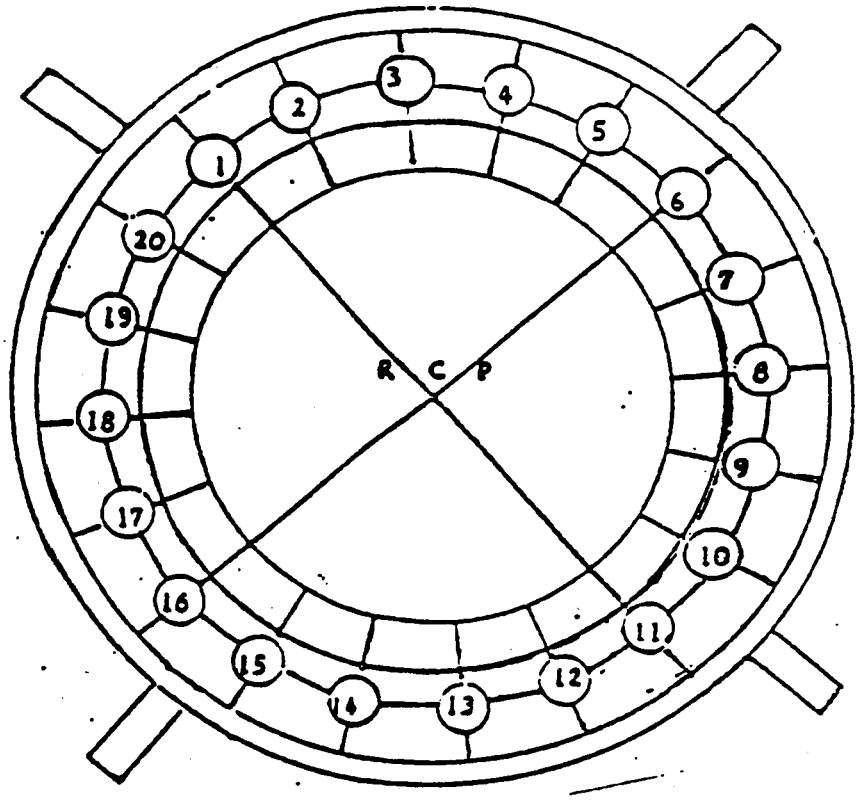
3 83

ENCLOSURE 13.4

SEQUENCE FOR STUD DETENSIONING

AND TENSIONING





DETENSIONING AND TENSIONING

SEQUENCE: For one Tensioner	1, 11, 16, 6, 20, 10, 15, 5, 19, 9 14, 4, 18, 8, 13, 3, 17, 7, 12, 2
SEQUENCE: For two Tensioners (180° Apart)	1-11, 16-6, 20-10, 15-5, 19-9, 14-4, 18-8, 13-3, 17-7, 12-2

26427 (R12-86)

FORM QCL-13A	REV. 2

DUKE POWER COMPANY
STATION Oconee UNIT 3

ISI VISUAL EXAMINATION, VT-1

W. R. # N/A

Page 1 of 1

INSPECTOR	LEVEL	DATE:	PROCEDURE:	REV:
		11-29-89	QCL 13	6
Abalvo	II	THICKNESS: N/A	VISUAL METHOD: DIRECT ☑ REMOTE ☐	
		MATERIAL TYPE: Carbon steel	VISUAL AIDS/M & TE SN: Flashlight, mirror	
		SURFACE: ID ☐ OD ☑		

ID NUMBER: 3RCP 3B1

ITEM NO. E03.001.004

☐ PSI ☑ ISI

ITEMS INSPECTED: RCP 3B1 Main Flange Bolting 20 Studs

IND. NO.	INDICATION TYPE	LENGTH	WIDTH	REMARKS
	N/A			

RESULTS: ☑ ACCEPTABLE ☐ UNACCEPTABLE, REQUIRES NDE/EVALUATION OR REPAIR

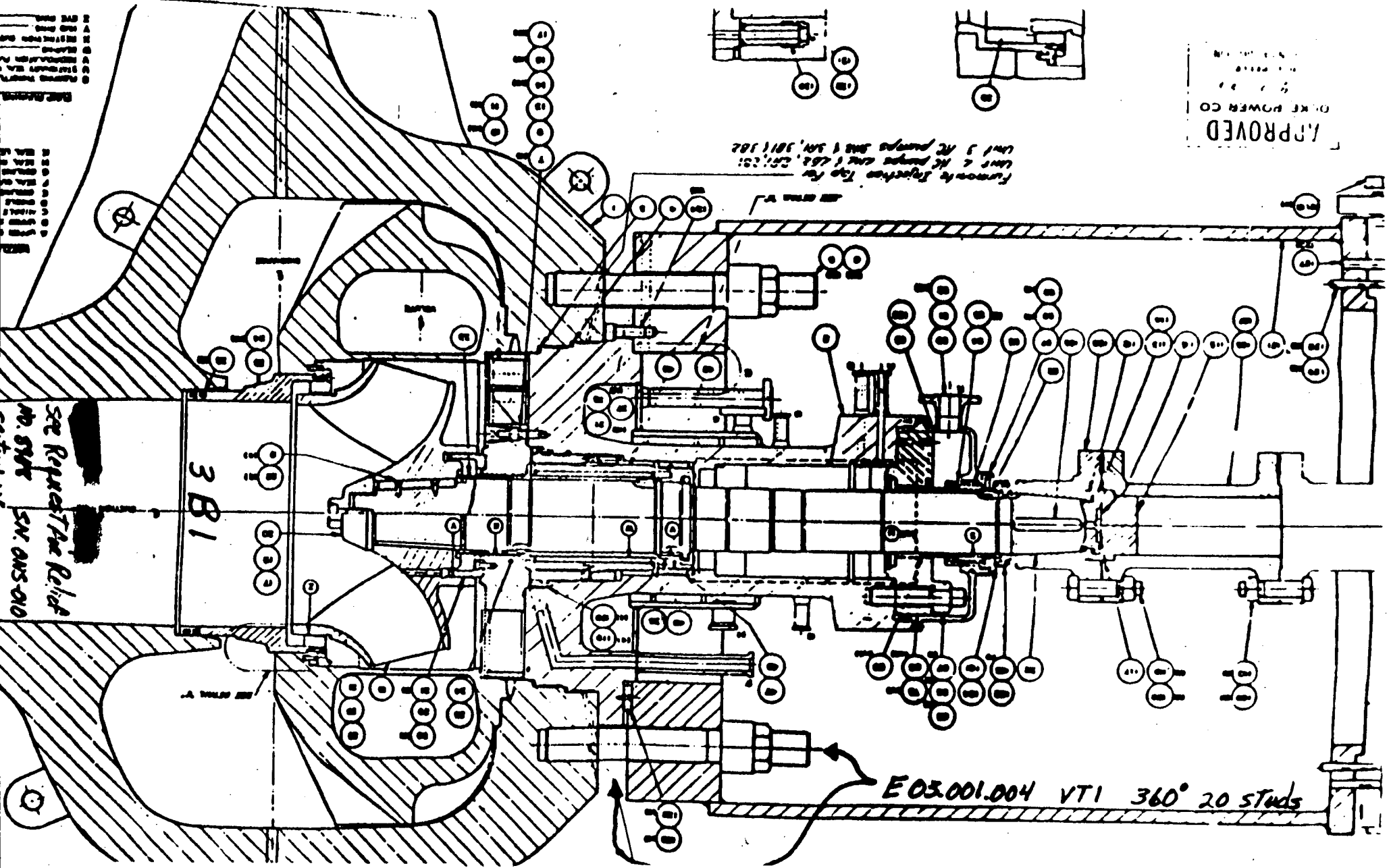
COMMENTS/DISPOSITION: Inspection performed on bolting in place.
In the area of inspection, there were no signs of Boron or stud degradation

ANII REVIEW R P Elgin ANI I and II DATE 12-4-89

QA REVIEW T. J. Coleman DATE 12-4-89

FOR INFORMATION ONLY

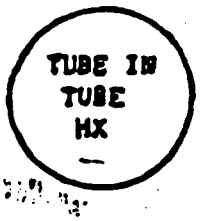
FOR INSERVICE INSPECTION USE ONLY

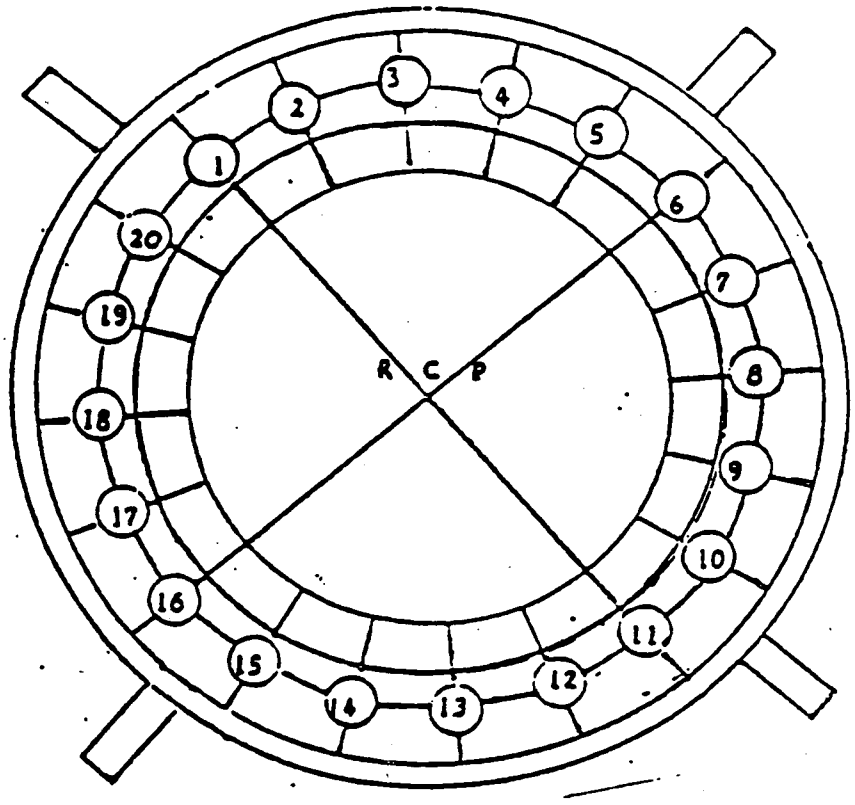


ENCLOSURE 13.4

SEQUENCE FOR STUD DETENSIONING

AND TENSIONING





DETENSIONING AND TENSIONING

SEQUENCE: For one Tensioner	1, 11, 16, 6, 20, 10, 15, 5, 19, 9 14, 4, 18, 8, 13, 3, 17, 7, 12, 2
SEQUENCE: For two Tensioners (180° Apart)	1-11, 16-6, 20-10, 15-5, 19-9, 14-4, 18-8, 13-3, 17-7, 12-2

8.0 Personnel, Equipment and Material Certifications

All personnel who performed or evaluated the results of inservice inspections during Outage 11 at Oconee 3 were certified in accordance with the requirements of the 1980 ASME Section XI with Addenda through Winter 1980. The appropriate certification record for each Duke Power Company inspector is on file at Oconee Nuclear Station. The certification records for the Babcock & Wilcox inspectors are on file at the Babcock & Wilcox offices in Lynchburg, Virginia.

Records of periodic calibration of Babcock & Wilcox inspection equipment are on file at the Babcock & Wilcox offices in Lynchburg, Virginia. Records of periodic calibration of Duke inspection equipment are on file at Oconee Nuclear Station or in the Corporate Offices in Charlotte, North Carolina.

9.0 Problem Investigation Reports

A copy of each Problem Investigation Report resulting from reportable items, originated against scheduled inservice inspections performed during Outage 11, is included in this section. All were resolved and found acceptable by Duke Power's Quality Assurance Department before returning Unit 3 to service. The following Problem Investigation Reports were issued.

P.I.R. No.	Description	Date Issued
3-089-0158	CL.2 Integral Attachment Linear Indication	10-26-89
3-089-0185	Steam Generators 3A and 3B Tubing	12-04-89
3-089-0188	CRDM Nut Rings and Bolting	12-06-89

Form 35372 (R6-89)

COMPLETE FORM BY PRINTING WITH BLACK BALL POINT PEN OR TYPE

DUKE POWER COMPANY
NUCLEAR STATION

Problem Investigation Report Serial No. 3-089-0158
Station OCONEE
Licensee Event Report No. _____

I. Problem Occurred-Time/Date: UNKNOWN Discovered-Time/Date: 0900 10-18-89
Unit(s): 3 Unit Status At Time Problem Occurred/Discovered: OPERATIONAL
Description and Cause of Problem: A REPORTABLE SINGLE LINEAR INDICATION OF .375" LG WAS FOUND ON A INTEGRAL ATTACHMENT FOR HGR 3-53B-5-0-2436D-R3. STARTING AT THE END OF THE WELD IT IS .0937 WIDE AND IS 0.0 AT THE OPPOSITE END OF THE FLAW. PLEASE REFER TO ATTACHED NDE25A. ISI ITEM # C03.040.055
Other Duke Stations Affected ☐ Yes ☒ No Determined By/Date: Rick Matheson 12/12/89
Comments: _____

Location of Problem: AUX BLDG ROOM 160 UNIT 3 HGR # 3-53B-5-0-2436D-R3
Method Used to Discover Problem: NDE 35 A|H Rev. 11 & THIS REPORT.
Immediate Corrective Actions Taken/To Be Taken: REPAIR MUST BE MADE.

Work Stoppage Notification (Form QCK-2A) Serial No.: _____
Information Sources/References (Work Requests, Documents Violated, etc.): ACCEPTANCE STANDARD H OF NDE 35 IN ASME 1980 SECT XI CODE ARTICLE IWB-3000
Originated By: Carl Freeman Date: 10-26-89 Dept./Group/Section: QA

II. **Compliance Evaluation**-Item/System Operable ☒ Yes ☐ No ☐ Not Applicable
Evaluated By/Date: D.L. Saundra 10/30/89 Comments: Evaluation by DE/OPER PER Telecon 10/30/89
Reportable ☐ Yes ☒ No Reportable Per: ☐ 50.73 Section _____ ☐ 50.72 Section _____
☐ 73.71 Section ☐ T.S./Lic Cond Section _____ ☐ Part 21 ☐ Other: _____ ☐ Part 50.9
Evaluated By/Date: D.L. Saundra 10/30/89 Comments: Dependent upon operability

III. Telecon/ENS Report to NRC Time/Date: _____
NRC Contactee(s): _____ DPC Contactor(s): _____
Telegraph/Mailgram/Facsimile Transmission to NRC-Date: _____
Date Notified: NRC Res. Inspector: _____ Station Manager: _____
General Office: _____ Comments: _____

IV. Investigation Assigned To: _____ NRC Report Due Date: _____
Date Due to Compliance after Evaluation: _____
PIR Review (Compliance): _____ Date: _____
PIR Station Manager Approval: _____ Date: _____

V. Further Action/Evaluation Required ☒ Yes ☐ No (Explain Below):
Page 2 Assigned To: MAINTENANCE
Comments: _____

Compliance Review: Rick Matheson Date: 12/12/89 QA Review: [signature] Date: 12-6-89

Distribution

D Coleman 2 Tucker S Baldwin M Sills J Norris B Dolson

Initial	Originator	Dept (4)	2 McClure	M Tuckman	OJ Gilstrap	P Guill	C. Boyd
10-26-89	C Freeman	H Lowry	P Skinner	D. Saundra	D. Dept-Ops	QA Tech Sec.	
Final	Originator	Dept (4)	2 Coleman	J. McClure	M Tuckman	R Henderson	OJ Gilstrap
12-14-89	C Freeman	H Lowry	S Tucker	P Skinner	R. Elgin	B. Mellichamp	P Albrecht
						P. Guill	QA Tech Sec.

26294 (10-85) | FORM NDE-25A | REVISION 0

DUKE POWER COMPANY

PROJECT OCONEE

MAGNETIC PARTICLE/LIQUID PENETRANT EXAMINATION REPORT FOR PRESERVICE AND INSERVICE INSPECTION

Weld No. 3-53B-R3 Item No. C03.040.055 Unit No. 3

Pipe Diameter 10"ϕ Remarks:

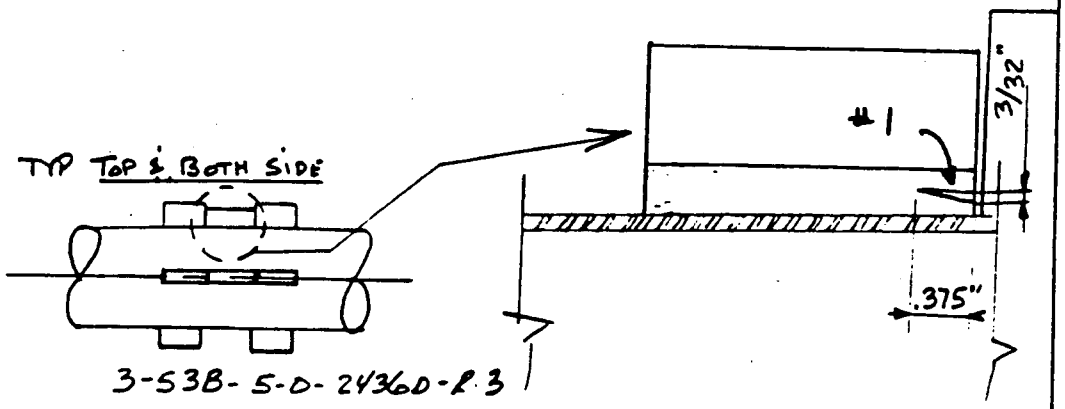
Wall Section Thickness PIPE = .250"

Date 10-18-89

NDE Proc. NDE 35A/H Rev. 11

NDE Inspectors/Level
J W Setzer / II
/
/
/
/
/

SKETCH OF ITEM INSPECTED



Indication Number	Type of Indication	Length/Diameter	Width	Acceptable	Reportable	Reference Documents
#1	SINGLE LINEAR	.375 /	.0937		✓	NDE 35 A/H

MT Unit Serial

MT Method ☐Fluorescent ☐Nonfluorescent

MT Prepared Bath Batch No.:

MT Technique Used:

☐Circular

☐Direct Contact Amp

☐Central Conductor Amp

☐Yoke

☐Prod

☐Longitudinal Amp Turns

☐Wet Particle Batch No.

Dry Particle Batch No.

Serial No. Light Meter

Serial No. Black Light

Black Light Intensity Verified

Time Date

Time Date

PT Batch Number

Cleaner 89C011

Penetrant 87K043

Remover

Developer 89B05K

☐Fluorescent ☒Nonfluorescent

Comments: NO OTHER RECORDABLE INDICATIONS FOUND.

ANI Review Date | Final QA Review Date

ATTACHMENT 1

DESIGN ENGINEERING DEPARTMENT
OPERABILITY EVALUATION

Station: OCONEE Unit: 3 PIR Number: 3-089-0158

Structure, system, or component (SSC) in question: SUPPORT NO. 3-53B-5-0-24360-R3

Design basis references applicable: N/A

Technical Specification sections applicable: N/A

The SSC in question is recommended to be:

☒ OPERABLE ☐ CONDITIONALLY OPERABLE ☐ INOPERABLE
Operability Evaluation expiration date: _____

FSAR change required ☐ Yes ☒ No 10 CFR 50.59 Evaluation required ☐ Yes ☒ No

Summary/Comments: DESIGN ENGINEERING (O.E.D./CIVIL SECTION) HAS COMPLETED AN OPERABILITY EVALUATION FOR S/R NO. 3-53B-5-0-24360-R3 CONSIDERING THE DEFICIENCY DESCRIBED IN PIR NO. 3-089-0158. THE SUPPORT, AS IT EXISTED PER PIR NO. 3-089-0158 WAS OPERABLE WITHOUT ANY CHANGE TO A DESIGN LIMIT OR DESIGN BASIS. DESIGN ENGINEERING ALSO CONCURS THAT REPAIRS MUST BE MADE TO AVOID THE POSSIBILITY OF PROPAGATION.

Originated by: DAVID G. SEXTON Date: 10-31-89

Reviewed by: SBThompson Date: 10-31-89

Approved by: S S Crews Date: 11/2/89

Form 3.387 (R11-87)

PROBLEM INVESTIGATION REPORT

PIR No. 3-089-0158

VI. Proposed Resolution of Problem

Work Request 53598 I has been written to repair the indication in the pipe attachment weld. Hanger 3-538-5-0-2436D-R3. Mwdabb 11/6/89

Other Approved _____ Date Approved WW Foster | BK Laughlin 11/7/89

Other Approved _____ Date Approved G. L. Blubaugh 11-27-89 QA Date

Significant Corrective Action Evaluation Assigned To: X ~~MWS 11/27/89~~

Serial No. _____

VII. QA Verification Requirements QATS WELDING/NDE VERIFY THAT SUBJECT DEFECT HAS BEEN REMOVED UNDER W.R. #53598I.

Assigned To QATS G L Blubaugh 11-27-89 Date

VIII. Corrective Action Completed

Work Request 53598 I is complete and QC verification of repair. MWA 11/30/89

Approved BK Laughlin 12/1/89 Date

IX. QA Verification Results WELD WAS REPAIRED AND FOUND ACCEPTABLE.

Completed By _____ Date QA Approval G. L. Blubaugh 12/1/89 Date

Remarks X ALL REQUIRED CONSIDERATIONS NOT APPLICABLE. BK Laughlin 11/27/89

Final QA Review WMcClure 12/2/89 Date

FORM 34825 (R 2-87)

DUKE POWER | NUCLEAR STATION WORK REQUEST | PRIORITY 5D | WORK REQUEST NO. 053598 | 1

ORIGINATOR	DATE	HR. MIN.	APPROVED	COMPLETE BY (DATE)	DATE AND TIME AVAILABLE OR HOU	CE
Milton Addis	11/06/89	1530	Earl W. Evans	12/06/89	RFO	

STA.	UNIT	SYS.	EQPT. TYPE	LOOP OR COMP'S	AUX. COMP. #	BLDG.	ROOM/DEG	ELEV	COL/RAD	I.D. T PLAC	YES
ON	3	LPI	HS	0001		AB	160	779	Q9.3		

SECTION I ADDITIONAL SHL ☐

DESCRIPTION OF WORK REQUESTED: Repair indication in attachment weld for hanger lug (3-538-5-0-2436D-R3).

