

CATEGORY 1

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50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270
50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287

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SUBJECT: Forwards Relief Request 96-02, requesting relief from ASME Section XI 1989 edition to allow util to take credit for limited ultrasonic exams on SG primary side tubesheet-to-head welds.

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DUKE POWER

July 24, 1996

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Duke Power Company
Oconee Nuclear Station, Units 1, 2, and 3
Docket Nos. 50-269, -270, and -287
Third Ten Year Inservice Inspection Interval
Request for Relief No. 96-02

Pursuant to 10 CFR 50.55a, section (g) (4) (iii), attached is a Request for Relief from ASME Section XI, 1989 Edition. This request is to allow Duke Power to take credit for limited ultrasonic examinations on steam generator primary side tubesheet-to-head welds, letdown heat exchanger primary side nozzle-to-vessel welds, and the steam generator shell circumferential weld. During the examinations on the subject Unit 2 welds, the ultrasonic examination coverage did not meet the 90% examination coverage requirements of ASME Section XI. Achievement of greater than 90% examination coverage for the subject welds is impractical due to piping/vessel geometry, joint configuration, and interferences. All three Oconee units are being addressed by this Request for Relief per recommendations delineated in NRC Inspection Report 95-05 dated May 5, 1995.

If there are any questions or further information is needed you may contact D. A. Nix at (864) 885-3634.

Very truly yours,

J. W. Hampton
Site Vice President

Attachment

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PDR ADOCK 05000269
PDR

A047 1/1

U. S. Nuclear Regulatory Commission
July 24, 1996
Page 2

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Duke Power Company

Station Oconee Unit 1, 2 & 3

10-YEAR INTERVAL REQUEST FOR RELIEF NO. 96-02

I. System/Component(s) for Which Relief is Requested:

- a. Steam Generator (Primary Side) Tubesheet-To-Head Weld
2-SGA-WG58-1, Item Number B02.040.001
2-SGA-WG58-2, Item Number B02.040.002
- b. Heat Exchangers (Primary Side) Nozzle-To-Vessel Welds
2-LDCA-INLET-V1, Item Number B03.150.001
2-LDCA-OUTLET-V2, Item Number B03.150.002
- c. Pressure Retaining Welds In Pressure Vessels, Shell
Circumferential Welds
2-SGA-WG8-3, Item Number C01.010.002

II. Code Requirement:

Figure IWB-2500-6, Examination Category B-B, Pressure Retaining Welds Other Than Reactor Vessel, Note 4 "Includes essentially 100% of the weld length".

Figure IWB-2500-7, Examination Category B-D, Full Penetration Welds Of Nozzles In Vessels, Inspection Program B.

Figure IWC-2500-1, Examination Category C-A, Pressure Retaining Welds In Pressure Vessel, Note 1 "Includes essentially 100% of the weld length".

III. Code Requirement from which Relief is Requested:

Relief is requested from the requirement of examining essentially 100% of the weld length. The applicable code required is ASME Section V, Article 4, T-441.3.2, Scanning Requirements, 1989 Edition with no Addenda as modified by Code Case N-460. Due to part geometry and actual physical

barriers, obtaining at least 90% of the weld length as outlined in Code Case N-460 is not possible with existing ultrasonic techniques.

Code Case N-460 allows credit for full volume coverage if it can be shown that at least 90% of the required volume has been examined.

The specified Code requirements identified in Section 2 of this request require scanning of the examination volume(s) using three angle beams and a straight beam from both sides of the weld. When scanning for reflectors parallel to the weld, the angle beams shall be aimed at right angles to the weld axis, with the search unit(s) manipulated so that the ultrasonic beams pass through the entire volume of weld metal. The adjacent base metal in the examination volume must be completely scanned by both angle beams from both directions (any combination of two angle beams will satisfy the requirement).

When scanning for reflectors transverse to the weld, the angle beam search units shall be aimed parallel to the axis of longitudinal and circumferential welds. The search unit shall be manipulated so that the ultrasonic beams pass through all of the examination volume.