PIR 3-089-0158

ISI, Item C03.040.055

FAILURE DESCRIPTION: "TECH SPEC. RELATED"

No failure. YES ____ NO X

SECTION II ADDITIONAL SHEET(S) ☐

		DETERMINED BY	PROCEDURE NUMBER(S)
QA COND.	1	MWAddis	MP/Q/A/3019/004
RETEST.	N/A	R. Atkinson	
FUNCT. VERIF.	N	R.A.	
RWP	yes	R.A. 3144	
RED TAGS	YES X / NO	R.A.	
QC	YES X / NO	Gil Blubaugh ltr	
ANI	YES X / NO	Gil Blubaugh ltr	
CLEAN ZONE	III	R. Atkinson	
CLEARANCE	OPS	SIGN Dan Burns	DATE 11/15/89

DUKE CLASS N/A | SIZE N/A | ISI CLASS N/A | ACTIVE YES ____ NO X

NO. ____ THRU ____ CLEARED ____ | TYPE OF WORK 370

PRIOR TO JOB START ✓ | AFTER JOB ✓ | EQ RELATED YES ____ NO X | NPRDS REPORTABLE YES ____ NO X

FIS I.D. 7310 LPI38 | CCOA

CONTROL ACCEPTED ____ DATE ____

SPECIAL INSTRUCTIONS (INCLUDE SAFETY REMINDER): Clean work are after work is complete

CORRECT COMPONENT IDENTIFIED BY D.C. Burns DATE 11-21-89

CORRECT COMPONENT VERIFIED BY R.D. Thomason DATE 11-21-89

SECTION III ADDITIONAL SHEET(S) ☐

JOB. SEQ.	JOB SEQUENCE DESCRIPTION	SKILL	MEN X HOURS	EST. M/H
1	Builder Support	BL	3 x 3	9
2	Repair indication in weld	MT	2 x 4	8
3	Clean work area	MT	1 x 1	1

PLANNER Horace Leitzsey | CODE SE | DATE 11/13/89 | TOTAL EST. MAN HOURS 18

SECT ADDITIONAL SHEET(S) ☐

MATERIAL DESCRIPTION	SEQ./I.D. NO.	EST. QTY.	STATUS	LOCATION	ACT. QTY.	QA TAG NUMBER
			NMDB			

MATERIALS TO BE PRESTAGED | YES | NO | PRESTAGE LOCATION

WORK REQUEST NO. 0535981 | CAUSE OF FAILURE Defective Weld

ACTION TAKEN

Received the Work Request from Supervisor And obtained Related procedures Needed to perform the Weld Repair on hanger No.# 3-53B-5-0-2436D-R3.
Contacted Radiation protection personel for coverage during location of the hanger And survey of work that will need to be performed consisting of Related tools, scaffolding, etc.

	SEQ	ACTUAL MANHRS	DATE
CREW No# 205 Johnny Chrisley Cole Thomasson	2	3X10	11-20-89
Crew # 26A Richard Pelfrey Replaced Ins.		1X0	

Continued on Additional Sheet 1 of 1

SECTION V Additional Sheet(s)

LIST TEST EQUIPMENT SERIAL NO. AND TYPE ON ADDITIONAL SHEET IF NOT DOCUMENTED IN PROCEDURE

TOTAL ACTUAL MAN HOURS NEL 31 40

PERFORMED BY	HP BADGE NO
G.O. Thomasson	22279
JC Lewis	5451
J.B. Wilson	17080

WR CODE	STATUS	SEVERITY LEVEL	CAUSE	SYSTEM FOOD	CAUSE CATEGORY	CAUSE DESCRIPTION	SYSTEM EFFECT	PLANT EFFECT	FAILURE DETECTION METHOD	CORRECTIVE ACTION

SECT. VI Miscellaneous

SECTION VII QA

	INSPECTOR NOTIFIED	NOTIFIED BY	DATE	TIME
FROM SECTION II IF REQUIRED				
PRIOR TO JOB START	Pete, S	J Lewis	11-21-89	0945
AFTER JOB			11-22-89	1100

REMARKS

SECTION VIII Retest Or Functional Verification

FROM SECTION II IF REQUIRED	DATE	NUMBER

METHOD Visual inspection

RESULTS

SECT. IX Final

J. L. Chrisley 0900 11 29 89
JOB PERFORMER

J. Wallace 11 30 89
ACCEPTED BY ORIGINATING GROUP REP. DATE

C. Thompson 11 30 89
SUPERVISOR

Form 35372 (rh6-89)

FOR INFORMATION ONLY

COMPLETE FORM BY PRINTING WITH BLACK BALL POINT PEN OR TYPE

DUKE POWER COMPANY
NUCLEAR STATION

Problem Investigation Report Serial No. 3-089-0185
Station Oconee
Licensee Event Report No. _____

I. Problem Occurred-Time/Date: Unknown Discovered-Time/Date: 1330 12-4-89
Unit(s): 3 Unit Status At Time Problem Occurred/Discovered: Refueling Outage
Description and Cause of Problem: During QA analysis review of TSI item Numbers B16.011.001 and B16.011.002 it was discovered that "A" Steam Generator had 6 tubes that needed to be removed from service and "B" Steam Generator had 15 tubes that need to be removed from service due to exceeding the plugging limit.
Other Duke Stations Affected ☒ Yes ☐ No Determined By/Date: MVCarter 12/5/89
Comments: _____

Location of Problem: OTSG "A" & "B"
Method Used to Discover Problem: Eddy Current Inspect & This Report (see attached)
Immediate Corrective Actions Taken/To Be Taken: None

Work Stoppage Notification (Form QCK-2A) Serial No.: N/A
Information Sources/References (Work Requests, Documents Violated, etc.): QCL-5

Originated By: T J Coleman Date: 12-4-89 Dept./Group/Section: QA Tech Sup

II. **Compliance Evaluation**-Item/System Operable ☒ Yes ☐ No ☐ Not Applicable
Evaluated By/Date: MVCarter 12/4/89 Comments: _____
Reportable ☒ Yes ☐ No Reportable Per: ☐ 50.73 Section _____ ☐ 50.72 Section _____
☐ 73.71 Section ☒ T.S./Lic Cond Section 4.17.6 ☐ Part 21 ☐ Other: _____ ☐ Part 50.9
Evaluated By/Date: MVCarter 12/4/89 Comments: _____

III. Telecon/ENS Report to NRC Time/Date: _____
NRC Contactee(s): _____ DPC Contactor(s): _____
Telegraph/Mailgram/Facsimile Transmission to NRC-Date: _____
Date Notified: NRC Res. Inspector: _____ Station Manager: _____
General Office: _____ Comments: _____

IV. Investigation Assigned To: _____ NRC Report Due Date: _____
Date Due to Compliance after Evaluation: _____
PIR Review (Compliance): _____ Date: _____
PIR Station Manager Approval: _____ Date: _____

V. Further Action/Evaluation Required MVC ☒ Yes ☒ No (Explain Below):
MVC Page 2 Assigned To: ~~Howard Fleming~~
Comments: Tubes identified on Attachment were removed from service by plugging per Exempt Change VNs: OE-2900 (OTSG 3A) OE-2901 (OTSG 3B)
Compliance Review: MVC 12/3/89 MVCarter Date: 12/12/89 QA Review: T J Coleman Date: 12-12-89

Distribution R Glover R Sharpe C Boyd R Dolson R Mathias B Peele R Dick G Gries M Sills QA Tech Serv.

Initial	Originator						
12-4-89		T J Coleman	Supt (5)	J McClure	M Tuckman	~~J Mathias~~	P Guill
		J Tucker	H Lowery	P Skinner	M Carbo	R Elgin	R Henderson
Final	Originator	Supt (5)	J Tucker	P Skinner	R Elgin	R Dick	G Gries
12-14-89	T J Coleman	H Lowery	J McClure	M Tuckman	R Henderson	B Peele	QA Tech Serv
						P Skinner	P Guill

PIR # 3-089-0185
Attachment

December 2, 1989

T. J. Coleman

Re: S/G Tubes To Be Plugged During
Oconee Unit 3 11/89 Refueling Outage

As a result of the eddy current examinations performed during the Oconee Unit 3 11/89 Refueling Outage the following tubes were removed from service due to exceeding the plugging limit, or from good engineering practices:

Steam Generator A:

3-19
10-25
33-20
45-5
67-14
80-11

Steam Generator B:

16-65	54-47
27-88	64-1
35-3	65-3
44-20	74-24
46-106	90-128
50-59	118-88
52-5	142-6
52-6	

James M. Baumann
Steam Generators, ISI

JMB:cec

Form 372 (R6-89)

FOR INFORMATION ONLY

COMPLETE FORM BY PRINTING WITH BLACK BALL POINT PEN OR TYPE

DUKE POWER COMPANY
NUCLEAR STATION

Problem Investigation Report Serial No. 3-089-0188
Station Oconee
Licensee Event Report No. _____

I. Problem Occurred-Time/Date: UNKNOWN _____ Discovered-Time/Date: 11:00 12-6-89
Unit(s): III _____ Unit Status At Time Problem Occured/Discovered: Refueling Outage
Description and Cause of Problem: During Visual ISI inspection of the Reactor Vessel CRDM Nut Rings & Bolting Material On CRDMs #23, #24 #29 #42 #43 #45 #46 #49 #60 #64 & #67 it was discovered that the Rings & Bolting had corrosion, Rust, Rounded Threads, Missing Threads ETC., See Attached Forms (QCL-13As).

Other Duke Stations Affected ☐ Yes ☒ No Determined By/Date: MV Carter 12/6/89
Comments: _____

Location of Problem: Unit III Reactor Vessel (Head)
Method Used to Discover Problem: Visual Inspection & this Report
Immediate Corrective Actions Taken/To Be Taken: NPD Engineering Evaluation

Work Stoppage Notification (Form QCK-2A) Serial No.: N/A
Information Sources/References (Work Requests, Documents Violated, etc.): Procedure QCL-13 Rev. 6

Originated By: T.J. Coleman Date: 12-6-89 Dept./Group/Section: QA Tech Sup

II. **Compliance Evaluation**-Item/System Operable ☐ Yes ☒ No ☐ Not Applicable
Evaluated By/Date: MV Carter 12/6/89 Comments: _____
Reportable ☐ Yes ☒ No Reportable Per: ☐ 50.73 Section _____ ☐ 50.72 Section _____
☐ 73.71 Section ☐ T.S./Lic Cond Section _____ ☐ Part 21 ☐ Other: _____ ☐ Part 50.9
Evaluated By/Date: MV Carter 12/6/89 Comments: _____

III. Telecon/ENS Report to NRC Time/Date: _____
NRC Contactee(s): _____ DPC Contactor(s): _____
Telegraph/Mailgram/Facsimile Transmission to NRC-Date: _____
Date Notified: NRC Res. Inspector: _____ Station Manager: _____
General Office: _____ Comments: _____

IV. Investigation Assigned To: _____ NRC Report Due Date: _____
Date Due to Compliance after Evaluation: _____
PIR Review (Compliance): _____ Date: _____
PIR Station Manager Approval: _____ Date: _____

V. Further Action/Evaluation Required ☒ Yes ☐ No (Explain Below):
MNC Page 2 Assigned To: Mech Maint
Comments: _____
Compliance Review: Rick Mathson Date: 1/17/90 QA Review: T.J. Coleman Date: 12-15-89

Distribution

Initial	Originator	Supt(S)						
		T.J. Coleman	J. McCraw	P. Skinner	B. Dobson	C. Boyd	M. Sills	QA Tech Supv
12-7-89	J Coleman	T. Tucker	N. Lowery	M. Tuckman	M. Carter	B. Millsaps	R. Mathson	P. Guill
Final	Originator	Supt(S)	J. McCraw	B. Barron	B. Millsaps	R. Jefferson	R. Elgin	P. Henderson
1-17-90	J Coleman	T. Tucker	P. Skinner	N. Lowery	R. Elgin	L. Hilbert	L. Hilbert	P. Shiva
						P. Abraham		QA Tech Supv

26427 5-12-86

FORM QCL-13A	REV. 2

DUKE POWER COMPANY
STATION ONS UNIT 3

ISI VISUAL EXAMINATION, VT-1

W. R. = NA

Page 1 of 1

INSPECTOR	LEVEL	DATE: 12-5-89	PROCEDURE: QCL-13 REV: 6
AE Bagwell	II	THICKNESS: NA	VISUAL METHOD: DIRECT ☑ REMOTE ☐
Johnny Faris	II	MATERIAL TYPE: NA	VISUAL AIDS/M & TE SN: Flashlight
		SURFACE: ID ☐ OD ☑	

ID NUMBER: 3 RPV-CRD BOLTS

ITEM NO. B07.080.001

☐ PSI ☑ ISI

ITEMS INSPECTED: 88 CRD BOLTS

IND. NO.	INDICATION TYPE	LENGTH	WIDTH	REMARKS
1				Missing Threads, Rounded Threads and
				Corrosion, 1 Bolt cut in to
				during ~~Disassembly~~ Disassembly/RVW

RESULTS: ☐ ACCEPTABLE ☑ UNACCEPTABLE, REQUIRES NDE/EVALUATION OR REPAIR

COMMENTS/DISPOSITION: Bolting for CRDs #23, #24, #29, #42, #45, #46, #49, #60, #64, #67

ANII REVIEW R T Elgin ANII/ANII DATE 12-6-89

QA REVIEW T J Coleman DATE 12-6-89

26427 (R12-86)

FORM QCL-13A	REV. 2

DUKE POWER COMPANY
STATION ONS UNIT 3

ISI VISUAL EXAMINATION, VT-1

W. R. = NA

Page 1 of 1

INSPECTOR	LEVEL	DATE:	PROCEDURE:	REV
		12-5-89	QCL-13	6
AE Bagwell	II	THICKNESS: NA	VISUAL METHOD: DIRECT ☑ REMOTE ☐	
Johnny Faris	II	MATERIAL TYPE: NA	VISUAL AIDS/M & TE SN: Flashlight	
		SURFACE: ID ☑ OD ☑		

ID NUMBER: 3 RPV - CRD Rings

ITEM NO. B07.080.002

☐ PSI ☑ ISI

ITEMS INSPECTED: 11 SETS OF CRD NUT RINGS

IND. NO.	INDICATION TYPE	LENGTH	WIDTH	REMARKS
1				EXCESSIVE CORROSION, RUST ON RINGS
				BOLT HOLES HAD RUST INSIDE AND
				WERE CORRODED

RESULTS: ☐ ACCEPTABLE ☑ UNACCEPTABLE, REQUIRES NDE/EVALUATION OR REPAIR

COMMENTS/DISPOSITION: Split Rings for CRDs #23, #24, #29, #42, #43, #45, #46, #49, #60, #64, #67

ANII REVIEW R F Elgin DATE 12-6-89

QA REVIEW T J Coleman DATE 12-6-89

Form 35387 (R11-87)

PROBLEM INVESTIGATION REPORT

PIR No. 3-089-0188

VI. Proposed Resolution of Problem Corrosion on nut rings was caused by RCS Leakage from the associated CRDM flange. All bolts + nut ring exposed to this leakage are replaced as a good ~~maintenance~~ 12/12kg maintenance practice. As part of a PM program all flanges (CRDM) are inspected, each refueling outage, for RCS leakage. As the attached B+W Evaluation explains the bolts + nut rings ~~used in This~~ found this inspection are acceptable and the joint is considered operable. The stripped/damaged threads on the bolt and in the nut ring are typically seen when this joint is disassembled.

The problem of Boric Acid leakage and damage is a generic problem previously identified in IE Bulletin 82-02, NRC Generic Letter 88-05, numerious SERs and SOER, and earlier PIRs.

see memo page BNE 12/12/89

The problem of galling of metal part is a generic problem.

Request for Relief 88-10 Serial No. ONS-011 addresses the severely corroded nut Ring, OAN-0029 revises the Inservice Inspection Plan. TJC 1-15-90

Other Approved _____ Date Approved Barry K Millsap/BWE 12/12/89 Date

Other Approved _____ Date Approved T.J. Coleman QA 1-15-90 Date

Significant Corrective Action Evaluation Assigned To: N/A Necessary Evaluations included

Serial No. _____

VII. QA Verification Requirements Review WR for CRDMs #23, 24, 29, 42, 43, 45, 46, 49, 60, 64, 67 to assure new nut rings and bolting were installed with an acceptable PSI being performed.

Assigned To QA Tech. Support Date

VIII. Corrective Action Completed no additional corrective action required BNE

Approved BK Millsap 12/12/89 Date

IX. QA Verification Results Reviewed WR for CRDMs #23, 24, 29, 42, 43, 45, 46, 49, 60, 64, & 67 to assure new nut rings and bolting were installed with an acceptable PSI being performed.

Completed By T.J. Coleman 1-15-90 Date QA Approval [signature] 1-15-90 Date

Remarks _____

Final QA Review T.J. Coleman 1-16-90 Date

RESPONSE TO PIR 3-089-0188

UNIT 3 EOC 11 REFUELING OUTAGE START-UP

Response to Section VI (revised):

The material identified in this PIR has been replaced. With the exception of one half of one nut ring all material would have been acceptable for continued operation if they had not been damaged during disassembly. One half of one nut ring was severely corroded, and would not have been acceptable for re-use.

The corrosion and rust found on the bolts and nut rings was caused by the water and boric acid in the Reactor coolant system that had leaked out. The root cause of why these joints leaked is unknown, however since December 1980 when this potential problem was identified the CRDM flanges have been inspected for leaks, CRDM's identified as having leaks have been removed and repaired.

The missing threads, rounded threads, damaged threads, etc., in the bolts and nut rings and the "bolt cut into during disassembly" were damaged during disassembly. The root cause for these problems is galling of 2 metal parts as they slide across each other.

The problem of Boric Acid leakage is a generic problem previously identified in IE Bulletin 82-02, NRC Generic Letter 88-05, numerous SER's, SOER's, and earlier PIR's.

The problem of galling of metal parts is a generic problem.

By: Basil W. Cox Jr. Date: 12/15/89

Approved By: [signature] Date: 12/15/89

ATTACHMENT #4 PIR 3-088-0193

September 19, 1988

CENG-88-ONS-271

MEMO TO FILE

Subject: Oconee Nuclear Station, Unit 3
Evaluation of Nut Ring on CRDM Mechanical Housing
B&W Calculation No. 32-1173082-00
File: OS-200A

The methodology and results of the subject B&W calculation have been reviewed and found acceptable. However, two (2) points require further clarification.

1. The calculation of a factor of safety is only an additional margin over the allowable stresses.

2. With reference to page 11 of the B&W calculation and NB-3227.2(a) (ASME Code Section III), the allowable shear stress of .6 Sm is apparently intended for use assuming Sm = .67 Syt (Syt = material tensile yield). This equates to Sm = .4 Syt which is commonly used in steel design. However, the values of Sm in Table I-1.3 are based on Sm = .33 Syt. Thus, an increase of two times the .6 Sm allowable shear stress is required to maintain a similar comparison. Further, the requirements of NB-3230 appear to reinforce the intent of NB-3227.2(a). Therefore, the allowable shear stress value of 1.2 Sm used on page 11 is reasonable and acceptable.

K. S. Ialey
Design Engineer II

KSI/tdw

Babcock & Wilcox
a McDermott company

DOCUMENT SUMMARY SHEET

DOCUMENT IDENTIFIER 32-1173082-00

TITLE Evaluation of Nut Ring on CRDM Mech. Housing @ Oconee 3

PREPARED BY:	REVIEWED BY:
NAME R.C. Pillow	NAME J.H. Raas
SIGNATURE R C Pillow	SIGNATURE Jean H Raas
TITLE Principal Engineer DATE 9/15/88	TITLE Principal Engineer DATE 9/15/88

COST CENTER 343 REF. PAGE(S) 13 & 14 TM STATEMENT: REVIEWER INDEPENDENCE

PURPOSE AND SUMMARY OF RESULTS:

PURPOSE

Duke Power Co. has reported that three nut rings which were removed from Oconee Unit 3 during the September 1988 refueling outage showed material loss due to exposure to boric acid solution. This calculation has been prepared to evaluate the stresses in the CRDM hold down bolts and in the nut rings when one thread is considered to be removed and with a 3/8" x 3/8" radial groove on the top surface of the nut ring.

RESULTS

The shear stresses in the threads of both the bolt and the nut ring remain within the allowable stresses for these components when an allowance is made for the loss of shear area associated with one thread and a 1/2" x 1/2" groove is located on the top surface of the nut ring.

Component	Shear Stress	Allowable Stress	Factor of Safety
Hold down Bolt	21,520 psi	32,280 psi	1.5
Nut Ring	15,490 psi	32,700 psi	2.1

The factor "J" for the tearing out of the threads in the nut ring is:

$$J = 0.7698$$

Allowable: $J < 1.0000$

THE FOLLOWING COMPUTER CODES HAVE BEEN USED IN THIS DOCUMENT:

CODE / VERSION / REV	CODE / VERSION / REV
NONE	

CONCLUSION

The nut ring for the CRDM hold down bolts has been evaluated in accordance with Paragraph IWA-3100 of Section XI of the ASME Boiler and Pressure Vessel Code (Reference #6). Subparagraph (a) of IWA-3100 requires an examination of the nut ring against the acceptance criteria of Paragraph IWB-3515 for bolting. Since there are no acceptance criteria for bolts which are less than 2 inches in diameter, the evaluation of Subparagraph (b) of IWA-3100 must be pursued. This subparagraph provides for an analytical evaluation of the nut ring to demonstrate its suitability for continued service. The following calculation provides the analysis which is in accordance with the rules and requirements of the original Construction Code.

The results of the analysis show that a nut ring which has the top thread removed and also has a 3/8" x 3/8" radial groove on the top surface which lies between one of the threaded holes for the hold down bolts and the ID would be suitable for further operation on the Oconee 3 reactor. The hold down bolts which were torqued into these nut rings are also suitable for further operation. The nut ring, in the condition reported in Reference #10, does not violate the minimum required length of thread engagement which is calculated in the ASME stress report for the reactor vessel, Reference #9.

The analysis is based on the assumption that there is no other degradation of the material properties or changes in the material microstructure in either the hold down bolt or at any other place in the nut ring.

This evaluation is limited to the nut rings referred to on the telecopy from Rod Emory to Jim Agar, Reference #10, (see page 14).

SUGGESTION

As a matter of good practice, any nut rings which show material loss due to corrosion from the boric acid solution should be replaced. In any event, a decision to continue operation with a degraded nut ring should be based on an evaluation made on a case by case basis.

Babcock & Wilcox
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Nuclear Power Division

GENERAL CALCULATIONS

DOC. I.D. 32-1173082-00

MINIMUM REQUIRED LENGTH OF THREAD ENGAGEMENT

The minimum required length of thread engagement is calculated using the following equation from Reference 5, page 1068:

$$L_e = \frac{2\,A_t}{3.1416\;K_n\,max\left[\frac{1}{2} + 0.57735\;n\left(E_s\,min - K_n\,max\right)\right]}$$

L_e = minimum required length of thread engagement, in

n = number threads per inch = 12

$K_n\,max$ = maximum minor diameter of internal threads = 1.053 in

$E_s\,min$ = minimum pitch diameter of external threads = 1.0631 in

A_t = tensile stress area of threads = 0.856 in^2

$$L_e = \frac{(2)(0.856)}{(3.1416)(1.053)\left[0.5 + (0.57735)(12)(1.0631 - 1.053)\right]}$$

Required length of engagement, L_e = 0.9080 in

PREPARED BY RC Pillow RC Pillow DATE 9/15/88

DATE 9/15/88

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GENERAL CALCULATIONS

DOC. ID 32-1173082-00

If the internal thread is made of material of lower strength than the external thread, stripping of the internal thread may take place before the bolt breaks. The following formula from Reference 5, page 1069 is used to determine whether this condition exists:

$$J = \frac{(A_s)(\text{tensile strength of external thread material})}{(A_n)(\text{tensile strength of internal thread material})}$$

A_s = shear area of external threads, in^2

$$A_s = 3.1416\, n\, L\, K_n max\left[\frac{1}{2n} + 0.57735\,(E_s min - K_n max)\right]$$

L = length of thread engagement, in

A_n = shear area of internal threads, in^2

$$A_n = 3.1416\, n\, L\, D_s min\left[\frac{1}{2n} + 0.57735\,(D_s min - E_n max)\right]$$

$E_n max$ = maximum pitch diameter of internal threads, in

$D_s min$ = minimum major diameter of external threads, in

If J is less than or equal to 1.0, the minimum required length of thread engagement, Le is adequate to prevent stripping of the internal threads.

$$A_s = 3.1416\ n\ L_e\ K_{n\,max}\left[\frac{1}{2n} + 0.57735\,(E_{s\,min} - K_{n\,max})\right]$$

$$= 3.1416\,(12)(0.9080)(1.053)\left[\frac{1}{2(12)} + 0.57735\,(1.0631 - 1.053)\right]$$

$$= 1.7120 \text{ in}^2$$

$$A_n = 3.1416\ n\ L_e\ D_{s\,min}\left[\frac{1}{2n} + 0.57735\,(D_{s\,min} - E_{n\,max})\right]$$

$$= 3.1416\,(12)(0.9090)(1.1119)\left[\frac{1}{2(12)} + 0.57735\,(1.1118 - 1.0787)\right]$$

$$= 2.3130 \text{ in}^2$$

From Reference 6, the tensile strengths are tabulated below:

Item	Material	Tensile Strength
Bolt	SA-453, Grade 660, Class A	130 KSI
Nut Ring	SA-320, Grade L43	125 KSI

$$J = \frac{(1.712)\,(130)}{(2.3130)\,(125)} = 0.7698$$

$$J < 1.00$$

J is less than 1.00; therefore, the length of engagement, 0.9080 in, determined by the foregoing formula is adequate to prevent stripping of the internal threads.

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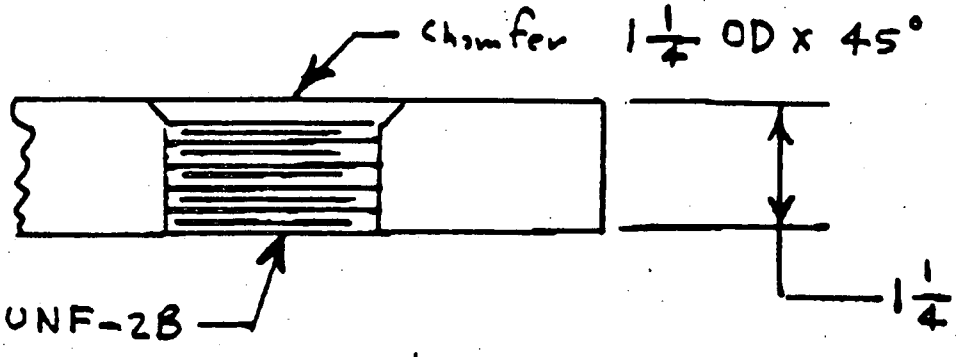
GENERAL CALCULATIONS

DOC. ID. 32-1173082-00

THREAD QUANTITY MARGIN

Reference 3, B&W Dwg. 149920E3



minimum thread diameter = 1.044 in

Chamfer height = $(1\frac{1}{4} - 1.044) \div 2 = 0.1030$ in

Length of one thread = $\frac{1}{n} = \frac{1}{12} = 0.083333$ in

Actual length of threads and thread engagement, L =

$1\frac{1}{4} - 0.1030 = 1.147$ in

Thread length margin = L - Le =

$1.147 - 0.9080 = 0.2390$

$$\text{Thread quantity margin} = \frac{\text{Thread length margin}}{\text{Length of one thread}}$$

$$= \frac{0.2390}{0.08333} = 2.868$$

Therefore, the subject nut ring would have acceptable thread engagement if two threads were not functional.

PREPARED BY RC Pillow RC Pillow DATE 9/15/98
LLD 9/19/98

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GENERAL CALCULATIONS

DOC ID 32-1173082-00

IMPACT OF DEFECT ON SHEAR AREA

Defect is reported by Reference 10 to be 3/8 x 3/8. For the purposes of this calculation, the defect is conservatively assumed to be 1/2 x 1/2. The reduction of shear area in the threads due to the 1/2 x 1/2 defect is calculated as follows:

$$\begin{array}{r} 0.500 \\ -\ 0.103 \\ \hline 0.397 \end{array}$$

Groove depth
Depth of Chamfer
Depth of Groove in Threads

$$\begin{pmatrix}\text{Reduction of Shear Area}\end{pmatrix} = \begin{pmatrix}\text{Width of Groove}\end{pmatrix} \times \begin{pmatrix}\text{Depth of Groove in Threads}\end{pmatrix}$$

$$= (0.500)(0.397) = 0.1985 \text{ in}^2$$

PREPARED BY RC Pillow 9/15/98 DATE 9/15/98
DHP 9/15/98

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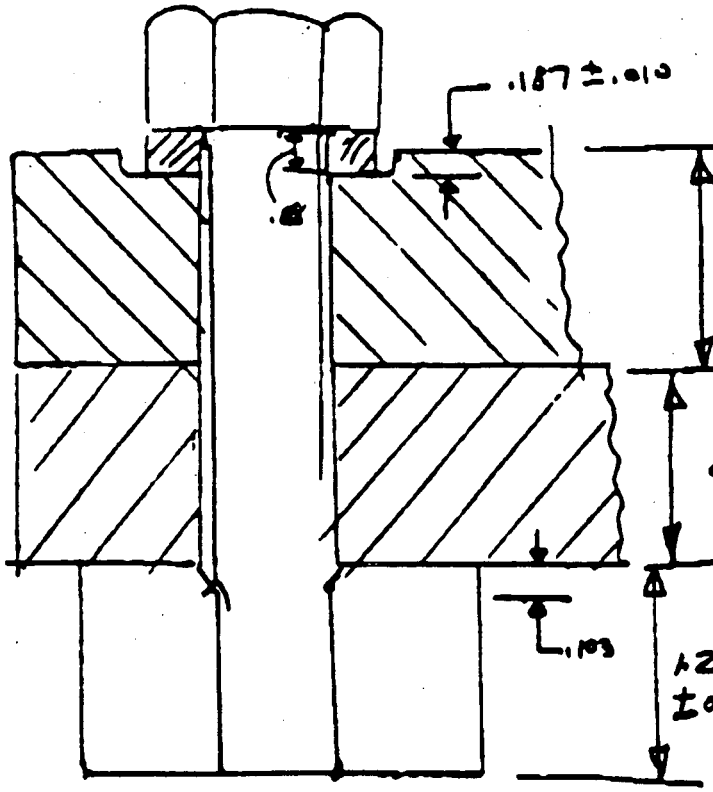
GENERAL CALCULATIONS

DOC. I.D 32-1173092-00

ACTUAL LENGTH OF THREAD ENGAGEMENT



IN NUT

Thread starts @

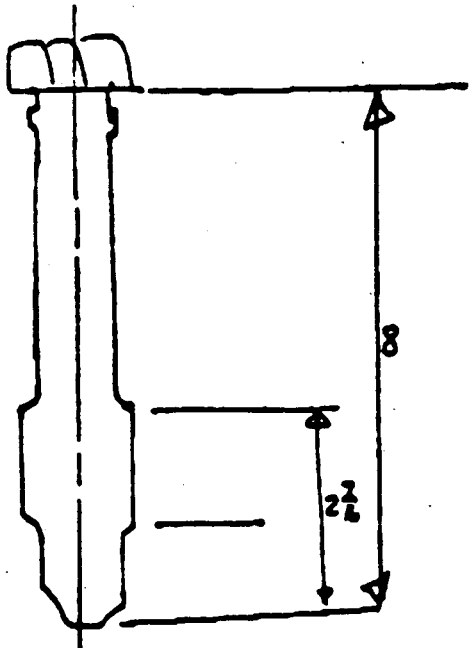
.188 ± .010
− .187 ± .010
+ 2.906 ± .005
+ 2.75 ± .005
+ .103

5.760

Below bottom of head

Thd ends @
5.760
− .103
± 1.25
6.909

Below bottom of head



PREPARED BY RC Pillow RC Pillow DATE 9/15/88

REVIEWED BY JHR DATE 9/15/88

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Nuclear Power Division

GENERAL CALCULATIONS

DOC. I.D. 32-1173082-00

In bolt, thread starts at

8.000
2.438
5.562 below bolt head.

See Reference 1.

thread ends at

8.000
1.062
6.938 below bolt head.

	Bolt	Nut	Engagement
Thread starts at	5.562	5.760	Max. Value = 5.760
Thread ends at	6.938	6.907	Min Value = 6.907

Length of thread engagement = 6.907 − 5.760 = 1.147 in

Because the top thread is defective, the actual length of thread engagement is

$1.147 - \frac{1}{n} = 1.147 - \frac{1}{12} = \underline{1.064 \text{ in}}$

PREPARED BY RC Pillow RC Pillow DATE 9/15/88

REVIEWED BY [signature] DATE 9/15/88

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GENERAL CALCULATIONS

DOC. I.D. 32-1173082-00

ACTUAL SHEAR AREA - BOLT

$$AS_s = \pi\, n\, L_e\, K_n \left[\frac{1}{2n} + 0.57735\,(E_{s\,min} - K_{n\,max})\right]$$

$$= \pi(12)(1.064)(1.053)\left[\frac{1}{2(12)} + 0.57735\,(1.0631 - 1.053)\right]$$

Shear Area of defect

$$AS_s = 2.006 - 0.1985 = 1.8077 \text{ in}^2$$

ACTUAL SHEAR AREA - NUT

$$AS_N = \pi\, n\, L\, D_{s\,min}\left[\frac{1}{2n} + 0.57735\,(D_{s\,min} - E_{n\,max})\right]$$

$$= \pi(12)(1.064)(1.1118)\left[\frac{1}{(2)(12)} + 0.57735\,(1.1118 - 1.0787)\right]$$

Shear Area of defect

$$AS_N = 2.7104 - 0.1985 = 2.5119 \text{ in}^2$$

PREPARED BY RC Pillow RC Pillow DATE 9/15/98

REVIEWED BY [illegible] 9/16/98

PDS-21036-3 (9-84)

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GENERAL CALCULATIONS

DOC I.D. 32-1173082-00

SHEAR STRESS IN THREADS — BOLT

Reference 6, NB-3227.2(a) limits the average shear stress in threads to 0.6 S_m based on $S_m = \frac{2}{3} S_y$. If S_m for bolting material is used, this criteria should be 1.2 S_m to maintain the intent of the Code (because bolting material $S_m = \frac{1}{3} S_y$ and structural material $S_m = \frac{2}{3} S_y$).

The maximum bolt load is calculated using data from Reference 4, page 5 as follows:

$$127.7 \times 300 = 38,910 \text{ lbs} = P$$

Shear stress in threads, $\tau = \frac{P}{A S_s}$

$$\tau_{bolt} = \frac{38.91}{1.8077} = 21.52 \text{ KSI}$$

From Reference 6, Section III, Appendix I, Table I-1.3, S_m of SA-453, Grade 660, Class A at 650°F is as follows:

$$S_m = \frac{27.0 + 26.8}{2} = 26.9 \text{ KSI}$$

$$FS = \frac{(1.2)(26.9)}{21.52} = 1.5$$

PREPARED BY RC Pillow RC Pillow DATE 9/15/88
1HR 0.1c/bc

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GENERAL CALCULATIONS

DOC. I.D. 32-1173082-00

SHEAR STRESS IN THREADS - NUT

Shear stress in threads, $\tau = \frac{P}{A S_N}$

$$\tau_{nut} = \frac{38.91}{2.5119} = 15.49 \quad KSI$$

From Reference 6, Section III, Appendix I, Table I-13.3 S_m of SA-320, Grade L43 at 650°F is as follows:

$$S_m = \frac{28.1 + 26.4}{2} = 27.25 \quad KSI$$

$$FS = \frac{(1.2)(27.25)}{15.49} = 2.1$$

PREPARED BY RC Pillow RC Pillow DATE 9/15/88
DHL 9/15/88

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Nuclear Power Division

GENERAL CALCULATIONS

DOC. ID 32-1173082-00

REFERENCES

1. B&W Drawing 111489 D 5, Control Rod Drive Mechanism Holddown Assembly and Bolt.
2. B&W Drawing 116901 C 3, Control Rod Drive Mechanism Holddown Bolt Washer.
3. B&W Drawing 149920 E 3, Control Rod Mechanism Housing.
4. B&W Calculation 32-1123701-00, CRDM Bolt Torque Requirements Using Fel-Pro N-1000.
5. Machinery's Handbook, 22nd Edition.
6. ASME Boiler and Pressure Vessel Code, Section II, III and XI, 1980 Edition.
7. National Bureau of Standards Handbook H28, Screw-Thread Standards for Federal Services, 1963 Supplement.
8. DPSC Report 348, Rev. C including Addenda A, B, E, H and L, Stress Report for Pressure Vessel Portion of CRDM 706639-1058.
9. B&W Microfilm Rolls of Stress Report for Reactor Vessel, Report No. 3, Volume 1, Thermal/Mechanical Analysis of Control Rod Drive Mechanism Housing, Roll No. 79-497 (contract 620-0004).
10. Letter Rod Emory to Jim Agan, Subject: Oconee Unit 3, CRD Nut Ring Corrosion, dated Sept. 9, 1988.

PREPARED BY RC Pillow RC Pillow DATE 9/15/88

REVIEWED BY [signature] DATE 9/15/88

(803) 885-3363

Duke Power Company
Oconee Nuclear Station
P.O. Box 1439
Seneca, S.C. 29679

DUKE POWER

September 9, 1988

To: Jim Agar
Babcock and Wilcox

Subject: Oconee Unit 3
Control Rod Drive
Nut Ring Corrosion

Inservice inspection was performed on nut rings removed from three leaking drives during the current Unit 3 EOC10 refueling outage. Localized corrosion was found to be present around the chamfered edge of the bolt holes, with one ring also having an eroded area approximately 3/8 inch wide by 3/8 inch deep extending from one bolt hole to the inside diameter of the ring. To be conservative, the first thread of each hole should be considered as missing.

As a matter of practice, the station does not reuse CRDM bolting material. However, per ASME Section XI Part 2430(a), indications in excess of the allowable standards will require examination of an additional sample of components. A determination that the nut rings removed met the requirements for continued service will preclude the necessity for removing additional drives for examination.

Based on the information given, please have an engineering evaluation performed to determine whether the nut rings removed were capable of meeting the requirements of their design specification.

Rod Emory

Rod Emory
Maintenance Services
Oconee Nuclear Station

cc: Barry Millsaps
Basil Carney
Jeff Gilreath

32-1173082-00
Page 14 of 14

10.0 Reference Documents

Duke Power Company Request for Relief ONS-009

Duke Power Company Request for Relief ONS-010

Duke Power Company Request for Relief ONS-011

Babcock and Wilcox Volumetric Examination Evaluation Report 893-004, dated November 27, 1989

Babcock and Wilcox Fracture Mechanics Analysis Report #32-1135539-00

DUKE POWER COMPANY

Request For Relief From
Inservice Inspection Requirement
NPD Licensing Serial No. 89-04

Station: Oconee

Unit: 1,2 and 3

Requesting Department: Quality Assurance, Inservice Inspection

Reference Code: ASME Boiler and Pressure Vessel Code, Section XI 1980 Edition through Winter 1980 Addenda

1. Component for which exemption is requested:

   a. Name and Identification Number:

      Main Steam Turbin Stop Valve Upper Head to Valve Body Studs.
      Valve Manual OM-200-195

   b. Function: Pressure retaining bolting of upper head to valve body

   c. ASME Section XI Code Class: Class 2

   d. Construction Code and Class: ANSI (USAS) B31.1, Class F

   e. Valve Category: Category A

II. Reference Code Requirement that has been determined to be impractical:

   Table IWC-2500-1; Category C-D; Item C4.40
   Volumetric Examination requirements of figure number IWC-2500-6

III. Basis for Requesting Relief:

ASME Section XI, IWC2500-6 requires that the full volume of the thread portion of the stud be examined. This request for relief is on the premise that even though the code requires a volumetric examination of the entire length of the stud, the actual areas of concern would be the thread run-out points, where the threads meet the body of the stud; the first three to four threads that engage the nut.

The Design Engineering Department of Duke Power Co. performed an evaluation to support this request. It was concluded that the last 2.9" of the stud that is engaged in the valve body would not have any significant load that would lead to the stud's failure (see Certification of Engineering Calculation No. OSC-3369 attached to this request.)

The stud manufacturer, General Electric (GE), in their document "Valve Studs-Tighting, Inspection & Replacement Recommendations (TIL-891)", states;" The results obtained to date indicate that crack indications will appear at the first or second thread, 0-1/4 inch below the valve joint surface..." (See page 16 of Certification of Engineering Calculation No. OSC-3369 for this statement).

IV. Alternate Examination:

Article 5 of ASME Section V, Paragraph T-541.5 specifies the ultrasonic examination be performed from the end of the bolt. Calibration shall be established from a 3/8" diameter, 3"long, flat bottom hole drilled in the end of the calibration standard(s) with dimensions as identified in Table 541.5.2. Configuration of the Main Steam Upper Head Studs on the Turbine Stop Valve prevents this technique from being properly utilized.

The Main Steam Turbine Stop Valve Upper Head Stud is configured with a .620" diameter heater hole that runs 11.13" of the length of the stud. An in-place examination using an ultrasonic angle beam transducer can be performed from the heater hole.

ASME Section XI 1983 winter addenda specifies that a procedure qualification be performed in accordance with Paragraph VI-2430. The sensitivity of the examination shall be established using a qualification specimen with notches of dimensions that are specified in Table VI-2430-1. The ultrasonic examination specified in Article 5 of ASME Section V, Paragraph T-541.5 can not be performed using that calibration block design. However, an angle beam examination has been established using the qualification specimen design identified in the

ASME Section XI 1983 winter addenda, Paragraph VI-2430. This technique is an in-place examination that employs a 45 degree angle beam transducer through the heater hole. It is capable of detecting cracks from the top of the stud to the last two threads engaged in the valve body. This is approximately 1.5" beyond the critical area identified in the Certification of Engineering Calculation No. OSC-3369.

V. Implementation Schedule:

This examination is scheduled to be performed during the current (10th)refueling outage for Oconee Unit 2 during the period from May 19, 1989 to July 2, 1989. For Oconee Units 1 and 3 these examinations are scheduled to be performed during upcoming outages 12 and 11 respectively.

February 3, 1989 MOEE-89-052

G. W. Grier, Manager
Quality Assurance

Attention: A. C. Gladney

Re: ISI of Turbine Stop Valve
Request for Relief
File: OS-27-M

This is in response to your letter of November 30, 1988 on the above subject.

Based on our evaluation which is documented in our calculation OSC-3369, we support your request for relief. It is our judgement that as long as your proposed UT procedure cover the threads between points B and C on our sketch OSC-3369, we will have inspected the critical threads on the valve end of the stud.

For your records, attached is a copy of our calculation OSC-3369. Please advise if we may be of further help.