Scanning shall be done in two directions 180 degrees to each other to the extent possible. Areas blocked by geometric conditions shall be examined from at least one direction.

IV. Basis for Relief:

Steam Generator (Primary Side) Tubesheet-To-Head Welds Weld 2-SGA-WG58-1 and 2-SGA-WG58-2 (Item Numbers B02.040.001 and B02.040.002 respectively) were examined to the maximum extent practical using ultrasonic techniques in accordance with the requirements of ASME Section V, Article 4, and ASME Section XI, Appendix I, 1989 Edition. Reference Attachment A for drawing.

Weld 2-SGA-WG58-1 is limited to 72.5% coverage of the required volume because of Upper Tube Sheet geometry, i.e., taper.

Weld 2-SGA-WG58-2 is limited to 71% coverage of the required volume because of Lower Tube Sheet geometry, i.e., taper and support skirt interference.

Heat Exchangers (Primary Side) Nozzle-To-Vessel Welds 2-LDCA-INLET-V1 and 2-LDCA-OUTLET-V2 (Item Numbers B03.150.001 and B03.150.002 respectively) were examined to the maximum extent practical using ultrasonic techniques in accordance with the requirements of ASME Section V, Article 4, and ASME Section XI, Appendix I, 1989 Edition. Reference Attachment B for drawing.

Weld 2-LDCA-INLET-V1 is limited to 26.96% coverage of the required volume because of branch connection interference.

Weld 2-LDCA-OUTLET-V2 is limited to 26.96% coverage of the required volume because of branch connection interference.

Pressure Retaining Welds In Pressure Vessels, Shell Circumferential Weld 2-SGA-WG8-3 (Item Number C01.010.002) was examined to the maximum extent practical using ultrasonic techniques in accordance with the requirements of ASME Section V, Article 4, and ASME Section XI, Appendix I, 1989 Edition. Reference Attachment A for drawing.

This weld is limited to 64.5% coverage of the required volume because of shell geometry, i.e., taper.

All three units are being documented in this request for relief as outlined in NRC correspondence dated May 5, 1995 concerning NRC Inspection Report No. 50-269/95-05, 50-270/95-05, and 50-287.

For welds and components listed in this request for relief, all configurations, including interferences, are the same for Units 1 and 3. If for some reason the actual examination coverage of the welds referenced in this request for relief for Units 1 and 3 are less than those listed for Unit 2, additional requests for relief will be submitted on a case by case basis.

V. Alternate Examinations or Testing:

Duke Power company will continue to perform ultrasonic examination of all welds identified in Section 1 of this request (for all units) to the maximum extent practical, within the limits of original design and construction, in accordance with the requirements of ASME Section V, Article 4, and ASME Section XI, Appendix I, 1989 Edition, and Code Case N-460.

VI. Justification for the Granting of Relief:

Duke Power Company will continue to ultrasonically examine the welds, including inside radii, to the extent practical within the limits of original design and construction. This will provide reasonable assurance of weld/component integrity. Thus, an acceptable level of quality and safety will have been achieved and public health and safety will not be endangered by allowing relief from the aforementioned Code requirements.

VII. Implementation Schedule:

Unit 1, Refueling Outage 16

Unit 2, Refueling Outages 17 and 18

Unit 3, Refueling Outage 16

Evaluated By:

R. J. Rouse

Date

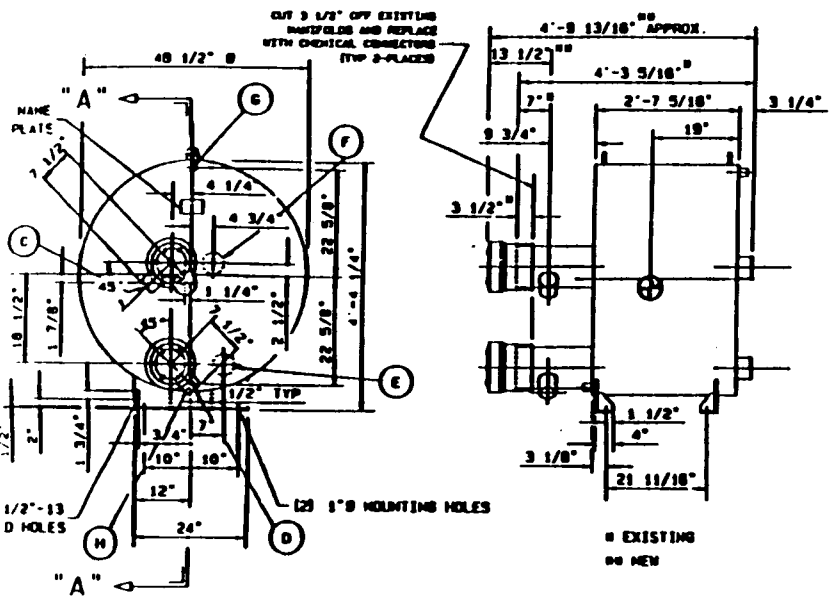
6/26/96

Reviewed By

J. J. Barlow

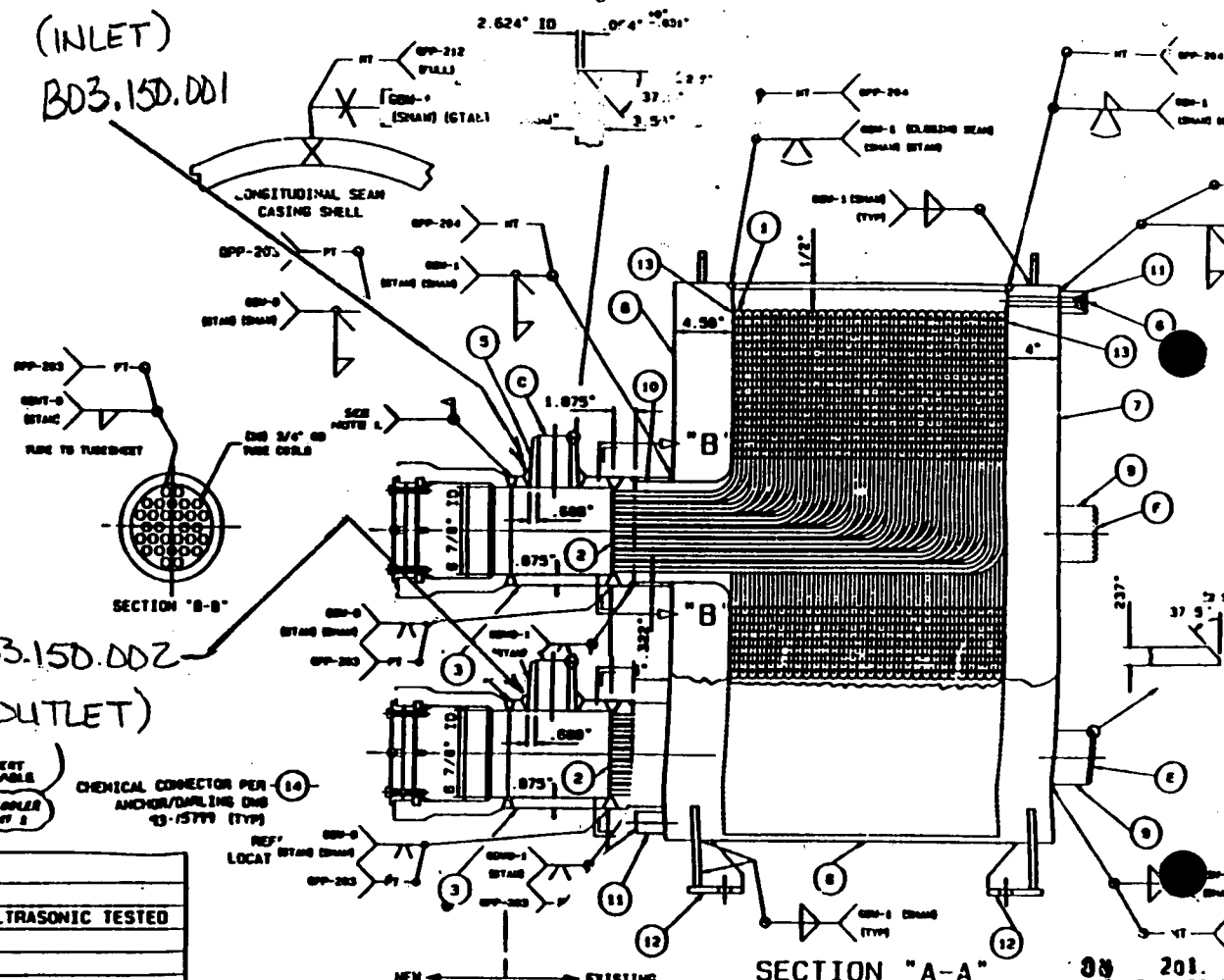
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6/26/96