B. L. Peele, Jr., Division Project Manager
Oconee Engineering Division

R. L. Williams

By: R. L. Williams
Engineering Consultant

RLW/acb

Attachment

cc w/o att: Central Records

Form 01077 (R3-88)

FORM 101.1	REVISION 11

CERTIFICATION OF ENGINEERING CALCULATION

STATION AND UNIT NUMBER Oconee Units 1-3

TITLE OF CALCULATION Main Steam Turbine Stop Valve Upper Head Stud

CALCULATION NUMBER OSC-3369

ORIGINALLY CONSISTING OF:

PAGES 1 THROUGH 2

TOTAL ATTACHMENTS 3 TOTAL MICROFICHE ATTACHMENTS —

TOTAL VOLUMES 1

THESE ENGINEERING CALCULATIONS COVER QA CONDITION 1 ITEMS. IN ACCORDANCE WITH ESTABLISHED PROCEDURES, THE QUALITY HAS BEEN ASSURED AND I CERTIFY THAT THE ABOVE CALCULATION HAS BEEN ORIGINATED, CHECKED OR APPROVED AS NOTED BELOW:

ORIGINATED BY R. L. Williams DATE 1/10/89

CHECKED BY A. D. Robinson DATE 1/16/89

APPROVED BY R A Hans DATE 2/2/89

ISSUED TO GENERAL SERVICES DIVISION _____ DATE _____

RECEIVED BY GENERAL SERVICES DIVISION _____ DATE _____

MICROFICHE ATTACHMENT LIST: ☐ Yes ☒ No SEE BACK OF FORM

REV. NO.	CALCULATION PAGES (VOL)			ATTACHMENTS (VOL)			VOLUMES		ORIG	CHKD	APPR	ISSUE DATE
	REVISED	DELETED	ADDED	REVISED	DELETED	ADDED	DELETED	ADDED	DATE	DATE	DATE	REC'D DATE

DUKE POWER COMPANY

Form 00184 (6-81)

Dev./Station Oconee Unit 3 File No. OSC-3369

Subject Main Steam Turbine Stop Valve Upper Head Stud By R.L. Wilkins Date 1/10/89

Sheet No. 1 of 3 Problem No. Checked By G.D. Robison Date 1/16/89

PROBLEM

The Q.A. Department is in the process of developing a procedure to do the ISI of the Main Steam Stop Valve Upper Head Studs in place. This valve is Q.A Condition 1 and the requirements of ASME SECTION XI, 1980 Edition through W'80 Addenda apply.

Q.A has evaluated the situation and plans to seek relief from the 100% UT requirement imposed by ASME Section XI. They are asking for Design Engineering review and concurrence with their plan of action. For further detail, see A.C. Gladney's letter of Nov. 30, 1988 and its attachments (Attachment No. 1 to this Calculation).

ASSUMPTIONS

Sketch OSC-3369 (Attachment No. 2 to this Calculation) shows the general dimensions and configuration of the upper head stud. This sketch is based on field measurements furnished by Q.A. (Attachment No. 3 to this Calculation). For the purpose of this evaluation, we are assuming that:

- The portion of the stud between points B and D are screwed into the valve body.
- UT will be performed by inserting a 45° transducer into the stud through the .620"ø hole at end A.
- The transducer will traverse the I.D. of the stud from point A to C.
- This will give UT coverage from point A through C.
- Q.A. will be seeking relief from the UT of the portion of the stud from approximately point C to D.
- The material is ferritic and stamped "L" per GE TIL.

Dev./Station Oconee Unit 1-3 File No OSC-3369

Subject Main Steam Turbine Stop Valve Upper Head Stud By R. L. Williams 1/10/89

Sheet No 2 of 3 Problem No. Checked By G. D. Robison 1/16/89

REFERENCES

1. ASME SECTION XI, 1980 Edition through W'80 Addenda- Rules for Inservice Inspection of Nuclear Power Plant Components.
2. "An Introduction to the Design and Behavior of Bolted Joints" © 1981, 5th Printing by John H. Bickford.

EVALUATION

No specific information such as material properties is available for a numerical analysis of the stud. Our evaluation will therefore be based on the past history of similar studs and the normally expected behavior of threaded fasteners.

From the UT procedure included in TIL-891, we find that the cracking found to date in similar studs, occurs in the vicinity of the 1st or 2nd. thread. This is 0" to .250" from point B on Sketch OSC-3369. This is expected since the juncture of a fastener pair is subject to the highest loads and moments.

From reference No. 2 we find that:

- The first 3 threads carry most of the load.
- The tensile stress in the bolt falls off rapidly as it gets further into the internally threaded part. At a distance into the part equal to about half of the bolt diameter, the tensile stress ~~is less than ½ the~~ in the unthreaded shank of the bolt. In this case, the half diameter insertion depth is

$$\frac{2.230"}{2} = 1.115"$$

Dev. Station: Oconee Unit 1-3 File No. OSC-3369

Subject: Main Steam Turbine Stop Valve Upper Head Stud

By R. L. Williams 1/10/89

Sheet No. 3 of 3 Problem No: Checked By G. D. Robison 1/16/89

CONCLUSIONS

The proposed UT should cover the area that has contained any cracks found in similar studs. It should also cover the area over which the stud will have any significant loading. The area in which Q.A. seeks relief from the UT requirement is a relatively low stress area and any indications which might exist should not propagate.

∴ Design Engineering can support Q.As. request for relief.

Att. No. 1
Calc. OSC-3369
Pg. 1 of 21

November 30, 1988

R L Williams

Re: Request For Design Engineering Support in the Examination of the Main Steam Turbine Stop Valve Upper Head Stud at Oconee Unit #1

This memorandum is a follow-up on our discussion, November 28, on the ultrasonic examination of the main steam turbine stop valve upper head studs. In that discussion I identified that QA would need the support of Design Engineering in two areas:

1) Support documentation for a request for relief
2) A design approved drawing of the upper head stud

The request for relief is on the premise that even though it is a code reqiures a volumetric examination of the entire length of the stud, the actual areas of concern would be the thread run-out points, where the threads meet the body of the stud; the first three to four threads that engage the body of the valve; and the first three to four threads that engage the nut. The stud manufacturer, General Electric (GE), in their document "Valve Studs-Tighting, Inspection & Replacement Recommendations (TIL-891), states; " The results obtained to date indicate that crack indications will appear at the 1st or 2nd thread, 0-1/4 inch below the valve joint surface..."
I am attaching a copy of this document for your information.

The drawing is for support documentation of the calibration standard. GE will not provide a drawing that specifies the dimensions of the stud. This type of information proprietory. Jack Packard, my contact at GE, feels he may be allowed to approve a Duke Power drawing of the stud as a courtesy. For your information, a copy of this phone conversation is also attached.

Att. No.1
Calc. OSC-3369
pg. 2 of 21

I am requesting that the support documentation and drawing be provided by December 7, 1988. If I can be of any assistance in expediting the matter, please contact me at your convienence at 373-4842. An alternative contact will be Carl Freeman at Oconee. His number is 882-2406.

A C Gladney
NDE Level III
QA Technical Services

ACG
Attachments

cc. w/o attachments
E B Miller
C B Cheezem

cc. w/attachments
T L Tucker
Carl Freeman-ONS

- A.J. Grunsky letter of Feb. 29, 1980
- G.E. TIL - 891-3 dated Dec. 20, 1979
- Telephone Conversation Record File No. UT-88-8

Att. No. 1
Calc. OSC-3369
Pg. 3 of 21

DUKE POWER COMPANY
STEAM PRODUCTION DEPT.
GENERAL OFFICES
422 SOUTH CHURCH STREET
CHARLOTTE, N. C. 28242

P. O. BOX 33189

TELEPHONE: AREA 704
373-4011

February 29, 1980

GPK 3/7 Id pub in TIL file & in outage bk

ALL STATION MANAGERS

Attention: Superintendents of Maintenance

Subject: General Electric Company
TIL 891-3
"Valve Studs-Tightening, Inspection and Replacement Recommendations"
GS-200.24 Recurring

Gentlemen:

The subject GE TIL is attached for your information and outage planning usage.

In reference to the TIL, the following comments are made:

a) Stud Lubricants--Almost exclusively on our system, we use "Never-Seez Compound" bolt lubricant. Reference GE TIL 824 and C. W. Hendrix's letter of July 12, 1977, on TIL 824.

B) Many fossil units on our system with stop-valve studs in service before 1966 have already had the studs replaced due mainly to creep rupture crackage or plastic deformation (useful life of the stud has been used up).

C) There have been no major problems with the Austenitic studs on the few 1050°F valves on our system.

D) Since all valve studs are ultrasonically tested during each major outage, this means that on an average of every five years all valve studs are checked for cracks and the cracked studs are replaced. Each station should have an adequate number of spare studs as spares (based on past experience) on hand for each outage. In the event a station might experience a shortage of studs during an outage, I would suggest using the system turbine/generator parts interchangeability listing to possibly locate the required studs at another plant on the system.

E) With our present inspection schedule, all fossil valve studs will probably be replaced in the time interval specified in the TIL.

F) The GE TIL 176 procedure is used to U.T. the studs which are identical to the recommendations in TIL 891.

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If you have any questions concerning this TIL, please call me.

Very truly yours,

Alan Grunsky

Alan J. Grunsky
Associate Engineer

AJG/dw

cc: Oscar Lashmit - SMS

Att. No. 1
Calc. OSC-33-69
P9-5 of 21

GENERAL ELECTRIC

INSTALLATION AND SERVICE ENGINEERING BUSINESS DIVISION

GENERAL ELECTRIC COMPANY, 141 PROVIDENCE ROAD, P.O. BOX 30697
CHARLOTTE, NORTH CAROLINA 28230, Phone (704) 371-3300

December 20, 1979

SUBJECT: ALLEN #1, #2, #3, #4, #5
TURBINES #108848, #115013, #115034-#118363, #118391-#118392, #128974-#128925

BUCK #3, #5, #6
TURBINES #34663, #93386, #99611

CLIFFSIDE #4, #5
TURBINES #83611, X533

DAN RIVER #1, #2, #3
TURBINES #83656, #87400, #101670

LEE #1, #2, #3
TURBINES #87460, #87461, #115033

MARSHALL #1, #2, #3, #4
TURBINES #X142-X143, X249-X250, X297, X357

OCONEE #1, #2, #3
TURBINES #X392, X393, X449

RIVERBEND #6, #7
TURBINES #99688, #101603

VALVE STUDS - TIGHTENING, INSPECTION & REPLACEMENT RECOMMENDATIONS

TIL - 891-3

Duke Power Company
P. O. Box 33189
Charlotte, N. C. 28242

Attn: Paul H. Barton, Manager
System Operations & Maintenance Nuclear & Fossil

Gentlemen:

The purpose of this TIL is to recommend tightening levels for turbine steam valve studs used to secure the upper heads on main stop valve and reheat valve casings and the stands on control valve casings. Recommendations are also provided for

GENERAL ELECTRIC

Att. #1
Page.... 2
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inspection and replacement of valve studs to minimize the probability of in-service failure.

If you have any questions, please give me a call.

Very truly yours,

J. M. Corriher
Service Supervisor
Steam Turbines

pdm
Attachment/s

cc: Alan Grunsky

Att. #1
Calc. OSC-3369
pg. 1 of 21

VALVE STUDS - TIGHTENING, INSPECTION & REPLACEMENT RECOMMENDATIONS

(TIL-891)

INTRODUCTION

The purpose of this Technical Information Letter is to recommend tightening levels for turbine steam valve studs used to secure the upper heads on main stop valve and reheat valve casings and the stands on control valve casings.

Recommendations are also provided for inspection and replacement of valve studs to minimize the probability of in-service failure.

BACKGROUND

Last year an operating fossil unit experienced sudden failure of 10 out of 14 main stop valve upper head studs. The upper head lifted partially, permitting steam to escape and resulting in a forced outage. It appears likely that the head would have come off altogether if the centering rabbet had not become wedged in the cylindrical casing fit. A similar incident occurred 13 years earlier when 9 out of 16 upper head studs failed suddenly on another fossil main stop valve.

Studies were made of the variables affecting valve stud life following the 1st incident. Some of the variables are: length of time in service, number of retightenings, tightening stress level, thermal cycling and differential expansion. It was determined that the major factors are tightening stress level and number of tightenings to that stress level. As a result, a reduced tightening stress, called the "1970 level", was implemented for the valve stud materials used on most fossil units. Also, recognizing that valve studs may have limited service life regardless of the stress level, it was recommended that they be inspected for cracks at least every 6 years.

This Technical Information Letter will repeat and re-emphasize the tightening and inspection recommendations made earlier for fossil valve studs. In addition, the recommendations are being expanded in two respects. First, the useful life is predicted and replacement is recommended for certain studs regardless of whether cracks are found at inspection. Second, the recommended frequency of inspection is related to number of tightenings as well as to number of years in service.

Factors affecting the life of nuclear valve studs (operating at temperatures below 800°F) differ from those affecting fossil valve studs. Nuclear valve studs are not operating in the material creep range. Therefore, stud life is not related to tightening stress or number of tightenings in the same manner as for fossil valve studs. Stud life can be affected by excessive overtightening, corrosion and other factors, however, making it advisable to establish a regular inspection program. Recommendations for fossil and nuclear valve studs, being somewhat different, are covered separately in this Technical Information Letter.

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Calc. OSC-3369
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STUD MATERIALS

Table I lists the materials and identification stampings that have been used for valve upper head and stand studs.

B5F4C and B5F5B will be found on nuclear valves (below 800°F).

B5F5B and B50A125E are by far the most commonly used stud materials on fossil valves (800°F and higher). If any studs of B50-A125B or C remain in service, the recommendations for B50A125E apply.

Austenitic stud materials have been used on a limited number of fossil valves at 1050°F and higher. Austenitic studs are non-magnetic.

It is expected that most owners can identify their stud materials from previous inspection and tightening records. If not, the material should be determined from the stamping at the next inspection. In those cases where the material is not known, and needs to be known as an input for scheduling maintenance (for example, on pre-1966 units), the necessary information can be obtained through your G.E. Service Engineer.

STUD LUBRICANTS

FEL-PRO N1000 and CRANE COMPOUND JC 60 are approved thread lubricants. See TIL 824 for more detail.

TIGHTENING RECOMMENDATIONS

A. Fossil Valve Studs (800°F and higher)

The recommended elongation ranges for B5F5B and B50A125E studs are given on attached drawing 223A3906. This is the "1970 Level" which is approximately 70% of the pre-1970 stress level. Drawing 223A3906 takes precedence over instructions on valve assembly drawings issued before the "1970 Level" was implemented.

Tightening of austenitic studs (see Table I) should be continued per the original valve assembly drawing instructions.

B. Nuclear Valve Studs (below 800°F)

The elongation range for B5F4C and B5F5B, operating below 800°F, is also given on drawing 223A3906. This is essentially the pre-1970 stress level before it was reduced for those valve studs operating in the material creep range.

REPLACEMENT RECOMMENDATIONS

A. Fossil Valve Studs (800°F and higher)

Most valve studs operating at 800°F and higher are in the creep range of the stud material. After the studs are tightened, and the valve brought up to operating temperature, the material will creep and the stud stress will be gradually reduced. This must

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REPLACEMENT RECOMMENDATIONS - (Cont'd.)

be accounted for in determining the initial tightening stress level in order to prevent leakage from developing in service. Each time a stud is tightened to the initial stress level some of the stress creeps out in service and the stud suffers some plastic strain damage. The plastic strain accumulates with each tightening cycle until finally, after some number of cycles, the rupture ductility of the material is used up and a crack will develop.

A bending stress is also imposed on valve studs due to the difference in expansion of the valve casing and upper head during heating and cooling cycles. Low cycle fatigue due to bending is a contributing cause of valve stud failure but is not the primary damage mechanism when recommended rates of temperature change are observed. Creep rupture damage, as described in the preceding paragraph, is considered to be the primary damage mechanism for fossil valve studs and the number of tightenings is the primary measure of the amount of stud life expended.

Using analytical methods calibrated by laboratory and field data we now believe that the useful life of fossil valve studs can be predicted based on number of tightenings with sufficient accuracy to be helpful in maintenance planning. The end of useful life is considered to have been reached after that number of tightenings which corresponds to a 50% probability of stud cracking. At this point it is recommended that all studs that have experienced that number of tightening cycles be replaced regardless of whether cracks are detected. The rupture ductility will have been nearly used up and the probability of cracking before the next inspection will be high.

The following recommendations assume the valve studs were tightened to the recommended stress levels in effect at the time of the tightening, and that recommended rates of temperature change were observed at the valves. Higher stress levels or temperature rates can be expected to cause earlier stud failures:

B5F5B Stud Material:

All valve upper head and stand studs in service before 1966 have seen at least 14 years of service, and for at least 5 of those years were stressed to the pre-1970 level. Assuming one tightening every 2 years on the average, they have been tightened at least 7 times and are near the end of useful life as defined above. It is recommended that all B5F5B fossil valve studs in service before 1966 be replaced by the end of 1981.

Newer B5F5B studs (in service in 1966 and later) should be replaced after 11 tightenings or if cracks are found during periodic inspections. This is discussed in more detail under "INSPECTION RECOMMENDATIONS".

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B5F5B Stud Material - (Cont'd.)

Replacements for B5F5B studs will also be made of B5F5B. It is true that B50A125E has a longer life expectancy and is used on all new fossil valves. The problem is that the two materials have different coefficients of expansion and different tightening stress levels, making it unacceptable to mix them on the same valve. It is also undesirable to mix the materials on similar valves on the same unit, or in the same station, because of the bookkeeping problems created. The life expectancy of replacement B5F5B studs is 11 tightenings (estimated to correspond to about 22 years). This is felt to be an acceptable life expectancy on most units requiring replacements.

B50A125E Stud Material:

All valve upper head and stand studs in service before 1966 have seen at least 14 years of service, and for at least 5 of those years were stressed to the pre-1970 level. Assuming one tightening every two years on the average, they would have been tightened at least 7 times and are near the end of useful life as defined above. It is recommended that all B50A125E fossil valve studs in service before 1966 be replaced by the end of 1983. (This also applies to studs of B50A125B&C if any remain in service).

Newer B50A125E studs (in service in 1966 and later) have a useful life expectancy of about 25 tightenings because of the reduced tightening stress level. Assuming one tightening every 2 years on the average, these studs have a high probability of lasting as long as the turbine. However, tightening records should be kept and the studs should be replaced after 25 tightenings if this number is reached. Inspection and replacement, if cracks are found, should be as discussed under "INSPECTION RECOMMENDATIONS".

Austenitic Stud Material:

Austenitic studs have not shown a tendency to crack due to loss of rupture ductility, and so there are no replacement recommendations related to number of tightenings. Inspection and replacement, if cracks are found, should be as discussed under "INSPECTION RECOMMENDATIONS".

B. Nuclear Valve Studs (below 800°F)

Nuclear valve studs operating below 800°F are not in the material creep range and do not suffer plastic strain and loss of rupture ductility in service. Therefore, there are no replacement recommendations related to number of tightenings. Inspection and replacement, if cracks are found, should be as discussed under "INSPECTION RECOMMENDATIONS".

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Calc. OSC-3369
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INSPECTION RECOMMENDATIONS

The previous recommendation has been to inspect studs for cracks at least every 6 years, regardless of material or application. The new recommendation relates inspection frequency to number of tightenings, as well as to years in service, for fossil valve studs of B5F5B and B50A125E material.

Any studs that are found cracked must be replaced immediately. It is desirable to also replace all the other studs of the same age in that valve if new studs are available. If less than 30% of the studs in a valve are cracked, however, it is generally satisfactory to replace only the cracked studs, provided that the other studs of the same age are replaced within one year. If more than 30% of the studs are cracked, all studs of that age in that valve and mating valves should be replaced immediately.

At a minimum, the number of spare studs recommended in the parts catalog should be kept on hand. This may vary from 10% to 50%, depending on the type of valve. If the studs are B5F5B or B50A125E, and in fossil service before 1966, the spares on hand should be increased to 100% in preparation for complete replacement.

A. Fossil Valve Studs (800°F and higher)

B5F5B Stud Material:

It is recommended that B5F5B studs for valve upper heads and stands be tested for cracks at least after every 3 tightenings or every 6 years, whichever comes first. The studs should be replaced at the next valve inspection following 11 tightenings (for studs in service after January 1, 1966). This is shown in tabular form below:

Stud Insp. No.	1	2	3	4
Tightening No.	3	6	9	*
(or) Years Service	6	12	18	24

* Replace after 11 tightenings.

As was discussed under "REPLACEMENT RECOMMENDATIONS" the stud replacement recommendation in the above table is based only on number of tightenings, not on years in service. The years in service are shown in the above table only to help establish the minimum inspection frequency.

Att. #1
Calc. OSC-3369
pg. 12 of 21

INSPECTION RECOMMENDATIONS - (Cont'd.)

B50A125E Stud Material:

It is recommended that B50A125E studs for valve upper heads and stands be tested for cracks at least after every 3 tightenings up to 18 and after every 2 tightenings thereafter, or every 6 years, whichever comes first. This is shown in tabular form below. If the number of tightenings reaches 25, the studs should be replaced at the next valve inspection (studs in service after January 1, 1966):

Stud Insp. No.	1	2	3	4	5	6	7	8	9	-
Tightening No.	3	6	9	12	15	18	20	22	24	*
(or) Years Service	6	12	18	24	30	36	42	48	54	-

* Replace after 25 tightenings.

Austenitic Stud Material:

It is recommended that austenitic studs for valve upper heads and stands be tested for cracks at least every 6 years.

B. Nuclear Valve Studs (below 800°F)

It is recommended that studs for nuclear valve upper heads and stands be tested for cracks at least every 6 years.

Because they are operating below the material creep range, any cracks found in nuclear valve studs should be reported to the G.E. Service Engineer immediately for assistance in diagnosing the cause.

INSPECTION PROCEDURE

Magnetic particle testing of magnetic materials and red dye testing of non-magnetic materials are satisfactory methods of checking for cracks, but both methods require removal of the studs from the casing. An ultrasonic test procedure has been developed which has proven to be a dependable method of locating cracks. The ultrasonic test method is recommended because it does not require removal of the studs. In some instances the grain size in austenitic materials may prevent ultrasonic inspection, but this must be determined by trial.

To assist in the inspection of valve studs we have prepared the attached detailed test procedure TG-19A entitled "Ultrasonic Testing Of Steam Valve Studs After Periods Of Service", and report form TG-19AU entitled "Ultrasonic Examination Of Valve Studs".

STUD REMOVAL

When a stud is removed from a casing, care should be taken to avoid damage to the casing threads. A generous application of penetrating oil will often help. Other techniques which have been used with some success include cooling the stud with nitrogen and/or heating

Att. #1
Calc. 05C-3369
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STUD REMOVAL - (Cont'd.)

the casing locally to about 300°F. It should be expected that some percent of the studs to be removed will not yield to the above techniques, and equipment should be available to drill out these studs.

SUMMARY OF RECOMMENDATIONS

Fossil Units (800°F and Higher):

1. Tighten B5F5B and B50A125E valve studs per 223A3906. Drawing 223A3906 takes precedence over instructions on valve assembly drawings issued before the "1970 Level" was implemented.

2. Tighten austenitic valve studs per the original valve assembly drawing.

3. Replace all B5F5B valve studs in service before 1966 by the end of 1981.

4. Replace all B50A125E valve studs in service before 1966 by the end of 1983.

5. Inspect all B5F5B studs for cracks at least every 3 tightenings or 6 years, whichever comes first. Replace after 11 tightenings (for studs in service after January 1, 1966).

6. Inspect all B50A125E studs for cracks at least after 3 tightenings up to 18 and every 2 tightenings thereafter, or every 6 years, whichever comes first. If the number of tightenings reaches 25, the studs should be replaced at the next valve inspection (for studs in service after January 1,1966).

7. Inspect all austenitic studs for cracks at least every 6 years

Nuclear Units:

1. Tighten studs per the valve assembly drawing or drawing 223A390 (they should be in agreement).

2. Inspect studs for cracks at least every 6 years.

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TABLE I

VALVE STUD MATERIALS

G.E. Material Spec.		Identification Stamping	
		NEW	OLD *
B5F4C	Ferritic	N	F4
B5F5B	Ferritic	L	F5
B50A125B	Ferritic	P	--
B50A125C	Ferritic	W	--
B50A125E	Ferritic	XD	F25
B50A146A	Austenitic	S	A6A
B50A199B	Austenitic	XA	--
B50A199D	Austenitic	XB	--

* In use from about 1960 to 1967.

GENERAL ELECTRIC

TITLE: ELONGATION FOR PRESTRESSING VALVE (TIL 891 ATTACH.) UPPER HEAD AND STAND STUDS - 1970 LEVEL

223A3906 — SH NO. 1 — CONT ON SHEET -

FIRST MADE FOR

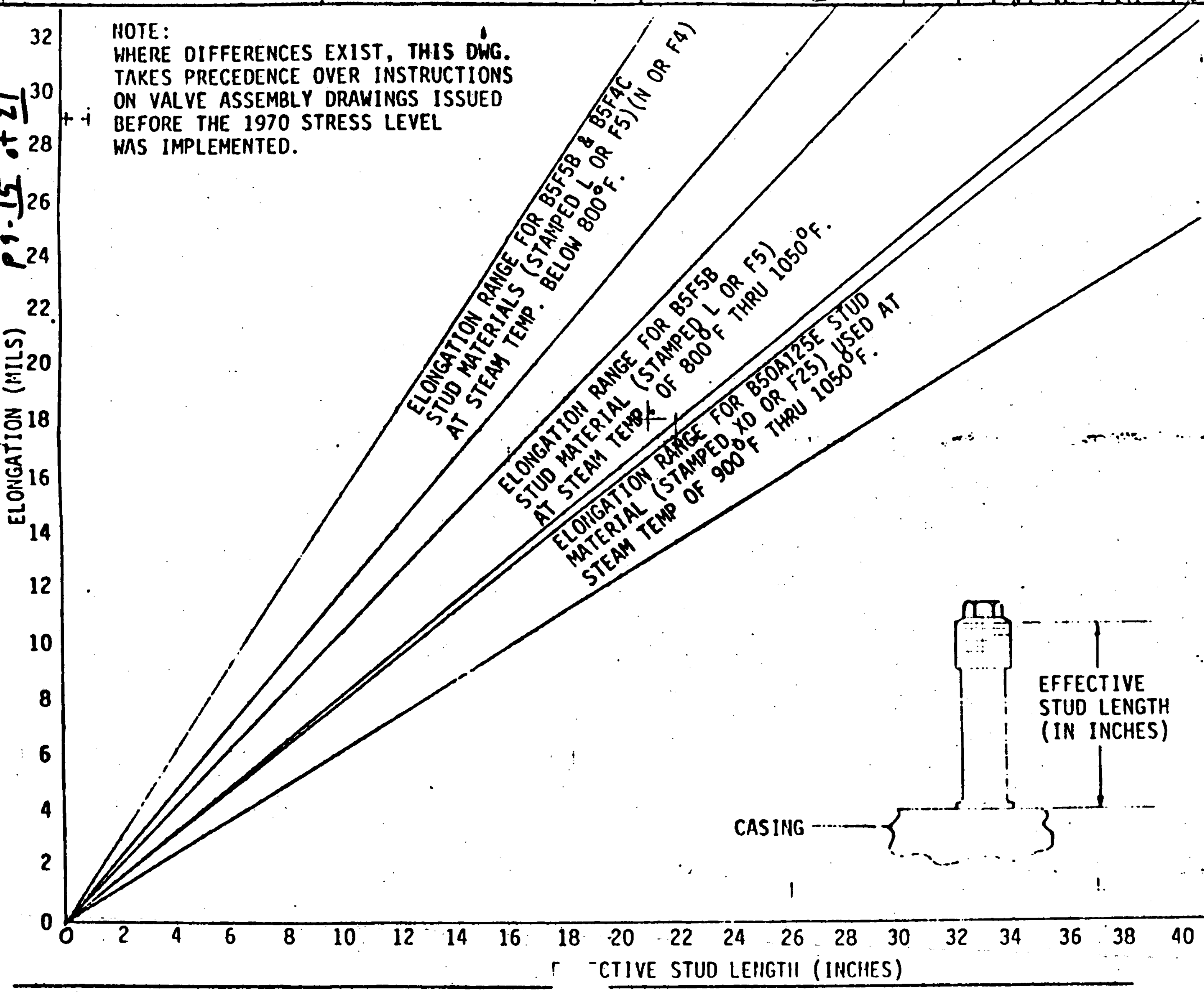
Att. 1 Calc. 05C-3369 pg. 15 of 21

REVISIONS:
- 3 R. Muir Fut Prod. Retraced, Gen Changes. LTR # 7003006 Mar 30 '79
- 4 R. Muir - F.P. Added N or F4

273-71

PRINTS TO

NOTE:
WHERE DIFFERENCES EXIST, THIS DWG. TAKES PRECEDENCE OVER INSTRUCTIONS ON VALVE ASSEMBLY DRAWINGS ISSUED BEFORE THE 1970 STRESS LEVEL WAS IMPLEMENTED.



TURBINE — DIV OR DEPT.

SCHENECTADY — LOCATION

223A3906 — CONT ON SHEET - — SH NO. 1

APPROVALS

ISSUED: R. Kelly March 24, 1970

Att. #1

ULTRASONIC TESTING OF STEAM VALVE STUDS AFTER PERIODS OF SERVICE

Calc. OSC-3369

(TIL 891 ATTACH

pg. 16 of 21

1. Introduction

These instructions outline the procedure to be followed when performing ultrasonic longitudinal wave tests on valve studs, in place, after periods of service.

2. General

Tests shall be performed by well trained and properly qualified personnel.

Tests shall be performed while the studs are in place and generally after the cover has been removed. However, where the end of the stud protrudes above the nut, the studs may be tested without disassembly.

A Sperry Reflectoscope, Type UR or equivalent, shall be used. The ultrasonic instrument vertical presentation shall be linear within ± 5% of the full scale deflection.

The exposed end of each stud shall be free of all scale and oxide. Caution should be exercised to maintain a flat surface for search unit contact.

A suitable couplant such as SAE 20 oil shall be used.

The distance calibration markers shall be adjusted on a calibration bar of material similar to that of the studs, for accurate distance measurements.

3. Method of Test

Tests shall be performed using a 5.0 Mc 1/2 or 1 inch diameter type ZR search unit. Experience has shown that these search units give the best results. However, due to variations in type of material and geometry it may be necessary to use other frequencies and diameter search units.

The sweep length shall be adjusted until the 1st back reflection of the stud is visible on the right hand side of the oscilloscope screen as shown in Figure 1.

The distance from the top of the stud to the valve joint surface shall be measured and recorded.

The oscilloscope screen shall be marked at the measured distance determined in the previous paragraph. The results obtained to date indicate that crack indications will appear at the 1st or 2nd thread, 0 – 1/4 inch below the valve joint surface as shown in Figures 1 and 2.

The sensitivity shall be adjusted until the amplitude of the indications from the valve end threads is 5% of 1 1/2 inches sweep to peak.

The studs shall be tested completely from the exposed end by scanning 360 degrees in a see-saw manner as shown in Figure 3.

Each stud shall be assigned a number indexed with respect to the dowel pin as shown in Figure 4.

Att. #1
Calc. OSC-3369
Pg. 17 of 21

The scanning procedure shall be repeated on all studs.

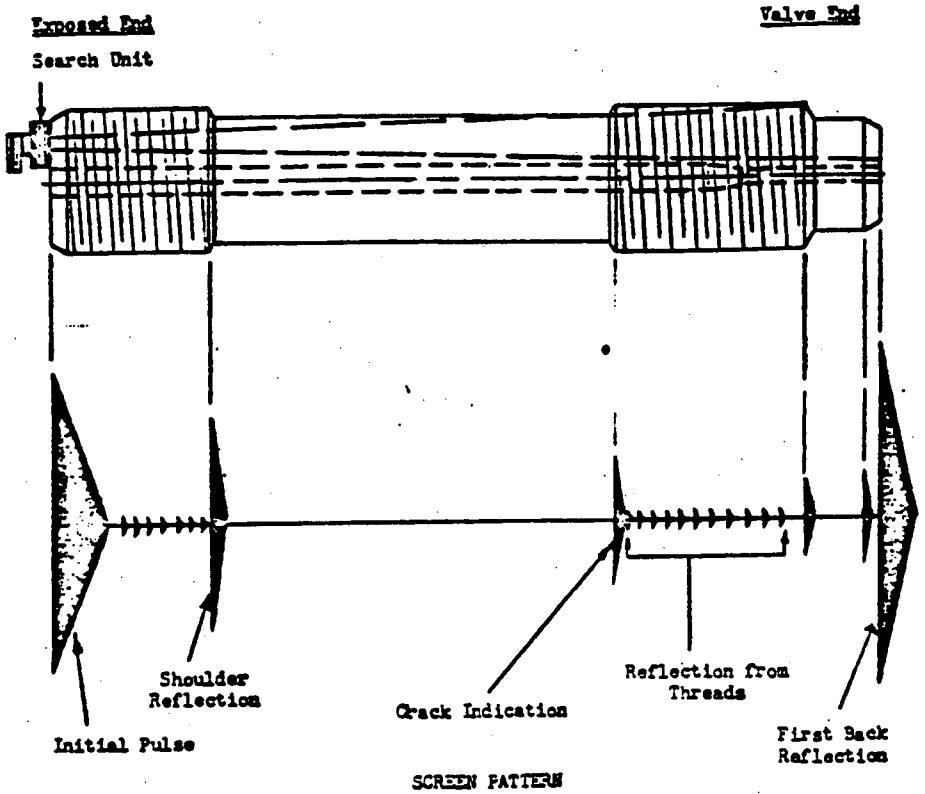
All indications shall be marked on the test surface as they occur. The circumferential distribution of indications shall be indicated with respect to a clock system. The 12 o'clock position on each stud is toward the OD of the valve and in radial line with the center of the valve bore.

RECORD OF TEST RESULTS:

The ultrasonic test report shall contain all pertinent information regarding the test as outlined in this instruction. A sample test report is shown in Figure 5.

ACCEPTANCE AND REJECTION

Copies of the ultrasonic test report should be made available to General Electric Company personnel at the earliest possible time following completion of the tests in order that acceptance or rejection can be made of the studs that were tested.



SCREEN PATTERN

Figure 1

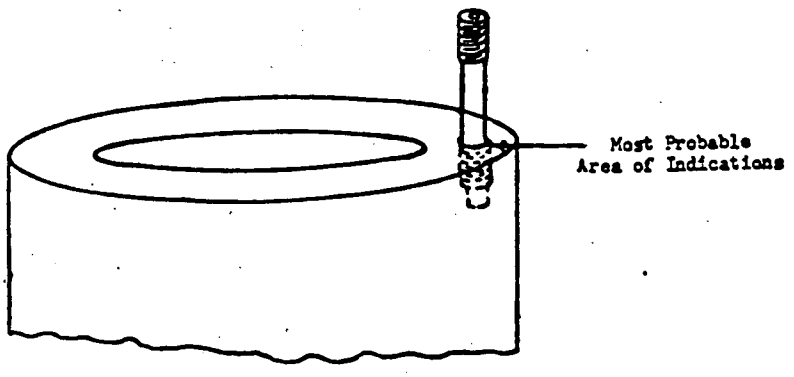


Figure 2

Att. #1
Calc. 05C-3369
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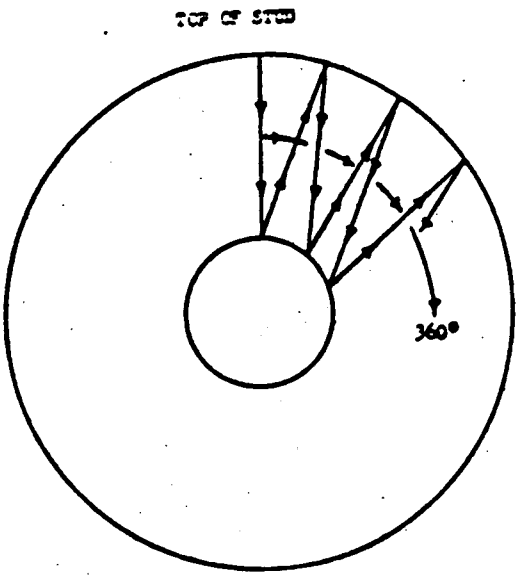
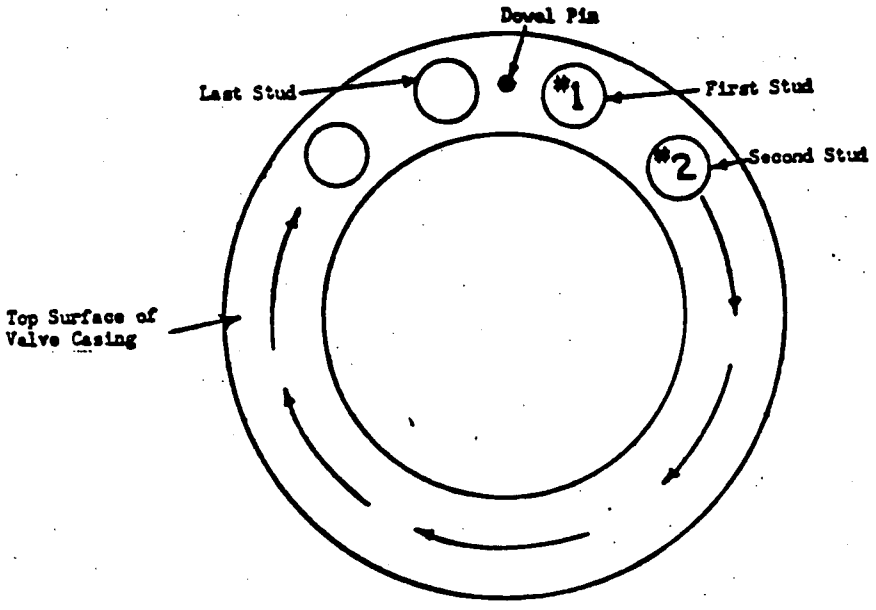


SCANNING IN A SEESAW MANNER-360°

Figure 3



STUD NUMBERING SYSTEM

Figure 4

In addition to customers' requirements for copies of the test reports, two copies should be forwarded to:

STGMD, Product Service - Mgr. Maintenance Supp
Bldg. 269 - Rm. 200, North Ave.
Schenectady, NY (12345)

RETURNING STUDS FOR LABORATORY EXAMINATION

LST-G Product Service should be contacted for instructions before returning cracked studs to the factory for metallurgical examination. There is not a sufficient number of Laboratory Technicians to perform routine testing of cracked studs and arrangements to make such tests, if desired by the purchaser, should be made with local testing organizations.

ULTRASONIC EXAMINATION OF VALVE STUDS

AH #1
Calc OSC-3369
Pg. 19 of 21

Owner Niagara Mohawk Corp.
Location Albany
Turbine No. 00000 Unit No. 100

Stud No.	Mag. %	Circum. Distr. (Time)	Dist. Top
1	25	9:00 - 12:00	19"
2	OK		
3	OK		
4	100	9:00 - 3:00	19"
5	OK		
6	OK		
7	OK		
8	20	12:00 - 3:00	19"
9	OK		
10	OK		
11	OK		
12	OK		
13	OK		
14	OK		
15	OK		
16			
17			
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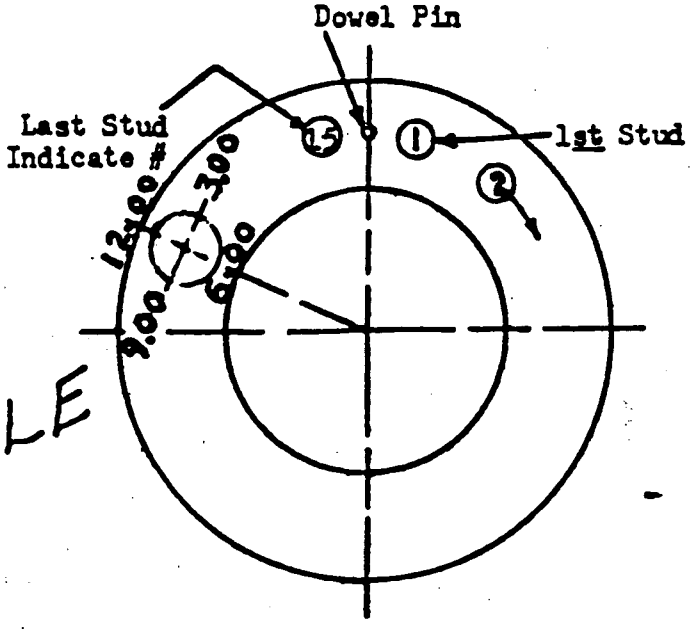
SAMPLE

Valve Type Stop
Stud Length 26½" Diam. 4"
Frequency 2.0 mc. Size ½" Type ZR
Tested By A.B. Fish
Company General Electric Co.
Address Schenectady, N.Y.
Date of Test Nov. 30, 1966



Stud bolt hour service 61,000
Times studs were tightened 5
Number of cold starts 25
Number of studs questioned sonically 3
Number of studs replaced 15
GE-I&SE Representative D. Hutchinson

Additional Information

Indications in the studs were verified using a 2.25 mc, ½" diam. ZR search unit.

Figure 5

ULTRASONIC EXAMINATION OF VALVE STUDS (TIL 891 ATTAC

Att. #1
Calc. 0SC-3369
Pg. 20 of 21

stomer _____
Station _____
Turbine No. _____ Unit No. _____

Stud No.	Mag. %	Circum. Distr. (Time)	Dist. Top
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
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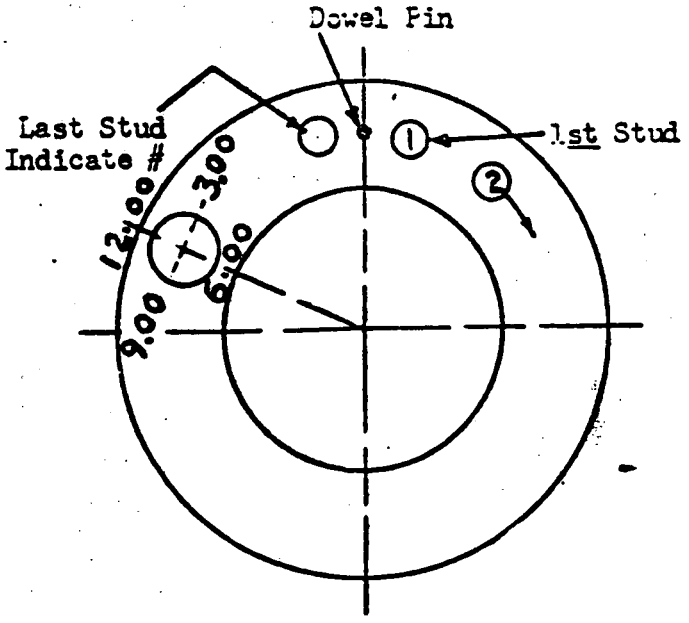
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			

Valve Type _____
Stud Length _____ Diam. _____
Frequency _____ Size _____ Type _____
Tested By _____
Company _____
Address _____
Date of Test _____



Stud bolt hour service _____
Times studs were tightened _____
Number of cold starts _____
Number of studs questioned sonically _____
Number of studs replaced _____
GE-I&SE Representative _____

Additional Information

Att. No. 1
Calc. OSC-3369
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TELEPHONE CONVERSATION RECORD

DATE: 11-28-88 **FILE NO:** UT-88-8

FROM: A. C. Gladney

TO: Jack Packard of General Electric

ROUTE

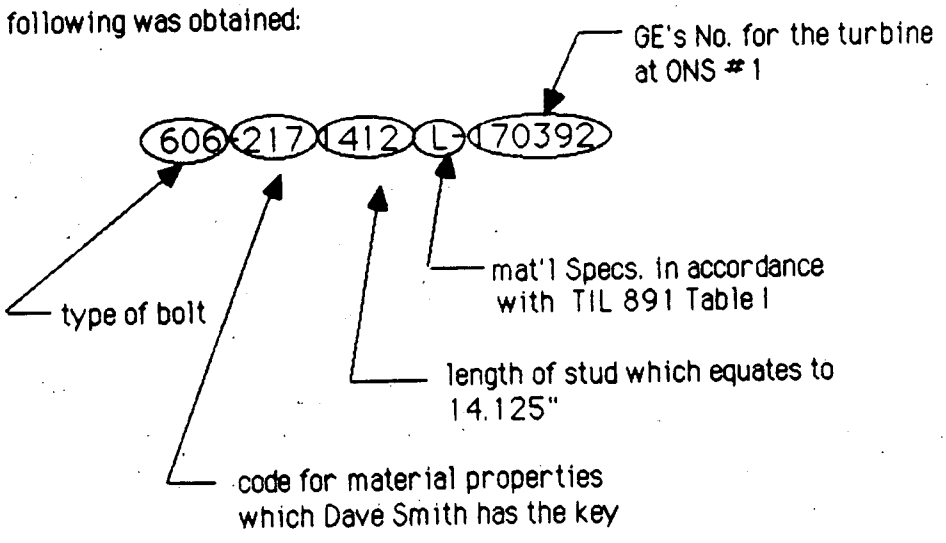
CARL FREEMAN-ONS
TIM TUCKER
ROYCE WILLIAMS

SUBJECT: Main Steam Turbine Stop Valve Upper Head Stud Examination For Oconee Nuclear Station

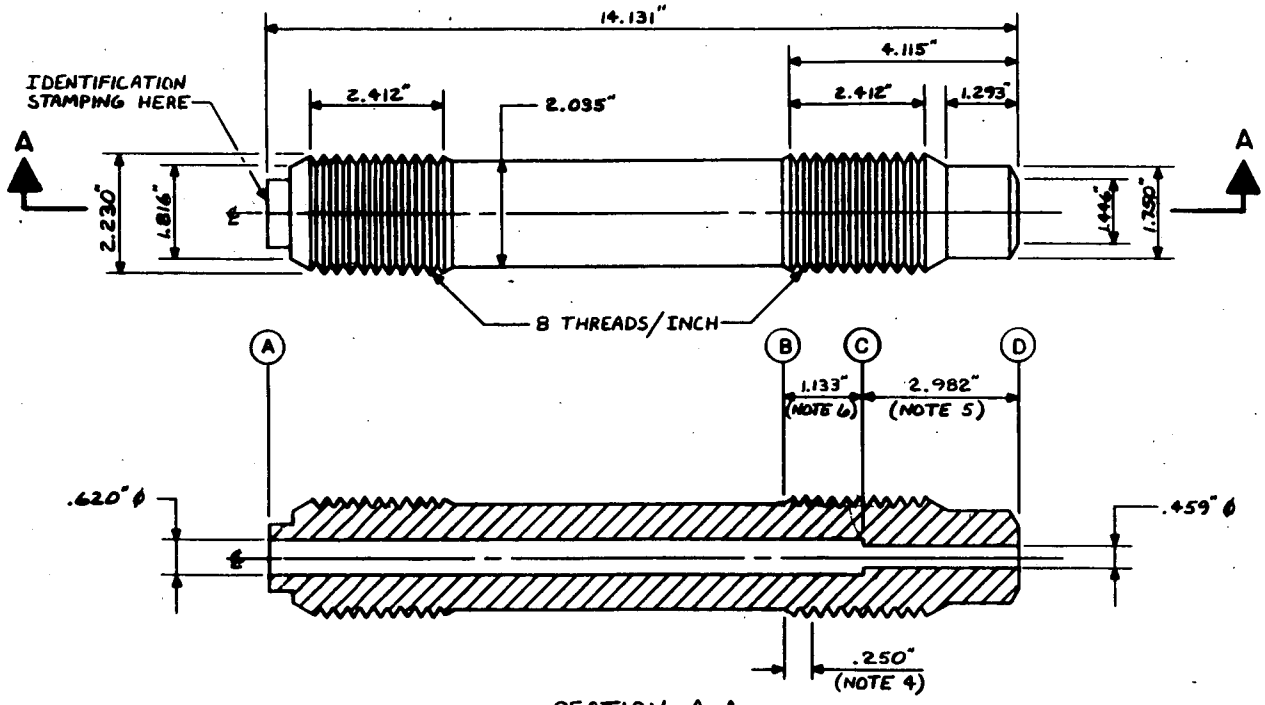
Jack was called to see if GE was going to support our efforts by providing a drawing of the upper head stud on the main steam turbine stop valve. GE will not send us a drawing of the stud, but they may approve the drawing I am having prepared by Design Engineering.