(INLET)
B03.150.001

B03.150.002
(OUTLET)



-) TUBE SIDE INLET — 3" SCH. 160 (1.438")
 -) TUBE SIDE OUTLET — 3" SCH. 160 (1.438")
 -) SHELL SIDE INLET — 4" SCH. 40 (1.237")
 -) SHELL SIDE OUTLET — 4" SCH. 40 (1.237")
 -) SHELL SIDE VENT — 1" - 30000 SOCKET WELD
 -) SHELL SIDE DRAIN — 1" - 30000 SOCKET WELD
- UNIT PLAN
- NOTES:
1. U-GROOVE WELD WITH CONSUMABLE INSERT OR V-GROOVE WELD WITHOUT CONSUMABLE INSERT IS ACCEPTABLE.
2. FOR TUBE PLACING INFO. AND LETDOWN COILS DESIGNATION SEE CH-201-310, ATTACHMENT 2

MATERIAL LIST			
PART NAME	MATERIAL	SPEC.	REMARKS
TUBE COILS	T-316L S.S.	SA-213	.070 BNG, SML'S, ULTRASONIC TESTED
TUBE SHEET	T-316L S.S.	SA-240	PLATE
TUBE SIDE CHANNEL BODY	T-316L S.S.	SA-182	FORGED BAR
CHANNEL NOZZLE	T-316L S.S.	SA-182	FORGED BAR
CASING BASE PLATE	CARB. STEEL	SA-516-70	PLATE
CASING END PLATE	CARB. STEEL	SA-516-70	PLATE
CASING SHELL	CARB. STEEL	SA-516-70	PLATE
CASING NOZZLE PIPE	CARB. STEEL	SA-106-B	SEAMLESS PIPE
CASING PIPE TO TUBE SHEET	CARB. STEEL	SA-106-B	SEAMLESS PIPE
SOCKET WELD CPLG	FORGED STEEL	SA-105	
SUPPORTS	CARB. STEEL	SA-516-70	PLATE
FLOWSEAL	T-304 S.S.		
CHEMICAL CONNECTOR	MATERIALS PER ANCHOR/DARLING DWG. 93-15799(OM-201-3094)		

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O.A. CONDITION #1

SUPPORT STRESSES

LOAD CASE	Ox (PSI)	Oy (PSI)	ALLOWABLE (REF 2)
NORMAL OP.			65y=
NORMAL OP. + OBE			65y=
NORMAL OP. + SSF			85y=

TUBE SIDE INLET & OUTLET	Fa (LB)	Fsp (LB)
NORMAL OP.	842	842
NORMAL OP. + OBE	1684	1684
NORMAL OP. + SSE	2105	2105

SHELL SIDE INLET & OUTLET	Fa (LB)	Fsp (LB)
NORMAL OP.	634	634
NORMAL OP. + OBE	1268	1268
NORMAL OP. + SSE	1585	1585

MILL POWER SUPPLY CO.
NO. N46923-13

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