In the GE Recommendation TIL-891, it specifies that B5F5B stud material shall be the type of studs used in our valves. None of the numbers stamped on the studs correlate. I asked Jack if the numbers stamped on the studs were coded in anyway that needed information could be obtained if you knew the key. He said yes, and that Dave Smith of NPD should have this key.

Pursuing this a little further, the following was obtained:



ATTACHMENT # 2
CALC. OSC-3369



SECTION A-A

NOTES:

(1) STUDS WILL BE MARKED WITH A G.E. TURBINE NUMBER AS FOLLOWS: 170392 170393 170449
(2) DIMENSIONS ON THIS DWG. ARE AS MEASURED FROM A SPARE UNIT #1 STUD.
(3) THESE STUDS ARE A FERRITIC MATERIAL TO G.E. MATERIAL SPEC. 85F58. STUDS WILL BE STAMPED WITH "L" FOR IDENTIFICATION OF THIS MATERIAL.
(4) PER TIL-891, ANY INDICATION FOUND TO DATE OCCURRED HERE IN THE FIRST O-'4".
(5) BASED ON LOAD DISTRIBUTION IN THREADED FASTENERS, THE STRESSES IN THIS AREA WOULD BE LOW ENOUGH THAT ANY INDICATION WHICH MIGHT EXIST SHOULD NOT PROPAGATE. (SEE OCONEE CALCULATION OSC-3369).
(6) THIS IS THE DISTANCE FROM THE FIRST THREAD TO THE SHOULDER ON THE I.D. AND ALSO EQUALS APPROX. ONE HALF THE THREAD DIAMETER.

Q A CONDITION 1
NUCLEAR SAFETY RELATED

IDENTIFICATION LEGEND

TYPE OF BOLT — BOLT LENGTH (14.125") — MATERIAL SPEC. CODE

606 - 217 - 1412 - L - 170392

MATERIAL PROPERTIES CODE — G.E. TURBINE NUMBER

REFERENCES:

1. G.E. TECHNICAL INFORMATION LETTER (TIL-891) TRANSMITTED TO DUKE POWER BY LETTER OF 12-20-79.
2. G.E. TURBINE GENERATOR MANUAL OM-200-195.

NO.	REVISIONS	DRN	DATE	CHKD	DATE	APPR	DATE
ORIG.	RELEASED FOR USE WITH CALC. OSC-3369	—	—	—	—	—	—

CIVIL ELEC. MECH. INSPECTED

DUKE POWER COMPANY
OCONEE UNITS 1, 2 & 3

MAIN STEAM TURBINE
STOP VALVE
UPPER HEAD STUD

SKETCH OSC-3369 REV. 0

Duke Power Company
Oconee Nuclear Station
Second Ten Year Interval
Request for Relief No. 89-08

I. Component for which relief is requested:

(a) Name and Number: 3A2 and 3B1 Reactor Coolant pump flange stud holes. (see attached drawings).

(b) Function: Studs attach the pump motor stand to the pump and clamp the stuffing box in place.

(c) ISI Class/Duke Class: ISI Class A/Duke Class A

(d) IWV-2200 Valve Category: N/A

II. Reference Code requirement that has been determined to be impractical:

ASME Boiler and Pressure Vessel Code Section XI, 1980 Edition (with Addenda through Winter 1980) paragraph IWB-2420(b), which states that if flaw indications are evaluated in accordance with IWB-3122.4 and the component qualifies as acceptable for continued service, the areas containing such flaw indications shall be reexamined during the next three successive inspection periods.

During outage 9 as part of the 10 year Inservice Inspection Plan (as reported June 19, 1987 pursuant to IWA-6230), Reactor Coolant Pumps (RCP) 3A1 and 3A2 main flange studs and RCP 3B1 seal gland bolts received an ultrasonic examination. RCPs 3A1, 3A2, 3B1, and 3B2 flange surfaces and RCPs 3A1 and 3A2 main flange nuts, bushings, and washers received a visual examination. Reportable indications were found on RCPs 3A2 and 3B1 stud holes. An engineering evaluation has been performed and results indicate that damaged threads in stud holes are acceptable for continued operation of RCPs and 3A2 and 3B1. The results of the evaluation are based on an analysis which indicates that the RCPs are operable with 19 of 20 studs in place.

III. Basis for requesting relief:

The damage to the stud hole threads is not due to cracks in the base metal or pitting caused by boric acid corrosion but instead more characteristic of damage done during the process of removing the studs. The damage to the threads on the 3A2 RCP casing is typically seen after removing a stuck stud. The damage on 3B1 RCP casing is typical of damage due to stud handling during removal and installation.

In addition, past experience has shown that it is not practical to remove a single stud without loosening all studs. Loosening all studs is necessary in order to allow some float in the motor stand and motor such that the stud to be removed will not bind. However, this would require removal of the pump in order to replace the flexatalic gasket which would then result in 25 person rem of additional unnecessary radiation exposure per pump. As such, performance of IWB-2420 required reexaminations during the next three inspection periods has been determined to be impractical.

IV. Alternate Examination:

Each refueling outage the flange joint and surrounding area will be inspected for any accumulation of boron or visible stud degradation. If any degradation is noted, actual dimensional checks will be made of the studs. Additionally, when a RCP is disassembled for maintenance activities, all stud holes will be inspected as required by the Code. Stud holes will be examined during the third ten year interval as part of the Inservice Inspection program.

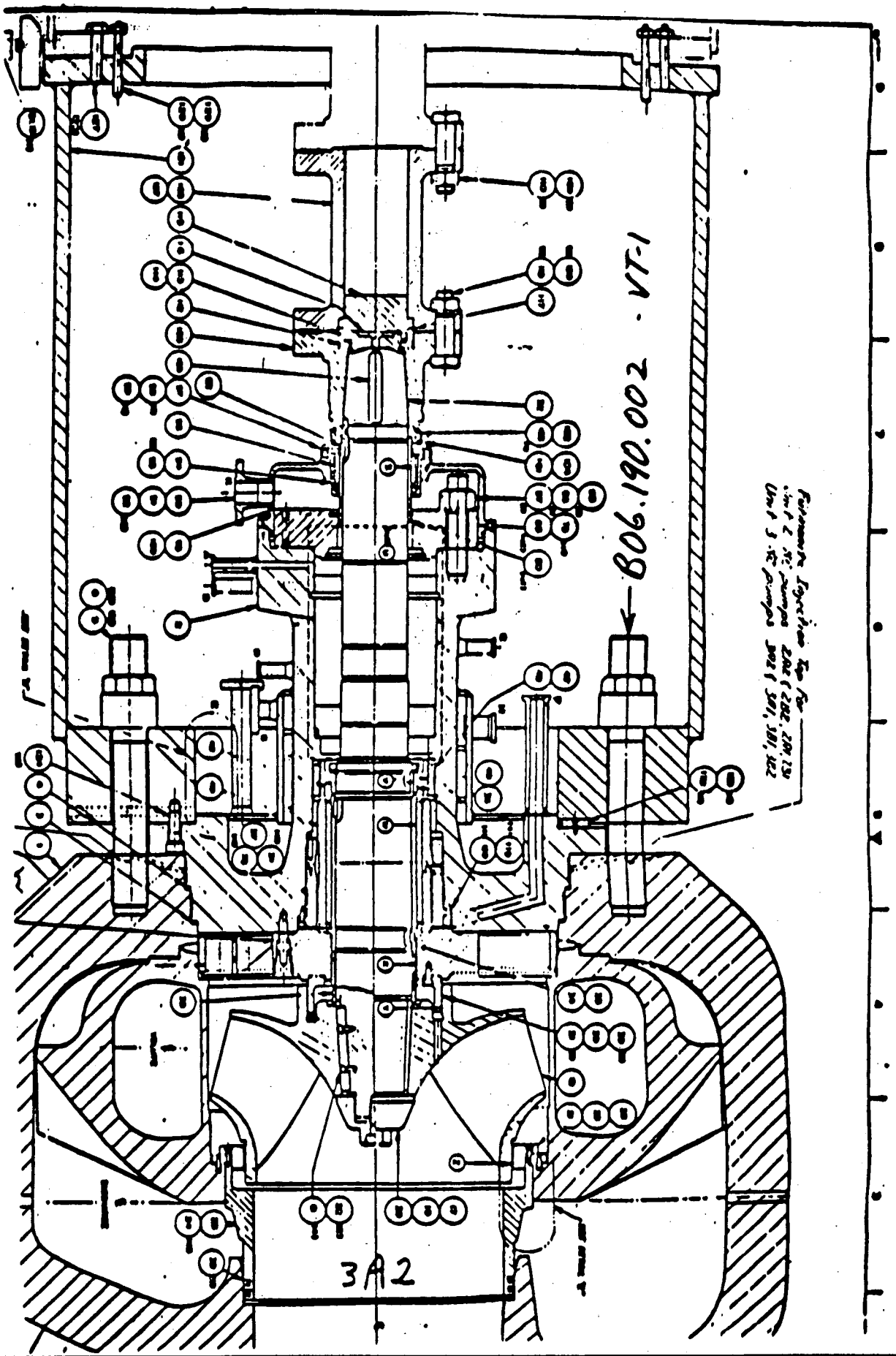
V. Acceptability Of Proposed Alternate Testing With Respect To The Level Of Quality And Safety As Well As Public Health And Safety:

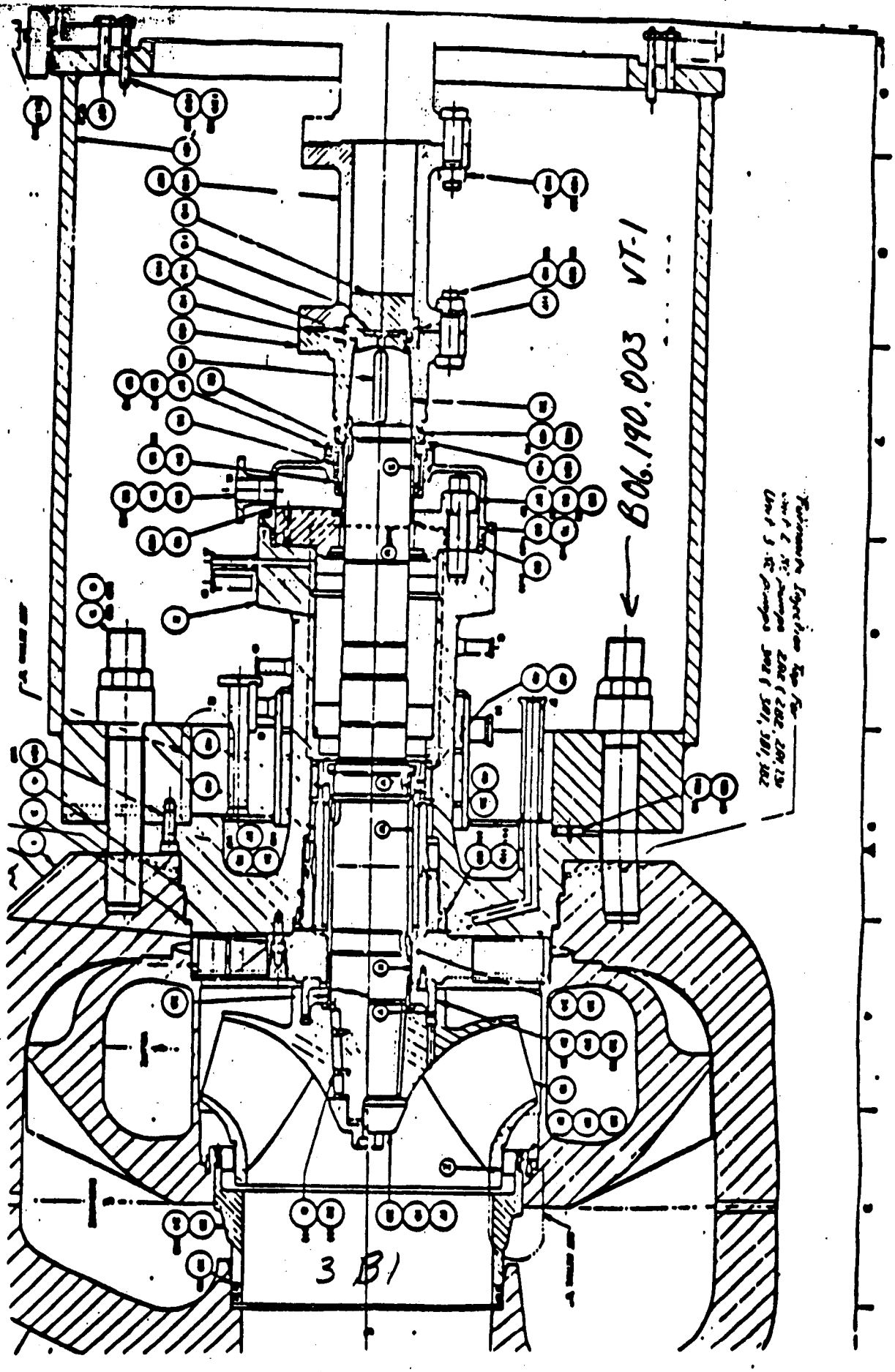
The proposed alternate examination will minimize the possibility of further damage to the stud hole threads during removal and replacement.

The IWB-2420 required reexaminations verify operability of the subject studs. Evaluations indicate that the RCPs are operable with 19 of 20 studs in place. The basis for the evaluation is that even if one of the twenty studs is removed, the remaining 19 studs will still remain below the code allowable stresses. As such, it is not necessary to take credit for the damaged stud hole. The alternate examinations assure that further stud degradation is detected and appropriate compensatory measures taken. Therefore, the proposed alternate examinations provide an acceptable level of quality and safety and will not endanger the health and safety of the public.

VI. Implementation Schedule:

Alternate examinations will commence during the Unit 3 end of cycle 11 refueling outage.


B06.190.002 · VT-1
3A2


B06.190.003 VT-1
3 B1

Duke Power Company
Oconee Nuclear Station
Second Ten Year Interval
Request for Relief 88-10

I. Component for which relief is requested:

Control Rod Drive Mechanism (CRDM) motor tube to nozzle pressure retaining bolting.

ISI Class 1 Duke Class A

II. Reference Code requirement that has been determined to be impractical:

ASME Boiler and Pressure Vessel Code Section XI, 1980 Edition (with Addenda through Winter 1980) paragraph IWB 2430(a) which requires that bolting showing indications exceeding the standards allowed by IWB-3000 require an additional number of components equivalent in number to that initially sampled be examined. The purpose of this Code requirement is to assure other CRDM bolting material is not degraded due to the same cause.

III. Basis for requesting relief:

During each refueling outage since December 1980 all CRDMs have been visually examined for evidence of RCS leakage. This inspection is documented as part of the Oconee response to Generic Letter 88-05 and IE Bulletin 82-02. During the Unit 3 end of cycle 11 refueling outage, 11 CRDMs exhibited evidence of RCS leakage (see attached figures). Each of these CRDMs were disassembled and examined pursuant to the requirements of Table IWB 2500 Item B7.80. This process involved approximately 24 person-rem of exposure.

Of the 11 disassembled CRDMs only 1/2 of 1 nut ring exceeded the criteria of IWB-3000. Damage to this nut ring was specifically due to corrosion as a result of exposure to RCS leakage. As a result of this indication, IWB 2430(a) requires an additional 11 CRDMs be examined.

The requirements of IWB 2430(a) have been determined to be impractical, because it may unnecessarily require disassembly and VT-1 examination of CRDM bolting material which was not affected by RCS leakage. Further, disassembly and VT-1 examination of the additional CRDMs will involve approximately 20-25 person-rem of radiation exposure to personnel, as well as unnecessary extension of the Unit 3 end of cycle 11 refueling outage by approximately 15 days.

Request for Relief 89-10, Page 2

IV. Alternate Examination:

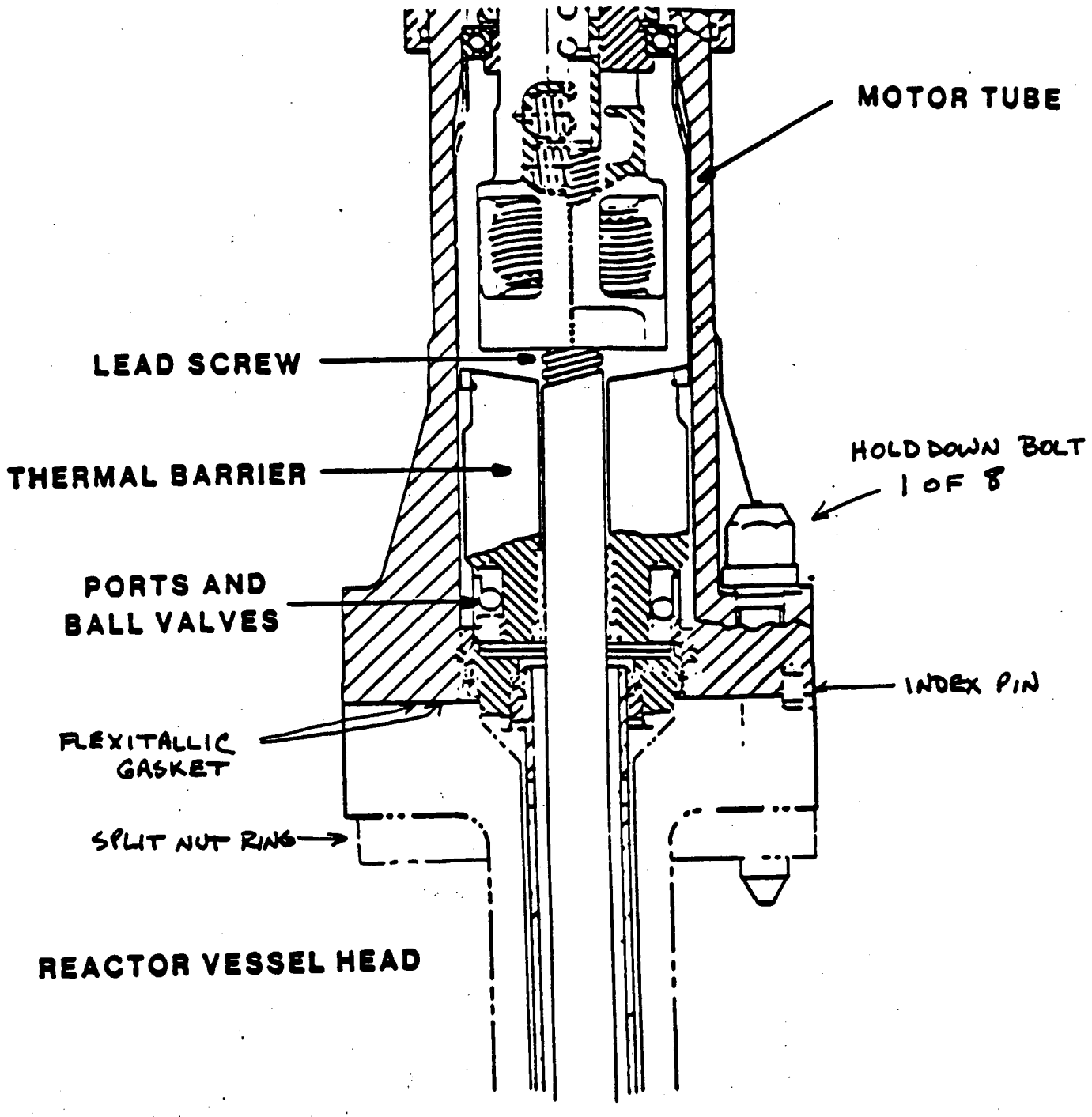
Each refueling outage all CRDM flanges will be visually examined per station procedures for evidence of leakage in compliance with the Oconee Nuclear Station response to NRC Generic Letter 85-05 and IE Bulletin 82-02. Corrective action will be based upon the results of those examinations, and will include replacement of all affected bolting. Inspection of any required additional samples of bolting material during CRDM maintenance not associated with flange leakage will be performed in accordance with the requirements of IWB-2430(a).

V. Acceptability of proposed alternate testing with respect to the level of quality and safety as well as public health and safety:

The Oconee Nuclear Station program for inspection of CRDMs for RCS leakage assures that CRDM bolting material exposed to RCS leakage will be replaced. Following CRDM disassembly for maintenance not associated with flange leakage, required additional samples will be examined in accordance with IWB-2430(a).

VI. Implementation schedule:

To be placed in effect for all Oconee units for the remainder of the interval commencing with the current Oconee Unit 3 end of cycle 11 refueling outage.



TITLE: CONTROL ROD DRIVE MECHANISM	NOTES: THERMAL BARRIER	ID NO. OC-PNS-CRD-10, DATE 12-3-86 REF: Diamond Power 7032551058- DRAWN: DMC/ARB APPR: RPB TRAINING USE ONLY

BABCOCK & WILCOX
NUCLEAR POWER GENERATION DIVISION
VOLUMETRIC EXAMINATION EVALUATION REPORT

BWNP-20525-1(11-81)

EVALUATION NUMBER: 893-004

METHOD: UT ✓ RT ____

FILE NO. OR REFERENCE:

WELD NO. OR IDENTIFICATION: STM. GEN 3A SHELL TO SHELL ID # 3SGA-WG8-1
APPLICABLE CODE YEAR AND ADDENDA: ASME SEC XI 1980 THRU WIN. '80 ADDENDA
DATE OF INITIAL EXAMINATION: 19 NOV '89 RE-EXAMINATION: ____
REPORTABLE INDICATION NUMBER(S): 200
COMMENTS: RE-EXAM OF REPORTABLE IND. FOUND OUTAGE 6 1982

ORIGINATOR: Howard Stoppelmann LEVEL: II DATE: 27 NOV '89

PRELIMINARY DISPOSITION

ACCEPTANCE STANDARD: ~~ASME SECT XI~~ ASME Sect XI 1980 thru Win80 Add

COMMENTS: INDICATION 200 is same indication revealed during ~~Indication~~ Indications June 1984 Outage. Indication was compared to June 1984 results and indicate NO significant changes. Acceptance of June 1984 is based on FRACTURE ANALYSIS Report #32-1135539-00. Based on examination results this indication is acceptable.

☒ ACCEPTABLE INDICATION NUMBER(S) 200
☐ REJECTABLE INDICATION NUMBER(S) ____
LEVEL III: George R. Stromer with VT DATE: 12-7-89

FRACTURE MECHANICS ANALYSIS ☐ YES ☒ NO DOCUMENT NUMBER ____

FINAL DISPOSITION

COMMENTS: As Noted above

RFC/SAI HSB 12-8-89

☑ ACCEPTABLE INDICATION NUMBER(S) 200
☐ REJECTABLE INDICATION NUMBER(S) ____
LEVEL III: George R. Stromer LOTS DATE: 12-7-89

FIGURE NO. C01.010.001

Babcock & Wilcox
A McDermott company

VOLUMETRIC TEST DATA

CUSTOMER: DUKE POWER CO. OCONEE UNIT III	CONTRACT NO.: 702-2034	COMPONENT: STEAM GEN
DESCRIPTION: GEN. A SHELL TO SHELL PC 1 TO 2		THERMOMETER: OCRA 222
I.D. NO.: 35GA-WG8-1	PROCEDURE: ISI 130 Rev 24	MATERIAL: C.S.
THICKNESS: 4.188	TEST SURF.: OD	
NO. POSITIONS: 39	DISTANCE: 12.0"	NO. I REFERENCE: 20
BEAM DIRECTION: ☐ LONG ☑ SHEAR	LIMITED EXAM: ☑ NO ☑ YES ?	
EXAMINER: J.D. Bibb	I.D. NO.: B9449	LEVEL: II
EXAMINER: D.C. Robinson	I.D. NO.: R-9615	LEVEL: II

NOTES: LIMITED AREAS RECORDED ON ORIGINAL DATA OUTAGE 6.

	CAL SHEET: 893024	CAL SHEET: 893025	CAL SHEET:	CAL SHEET:
ANGLE:	0°	45°		
TIME START:	1330 HR.	1200 HR.	HR.	HR.
TIME STOP:	1345 HR.	1240 HR.	N/A HR.	N/A HR.
PART TEMP.:	76 °F	76 °F	°F	°F
DATE:	11-18-89	11-19-89		

CAL BLK: 40399 39 dB 11-18-89

DWG. NO.: ISI OCN3-003

FCA(S): ~~N/A~~ MK CAT-89-006

WELD INFORMATION @ 0° THICKNESS

SURFACE NO. 2		SURFACE NO. 1
	NTH: .05	
	WD: 3.0	
Shell	℄: 4.800	Shell
BM: 4.500	MIN: 4.700	BM: 7.00
HAZ: 4.500	MAX: 4.900	HAZ: N/A

1ST SCAN	N/A	60° REQUIRED	N/A
2ND SCAN		60° NOT REQUIRED	

LOCATION NO(S)	POSITION OR PART ITEM A	POSITION OR PART ITEM B	ANGLE (DEGREES)	SURFACE	BEAM DIRECTION	STATUS	LAM MAX. AMP % DAC	LAM DEPTH (INS)	LGTH 20%	WDTH 50% / HMA	WDTH 100%	CRYSTAL DISTANCE FROM (INCHES) A	CRYSTAL DISTANCE FROM (INCHES) B	CRYSTAL DISTANCE FROM (INCHES) 1	CRYSTAL DISTANCE FROM (INCHES) 2	THROUGH WALL DIMENSION MINIMUM DEPTH	MINIMUM POSITION (INCHES) 1 A	MINIMUM POSITION (INCHES) 2 B	THROUGH WALL DIMENSION MAXIMUM DEPTH	MAXIMUM POSITION (INCHES) 1 A	MAXIMUM POSITION (INCHES) 2 B	DAMPS	REMARKS
									LENGTH														
200	17 TO 18		45°	2	1	SPF	159	4.5			1.0	5.6		4.0								No	MAX-AMP
							100	4.5				5.1		4.0									100% EP
							100	4.4				6.1		4.0									100% EP
200	17 TO 18		45°	2	1	SEP	251	4.5		3.1		5.6		3.9		4.3	3.6		4.6	4.2		No	MAX-AMP
							50	4.5				4.7		3.8									50% EP
							60	4.4				7.8		4.0									50% EP
							125	4.5				5.6		3.9		4.3	3.5		4.7	4.3			HMA
							126	4.5				6.5		3.9		4.3	3.5		4.7	4.3			HMA
							125	4.5				7.4		3.9		4.3	3.7		4.6	4.2			HMA
	360		45	NO		OTHER	Recordable		Indications			Found											
	360		0	NO		Recordable			Indications														

RFF Hall 8 HSP 8-8-89

REVIEWED BY: Howard Stoppelmann LEVEL: II DATE: 27 NOV 89 FIGURE NO.: C01.010.001

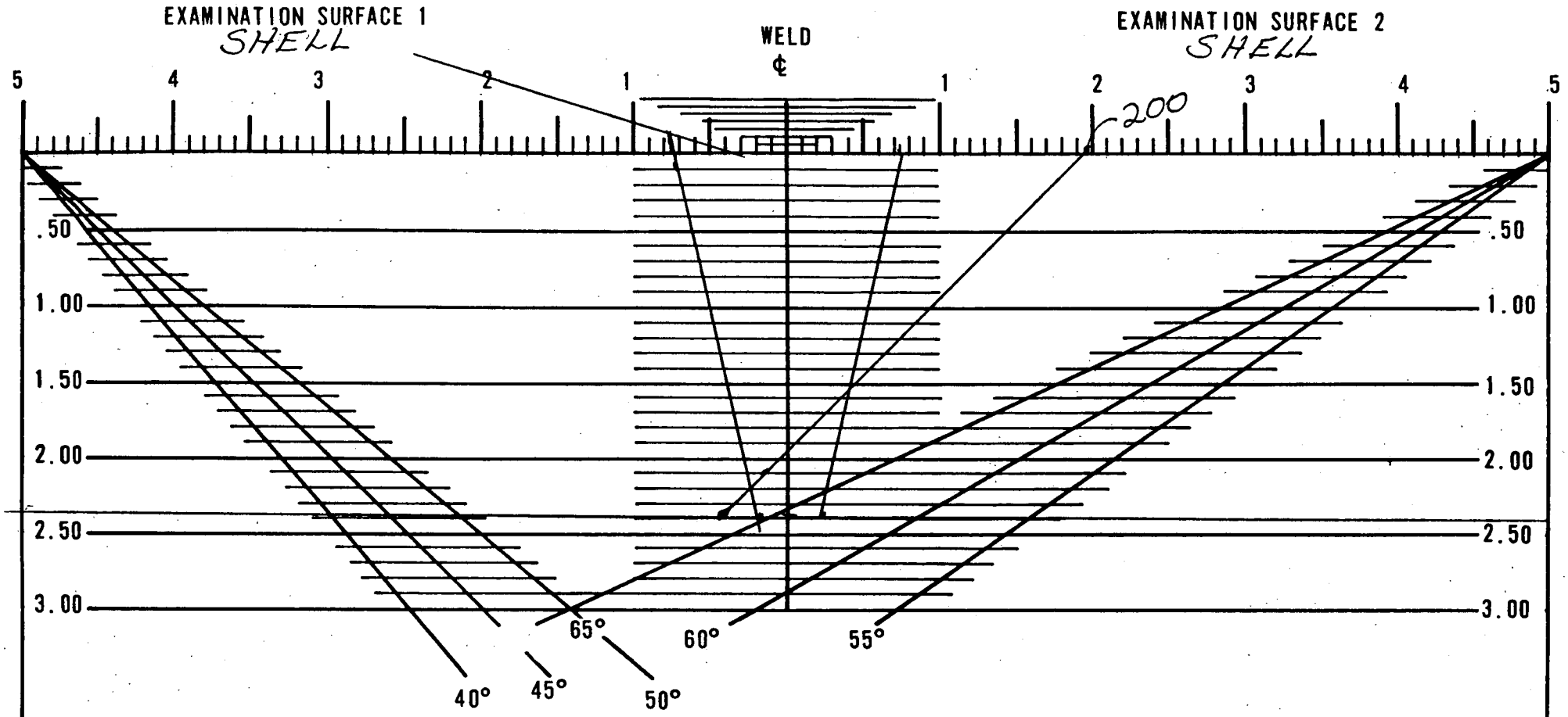
N.D.E.	0 DEG.	45 DEG.	60 DEG.	OTHER
IND NOS.	1 TO 199	200 TO 399	400 TO 599	600 TO 799

E.R. REQUIRED: ☑ YES ☐ NO E.R. NUMBER: 893-004

BABCOCK & WILCOX
UTILITY POWER GENERATION DIVISION

BWNP 20[illegible]1-1(5-83)

INDICATION PLOT SHEET



COMMENTS: SCALE ½" = 1"

☐ GEOMETRIC ☐ REPORTABLE

CUSTOMER:	DUKE POWER OCONEE 3
PROJECT NO:	702-2034-32-01
WELD NO:	3SGA-WG8-1
ANALYST:	
SNT LEVEL:	
DATE:	
FIGURE NO:	C01.010.001

CALCULATION DATA/TRANSMITTAL SHEET

DOCUMENT IDENTIFIER

CALC. 32 - 1135539 - 00

TRANS. 86 - _____ - _____

TYPE: ___ RESEARCH & DEVELOPMENT ___ SAFETY ANALYSIS REPORT ___ NUC. SERV. INPUT ___ DESIGN RQMT. ✓ DESIGN VERIF. ___ OTHER

TITLE STEAM GEN. LEFM FLAW EVAL. UPPER SHELL TO SHELL (WELD 3 SGA-WG 8-1)

PREPARED BY W. J. DeCoursey WJdC REVIEWED BY W. H. Heidt

TITLE Tech. Spec. DATE 8/3/82 TITLE Principal Engr DATE 8/8/82

PURPOSE: To determine the acceptability of a MAT'L flaw located in 3 SGA-WG 8-1 weld and permit plant to remain in operation without repairing flaw.

SUMMARY OF RESULTS (INCLUDE DOC. ID'S OF PREVIOUS TRANSMITTALS & SOURCE CALCULATIONAL PACKAGES FOR THIS TRANSMITTAL)

See Summary of Results pg. 2.

DISTRIBUTION

See D.R.H.

PURPOSE AND METHOD OF EVALUATION

- THE PURPOSE OF THIS CALCULATION IS TO DETERMINE THE ACCEPTABILITY OF THE REPORTED STEAM GENERATOR FLAW AS REPORTED IN EVALUATION REPORT (REF. 2) USING LINEAR ELASTIC FRACTURE MECHANICS METHODS.

- THE FLAW EVALUATION IS PERFORMED IN ACCORDANCE WITH THE PROCEDURES OF REF. 1, APPENDIX A AND THE ACCEPTANCE CRITERION OF REF. 3, STRESS INTENSITY FACTOR METHOD.

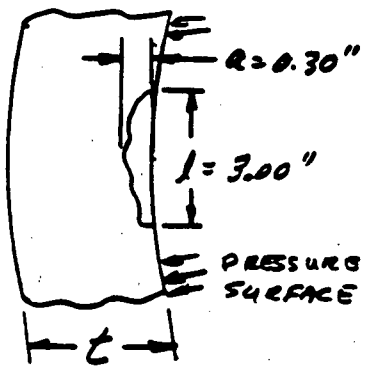
- **RESULTS**

FLAW 200 IS ACCEPTABLE PER LEFM METHODS AS:

$48.8 > 3.16$ = ACCEPTANCE CRITERIA.

SEE PAGE 5

SURFACE PLANAR FLAW



a = 0.30"
l = 3.00"
t = 4.188" the stress analysis used 4.188 whereas the ISI measured t = 4.50. Since 4.188 is less than 4.50, 4.188 will be used in the LEFM calc's & will be conservative.

STRESSES: FROM FIG. 1

1) HEAT UP: $\sigma_M = 27.0$ KSI, $\sigma_B = -31.1$ KSI
$\sigma_M + \sigma_B = -4.1$ KSI
$27.0 + \sigma_B = -4.1$ $\sigma_B = -31.1$ KSI

2) COOLDOWN: $\sigma_M = -8.0$ KSI, $\sigma_B = 4.6$ KSI
$\sigma_M + \sigma_B = -3.45$ KSI
$-8.0 + \sigma_B = -3.45$ $\sigma_B = 4.55$ KSI

- $a/l = 0.30/3.0 = a/l = 0.1$
- $a/t = 0.30/4.188 = a/t = 0.072$
- $\frac{\sigma_M + \sigma_b}{\sigma_Y} = \frac{27 + (-31.1)}{38.0} = -0.11$ OR $\frac{-8.0 + 4.6}{38} = 0.09$ $\frac{\sigma_M + \sigma_b}{\sigma_Y}$ use 0.3 conservative
- $Q = 1.10$
- $M_m = 1.12$
- $M_b = 1.0$

PREPARED BY	WJA	DATE 8/2/82	DOC. NO. 32-1135539-00
REVIEWED BY	WM	DATE 8/5/82	PAGE NO. 3

- DETERMINE K_I for HEATUP & COOLDOWN conditions AS THIS produces the largest stress reversals WHICH will yield the MAX. STRESS DIFFERENCES

1) $K_I^{HU.} = \left[M_m \sigma_m + M_b \sigma_b\right]\sqrt{\frac{\pi}{Q}}\sqrt{a_i}$

$\left[(1.12)(27.0\ KSI) + (1.0)(-31.1\ KSI)\right]\sqrt{\frac{\pi}{1.10}}\sqrt{a_i}$

$\left[(30.24) + (-31.1\ KSI)\right] 1.69\sqrt{a_i}$

$K_I^{HU} = -1.4534\ KSI\sqrt{a_i}$

2) $K_I^{C.D.} = \left[(1.12)(-8.0) + (1.0)(4.6)\right] 1.69\sqrt{a_i}$

$\left[-4.36\ KSI\right] 1.69\sqrt{a_i}$

$K_I^{CO} = -7.3684\ KSI\sqrt{a_i}$

$\Delta K_I = \left[-1.4534 + (-7.3684)\ KSI\right]\sqrt{a_i}$ MAX $\Delta = 0$ to 7.36

$\Delta K_I = 7.4\ KSI\sqrt{a_i}$

- DETERMINE - CRACK PROPAGATION:

$\frac{da}{dn} = C_o \Delta K_I^N = (0.3795 \times 10^{-9}) \Delta K_I^{3.726}$

WHICH INTEGRATES TO:

$a_f = \left[a_i^{-0.863} - \left[0.863\,(3.795 \times 10^{-9})(7.4)^{3.726}(360)\right]\right]^{-1.1587}$ $= a_f = 0.30004$ inches

$a_i = 0.30$ in.

$\Delta K_I = 7.4\ KSI\sqrt{0.30004\ in.}$

- CHECK ASSUME VALUES M_m & M_b

$\frac{0.30004}{4.188} = 0.072 \leq 0.072$ ok

PREPARED BY	ZHD	DATE 8/2/82	DOC. NO. 32-1135539-02
REVIEWED BY	[illegible]	DATE 8/5/82	PAGE NO. 4

- ACCEPTANCE CRITERIA:

REF. 1, IWB-3600(a) PROVIDES AN ACCEPTANCE CRITERIA BASED ON FLAW SIZE.
HOWEVER, AN ALTERNATE ACCEPTANCE CRITERIA BASE ON STRESS INTENSITY FACTOR IS GIVEN IN A.S.M.E. LETTER DATED JUNE 11, 1974 (ASME FILE NO. BC-74-188) AND STATES:

$K_{IA} > \sqrt{10}\ K_I$ FOR NORMAL AND UPSET CONDITIONS.

$K_{IC} > \sqrt{2}\ K_I$ FOR EMERGENCY AND FAULTED CONDITIONS.

FOR SIMPLIFICATION OF ANALYSIS:

K_{IA} AND K_{IC} = 200 KSI $\sqrt{\text{IN.}}$ AS THE UPPER LIMIT.*

$K_{ID} > \sqrt{10}\ K_I$ OR $\frac{K_{IA}}{K_I} > 3.16$

THEREFORE IF $K_{IA} = \Delta K_I \sqrt{a_f}$ = 7.4 KSI $\sqrt{0.30004\ \text{IN.}}$

$K_{IA} = 4.1$ KSI $\sqrt{\text{IN.}}$

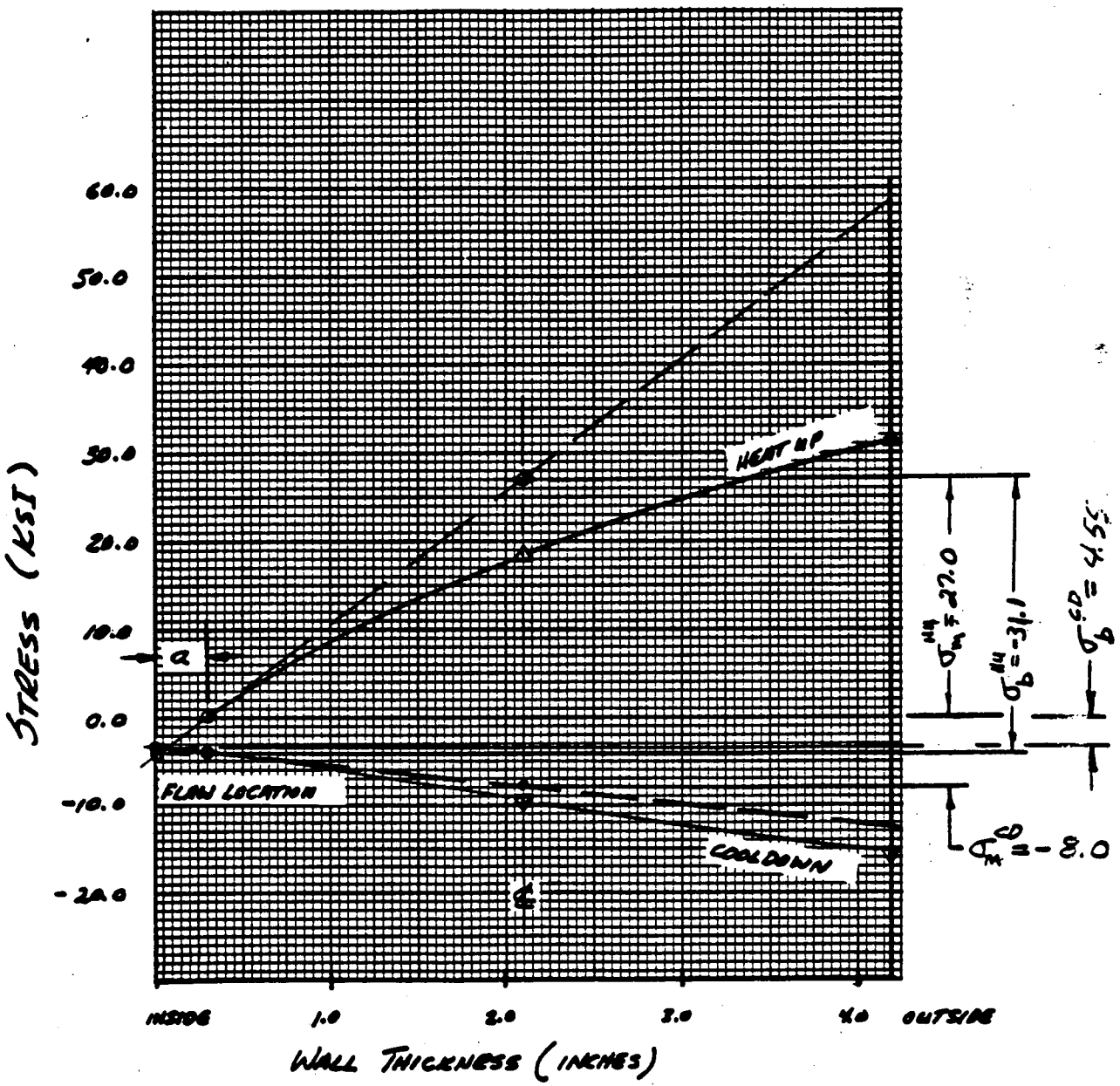
THEN: $\frac{K_{IA}}{K_I} = \frac{200}{4.1} = 48.78$

AND

48.8 > 3.16 THEREFORE THE FLAW IS ACCEPTABLE

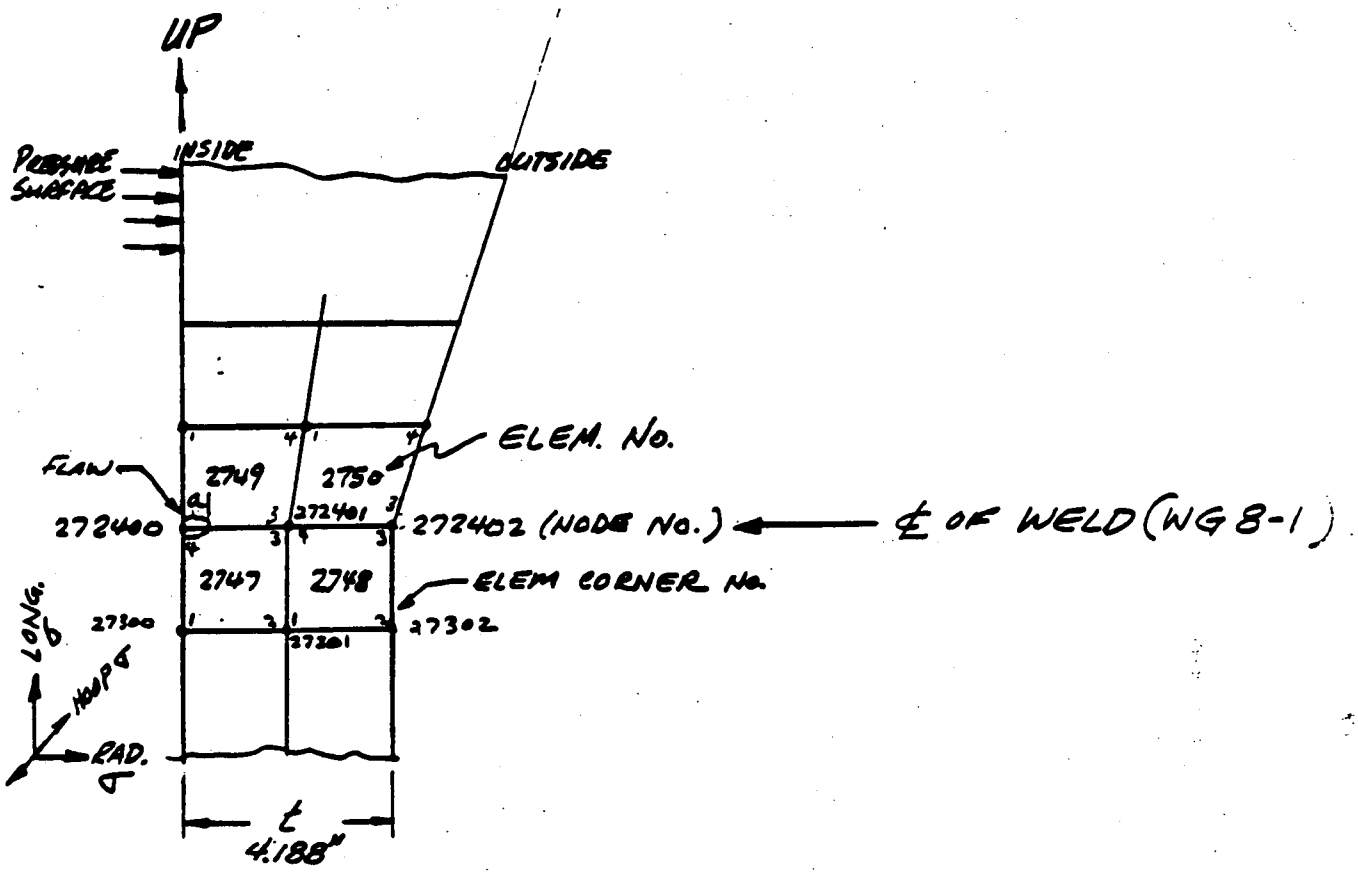
* NOTE, THIS ASSUMES AN $RT_{NDT_{INITIAL}} = 20^\circ F$ AND $T_{FINAL} = 200^\circ F$
MAX. COOLDOWN STRESS OCCURS AT ~ T = 250°F, THEREFORE 200 KSI $\sqrt{\text{in}}$ is ok.

NOTE: THIS FIGURE IS A PLOT REPRESENTING THE STRESS DISTRIBUTION ACROSS THE WALL THICKNESS AS SUMMARIZED ON PAGE 7, AND THEN PLOTTING THE SECT. XI EQUIV. STRESS CALCULATION TO DETERMINE σ_m and σ_b.



STRESS DISTRIBUTION & EQUIVALENT LINEARIZED STRESS

FIG. 1



• TABLE of STRESSES FOR THE LOCATION AT THE FLAW.
THE HIGHER STRESSED ELEMENTS WILL BE USED FOR LEFM EVALUATIO

NODAL STRESS (PSI) / CONDITION	INSIDE	MIDPLANE		OUTSIDE
	ELEM 2747	2747	2748	2748
	NODE 272400	NODE 272401	NODE 272401	NODE 272402
HEAT UP	-4.06×10^{3}	1.84×10^{4}	1.45×10^{4}	3.14×10^{4}
COOLDOWN	-3.45×10^{3}	-9.66×10^{3}	-8.12×10^{3}	-1.56×10^{4}
	ELEM 2749	2749	2750	2750
	NODE 272400	NODE 272401	NODE 272401	NODE 272402
HEAT UP	-2.36×10^{3}	1.80×10^{4}	1.42×10^{4}	2.07×10^{4}
COOLDOWN	-4.02×10^{3}	-8.63×10^{3}	-7.14×10^{3}	-8.51×10^{3}

} THESE VALUES ARE PLOTTED ON FIG. 1 FOR THE ACROSS THE WALL STRESS DISTR

NOTE: THESE STRESSES ARE FROM REF. 4
COMPUTER RUNS: HEATUP = AAWQ4QC.
COOLDOWN = AAWQKZQ.
} MICROFICHE OF THESE RUNS ARE NOT INCLUDED.

REFERENCES

1.0 ASME Boiler & Pressure Vessel Code, Section XI and Appendix A, 1977 Ed.

2.0 B&W Co. - NPGD - Volumetric Exam. Evaluation Report 82-008, File No. 0443-A.065, Contract 599-0443, I.D. Weld No. 3SGA-W[illegible]

3.0 ASME letter dated June 11, 1978 (ASME File No. BC-74-188).

4.0 B&W Calc. Package No. 32-1134568-00, Titled: OTSG Stresse[illegible]

11.0 Class 1 and 2 Repairs and Replacements

As required by ASME Section XI, 1980 Edition, a record of the Class 1 and 2 Repairs and Replacements for work performed from September 22, 1988 to December 18, 1989 is provided and is included in this section of the report. The individual work request documents are on file at the Oconee Nuclear Station.

REPAIRS/REPLACEMENT LOG

ASME SECTION XI - 1980

OCONEE NUCLEAR STATION

Interval covered: From: 09-22-88 To: 12-18-89

NOTE: (1) Unit #3 Refueling outage #11 Start-up Leak Test *Indeterminate from Work Request Review

Prepared By: QA Technical Support Date: 09-22-88/12-18-89

Reviewed By: T J Coleman Date: 1-8-90

Transmitted to ISI Supervisor By: T J Coleman Date: 1-8-90

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
54636G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 12 A OTSG
54656G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 32 A OTSG
54634G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 10 A OTSG
54633G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 9 A OTSG
54638G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 14 A OTSG
54637G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 13 A OTSG
54619G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 1 A OTSG
54623G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 4 A OTSG
54628G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 5 A OTSG
54624G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 6 A OTSG
54625G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 7 A OTSG
54631G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 8 A OTSG
54621G	3	B	REPLACED BOLGING MAIN FDW NOZZLE 3 A OTSG
54655G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 31 A OTSG
54635G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 11 A OTSG
54639G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 15 A OTSG

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
54620G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 2 A OTSG
17524C	3	B	REPLACED BOLTING VALVE 3 MP-101
54606G	3	B	REPLACED GAMMA PLUG 10Z, 30" PIPE
54610G	3	B	REPLACED GAMMA PLUG 19Z, 34" PIPE
14485C	3	A	REPLACED BOLTING ON ORIFICE UPSTREAM OF 3MP-334
54611G	3	B	REPLACED GAMMA PLUG 9ZA, 24" PIPE
50446H	3	B	REPLACED GAMMA PLUG 16ZB, 36" PIPE
54603G	3	B	REPLACED GAMMA PLUG 38Z, 24" PIPE
54664G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 8 B OTSG
54677G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 30 B OTSG
50363H	3	B	REPLACED BOLTING MAIN FDW NOZZLE 31 B OTSG
54700G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 29 B OTSG
54680G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 23 B OTSG
54673G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 17 B OTSG
54665G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 9 B OTSG
54666G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 10 B OTSG

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
546750	3	B	REPLACED BOLTING MAIN FDW NOZZLE 19 B OTSG
546760	3	B	REPLACED BOLTING MAIN FDW NOZZLE 20 B OTSG
546740	3	B	REPLACED BOLTING MAIN FDW NOZZLE 18 B OTSG
546810	3	B	REPLACED BOLTING MAIN FDW NOZZLE 24 B OTSG
546720	3	B	REPLACED BOLTING MAIN FDW NOZZLE 16 B OTSG
546570	3	B	REPLACED BOLTING MAIN FDW NOZZLE 1 B OTSG
546710	3	B	REPLACED BOLTING MAIN FDW NOZZLE 15 B OTSG
546520	3	B	REPLACED BOLTING MAIN FDW NOZZLE 28 A OTSG
546680	3	B	REPLACED BOLTING MAIN FDW NOZZLE 12 B OTSG
546600	3	B	REPLACED BOLTING MAIN FDW NOZZLE 4 B OTSG
546820	3	B	REPLACED BOLTING MAIN FDW NOZZLE 25 B OTSG
546440	3	B	REPLACED BOLTING MAIN FDW NOZZLE 20 A OTSG
546430	3	B	REPLACED BOLTING MAIN FDW NOZZLE 19 A OTSG
546420	3	B	REPLACED BOLTING MAIN FDW NOZZLE 18 A OTSG
546400	3	B	REPLACED BOLTING MAIN FDW NOZZLE 16 A OTSG
546590	3	B	REPLACED BOLTING MAIN FDW NOZZLE 3 B OTSG

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
54699G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 28 B OTSG
54670G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 14 B OTSG
54667G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 11 B OTSG
54663G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 7 B OTSG
54673G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 21 B OTSG
54679G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 22 B OTSG
50364H	3	B	REPLACED BOLTING MAIN FDW NOZZLE 32 B OTSG
54604G	3	B	REPLACED GAMMA PLUG 4ZG, 36" PIPE
06391C	3	B	REPLACED STUDS, NUTS, STEM, & DISC 2", 3LP-96
051496H	3	A	REPLACED BOLTING CRDM #47
051497H	3	A	REPLACED BOLTING CRDM #54
51004H	3	B	REPLACED SPINDLE, 3MS-12, 6" VALVE
12890C	3	B	REPLACED SEAT RING & PLUG STEM ASSEMBLY, 3HP-31, 4" VALVE
57293A	3	A	REPLACED 3RC-67
054645G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 21 A OTSG
054646G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 22 A OTSG
054647G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 23 A OTSG

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
57065A	3	A	REPLACED BOLTING HIGH POINT VENT FLANGE CROM #31
054649G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 25 A OTSG
054654G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 30 A OTSG
054651G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 27 A OTSG
09069C	3	B	REFURBISHED 355H-22
054650G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 26 A OTSG
054641G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 17 A OTSG
054648G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 24 A OTSG
054653G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 29 A OTSG
054658G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 2 B OTSG
054697G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 26 B OTSG
054698G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 27 B OTSG
054669G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 13 B OTSG
054661G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 5 B OTSG
054662G	3	B	REPLACED BOLTING MAIN FDW NOZZLE 6 B OTSG
57294A	3	A	REPLACED 3RC-66
57003E	3	B	REPLACED BOLTING, WASHERS, PLUGS, RBCU "A" COILS

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
51495H	3	A	REPLACED BOLTING CROM #33 FLANGE
51577H	3	A	REPLACED BOLTING 3RC-4
57009E	3	B	REPLACED BOLTING RBCU B
57006E	3	B	REPLACED BOLTING RBCU C
17098C	3	A	3HP-153, 2 1/2", DISASSEMBLED & REPLACED GASKET, REASSEMBLED
57471D	3	A	REPLACED OUTLET FLANGE BOLTING 3RC-66
054433G	3	A	REPLACED SEAL GLAND BOLTING RCP 3A2
054430G	3	A	REPLACED SEAL GLAND BOLTING RCP 3A1
57080D	3	B	REPLACED BOLTING 3MS-104
57081D	3	B	REPLACED BOLTING 3MS-103
054432G	3	A	REPLACED SEAL GLAND BOLTING RCR-3B2
054431G	3	A	REPLACED SEAL GLAND BOLTING RCP 3B1
57050A	3	A	REPLACED BOLTING RCP SEALS 3B2
08976C	3	B	REPLACED BONNET BOLTING 3FDW-346
57082D	3	B	REPLACED BOLTING 3MS-102
13911C	3	B	REPLACED BOLTING 3HP-102
21980C	3	B	REPLACED BOLTING 3A RBS PUMP
21977C	3	B	REPLACED BOLTING 3B RBS PUMP
21979C	3	B	REPLACED BOLTING 3C LPI PUMP
053333I	3	B	REPLACED BOLTING 3 HP-101

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
21973C	3	B	REPLACED BOLTING ON FLANGES 3A LPI PUMP
21976C	3	B	REPLACED BOLTING ON FLANGES 3B LPI PUMP
051119I	3	B	REPLACED BOLTING 2A LPI COOLER
050474I	3	B	REPLACED BOLTING 3HP-102
052793H	3	B	REPLACED VALVE 3 FDW-99
54899H	3	B	REPLACED DISC 3MS-10
052799H	3	B	REPLACED VALVE 3 FDW-101
053353I	3	B	PLUGGED TUBES 3B LPI COOLER
053364I	3	A	PLUGGED TUBES 3B OTSG
053363I	3	A	PLUGGED TUBES 3A OTSG
053493I	3	B	REPLACED VALVE 3CS-12
051018H	3	B	REPLACED VALVE 3CC-24
051017H	3	B	REPLACED VALVE 3CC-29
95072C	3		REPAIR HANGER 3-53B-3-0-2435B-H24
95072C	3		REPAIR HANGER 14B-0-2479A-H11E
95072C	3		REPAIR HANGER 14B-0-2480A-H22A
95072C	3		REPAIR HANGER 14B-0-2480A-H22B
95072C	3		REPAIR HANGER 14B-0-2480A-H22D
95072C	3		REPAIR HANGER 14B-0-2480A-H22E
95072C	3		REPAIR HANGER 14B-0-2480A-H6A
95072C	3		REPAIR HANGER 14B-0-2480A-H13A
95072C	3		REPAIR HANGER 14B-0-2480A-H14A
95072C	3		REMOVED HANGER 3-51B-3-0-2496G-H61

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
80084C	3		REPLACED SNUBBER-HANGER 3-01A-0-2401B-R5
53584I	3		REPOSITION SPRING CAN-HANGER 3-07A-0-2400A-H17
53585I	3		TIGHTENED LOOSE LOCK NUTS-HANGER 3-538-5-0-2436D-H44
53596I	3		REMOVED/REINSTALLED HANGER 3-53B-5-0-2436D-H91
51557I	3		REPLACED SNUBBER OIL RESERVOIR, HANGER 3-01A-1-1-0-2401B-R12
53586I	3		REPAIRED SNUBBER, HANGER 3-03A-1-0-2400A-H204
53586I	3		ADJUSTED PIPE CLAMP, HANGER 3-03A-1-0-2400A-H203
96961C	3		INSTALLED HANGER 3-14B-2510A-H4229
96961C	3		INSTALLED HANGER 3-14B-2510A-H4230
96961C	3		INSTALLED HANGER 3-14B-2510A-H4231
96961C	3		INSTALLED HANGER 3-14B-2510A-H4229
96961C	3		INSTALLED HANGER 3-14B-2510A-DE055
054250H	3		REPLACED 3/4 INCH ROD, HANGER 3-03A-2401A-DE011
053589I	3		TIGHTEN LOOSE NUT ON CLEVIS, HANGER 3-14B-24388-DJB-2603
053590I	3		TIGHTEN LOOSE NUT ON CLEVIS, HANGER 3-14B-6-0-24388-SR10
97514C	3		REPLACED U-BOLT, HANGER 3-51A-2439C-H5548

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
97514C	3		INSTALLED HANGER 3-48-2439C-H5591
97514C	3		INSTALLED HANGER 3-48-2439C-H5592
97514C	3		ADDED A WELD, HANGER 3-48-2439C-H5544
50696J	3		ADDED SHIMS, HANGER 3-03A-1-0-2400A-SR129
53583I	3		REPLACED ANGLE IRON, HANGER 3-03A-2401B-DE026
50678J	3		ADJUSTED COLD LOAD SETTING, HANGER 3-53B-S-0-2444-H18
50688J	3		TIGHTEN JAM NUT, HANGER 3-51A-0-2479A-H13B
50693J	3		REBUILT SNUBBER, HANGER 3-01A-0-2441-R2(B)
50686J	3		REBUILT SNUBBER, HANGER 3-01A-0-2441-R9(D)
50691J	3		REBUILT SNUBBER, HANGER 3-01A-0-2441-R9(C)
50692J	3		REBUILT SNUBBER, HANGER 3-01A-0-2441-R2(A)
50690J	3		REBUILT SNUBBER, HANGER 3-01A-0-2441-R9(B)
50689J	3		REBUILT SNUBBER, HANGER 3-01A-0-2441-R9(A)
53600I	3		REPLACED SNUBBER, HANGER 3-37-0-2401A-H7
50677J	3		REPLACED SNUBBER, HANGER 3-50-0-2479A-H12
50676J	3		REBUILT SNUBBER, HANGER 3-50-0-2480A-H10

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
979120	3		INSTALLED HANGER 3-02A-0-2403A-H3
979120	3		INSTALLED HANGER 3-02A-2403A-0E018
979120	3		INSTALLED HANGER 3-02A-2403A-0E017
979120	3		MODIFIED HANGER 3-08-1-0-2400A-H1
979120	3		INSTALLED HANGER 3-08-2400A-H4219
979120	3		MODIFIED HANGER 3-08-2401B-H18
979330	3		MODIFIED HANGER 3-03A-1-0-2439B-H56
969610	3		REMOVED HANGER 3-03A-2400A-H4221
969610	3		REMOVED HANGER 3-07A-6-0-2400A-H62
969610	3		MODIFIED HANGER 3-03A-2400A-H4223
969610	3		REPLACED U-BOLT, HANGER 3-03A-2400A-H4225
96961C	3		REPLACED U-BOLT, HANGER 3-03A-2400A-H4220
58491I	3		REMOVED/REINSTALLED HANGER 3-15-2437A-H5065
963910	3	B	REFURBISHED VALVE 3LP-96 TACK WELD BETWEEN DISC. & DISC. NUT
978500	3	B	PLACED TACK WELDS ON BLANK FLANGE ON GASEOUS WASTE SYS. AT HYDROGEN RECOMBINER CONNECTION.
970300	3	3	MAIN STEAM STOP VALVE 3-MS-104. THE TRAVEL MEASUREMENT WAS OUT OF TOLERANCE AFTER CAP REINSTALLATION MACHINED 070 OF

REPAIRS AND REPLACEMENT LOG
UNIT 3, RFO-11
ASME SECTION XI - 1980
OCONEE NUCLEAR STATION

WORK REQUEST #	UNIT	ASME	DESCRIPTION
570790	3	B	MAINSTREAM STOP VALVE 3-MS-105. THE TRAVEL MEASUREMENT WAS OUT OF TOLERANCE AFTER CAP REINSTALLATION MACHINED 020 OF OFF CAP.
92556C	3	B	CUT-OUT VALVE 3CS-12 AND ASSOCIATED PIPING REPLACED WITH 7 WELDS.
53327I	3	B	REPLACE 3FDW232 WITH DMV-568
53926I	3	B	REPLACE 3FDW239 WITH DMV-568
52793H	3	B	REPLACE 3FDW-99 WITH DMV-568
53598I	3	B	REPAIR TO WELD 3-53B-47-40AZ (REPAIRED DEFECTIVE WELD NOTED DURING PSI INSPECTION OF ITEM C03.040.055).
96050C	3	B	REPLACE 3FDW103 AND 3FDW104 GATE VALVES WITH 4" ANCHOR DARLING VALVES.
53493I	3	B	REPLACE 3CS12 WITH A 95-341
51018H	3	B	REPLACED VALVE 3CC-24.
51017H	3	B	REPLACED VALVE 3CC-20.
93278C	3	B	REPAIRED SEAL LEAK ON 3HP-283.
57250D	3	B	PLACED TACK WELDS ON BLANK FLANGE ON GASEOUS WASTE SYS. AT HYDROGEN RECOMBINER CONNECTION.
051733H	3	*	REPAIRED SR 3-03A-1-0-2400A-H253, REV. 3
051716H	3	*	REPAIRED 56-0-2478A-H15, REV. 02