



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379

May 26, 1995

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

Gentlemen:

In the Matter of)	Docket Nos. 50-327
Tennessee Valley Authority)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - IN-SERVICE INSPECTION (ISI) PROGRAM
RELIEF REQUESTS TO CLOSE-OUT THE FIRST 10-YEAR ISI INTERVAL

Reference: NRC letter to TVA dated April 15, 1994, "First 10-Year Interval Inservice
Inspection Program, Sequoyah Nuclear Plant, Units 1 and 2 (TAC
Nos. M84707 and M84708)

The purpose of this letter is to submit the remaining relief requests that were identified in SQN's first 10-year ISI interval for both units. The subject relief requests deal with limitations for examining American Society of Mechanical Engineers Class 1 and 2 welds. Weld examination is limited due to design configuration and location of the components.

SQN's ISI program (through Revisions 20 for Unit 1 and 19 for Unit 2) were previously evaluated and found acceptable by NRC in the referenced letter. Enclosed are new relief requests that were identified subsequent to the reference letter (i.e., during the Cycle 6 refueling outages for both units). These relief requests comprise the final items to close-out SQN's first 10-year ISI interval. The relief requests are submitted in accordance with 10 CFR 50.55a(g)(5)(iii). TVA requests that NRC provide approval in accordance with 10 CFR 50.55a(g)(6)(i). NRC response is requested before the end of the first 10-year ISI interval for both units. The current schedule for the end of this interval is December 15, 1995.

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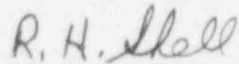
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Please direct questions concerning this issue to D. V. Goodin at (615) 843-7734.

Sincerely,



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Enclosure

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ENCLOSURE

SEQUOYAH NUCLEAR PLANT

UNITS 1 AND 2

REQUEST FOR RELIEF

FIRST 10-YEAR INTERVAL

REQUEST FOR RELIEF 1-ISI-19

Components: Pressure-Retaining Welds in Piping

Class: ASME Code Class 1 (Equivalent)

Section XI Edition: 1977 Edition Summer 1978 Addenda

Code Table: IWB-2500-1

Code Category: B-J

Code Item Number: B9.11

Code Requirement: 100 percent volumetric and surface examination of 4-inch nominal pipe size (NPS) and greater circumferential pipe welds.

Impractical Requirement: To achieve 100 percent ultrasonic examination of 4-inch NPS and greater circumferential pipe welds.

Basis for Relief: The ultrasonic examination of the piping welds are limited due to physical configuration and cast stainless steel material. The limitations are noted on the ultrasonic examination data sheet and Attachment A of this request for relief.

Proposed Alternative Examination: TVA performed a surface examination on essentially 100 percent of the weld and an ultrasonic examination on the accessible area of these welds.

Justification: The physical configuration at structural discontinuities (elbow to nozzle, elbow to pipe, pump to elbow, etc.) may create scan limitations preventing 100 percent code examination volume coverage. In addition the reactor coolant main loop piping is fabricated of cast stainless steel with a nominal wall thickness ranging from 2.69 inches nominal wall (NW) for cold leg, 2.84 inches NW for hot leg, and 2.99 inches NW for the crossover leg. Current ultrasonic capabilities are not sufficient to examine cast stainless materials of this thickness. Due to the physical configuration and material type, these piping welds were ultrasonically examined, but unable to achieve essentially 100 percent code coverage.

Conclusion: Based on the above justification, it is concluded that the code requirement for piping welds listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-19

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RC-02	29"	B-J	Cast Stainless Steel	CHM-2333-B	Elbow to S/G Nozzle	No Scan From Nozzle	25%	No Scan Due To S/G Nozzle Config.
RC-10	29"	B-J	Cast Stainless Steel	CHM-2333-B	S/G Noz Safe End To Elbow	No Scan From Nozzle	25%	No Scan Due To S/G Nozzle Config.
RC-11	31"	B-J	Cast Stainless Steel	CHM-2333-B	S/G Noz Safe End To Elbow	No Scan From Nozzle	14%	No Scan Due To S/G Nozzle Config.
RC-12	31"	B-J	Cast Stainless Steel	CHM-2333-B	Elbow To Pipe	Elbow Configuration	81%	CCSS Material Difficult to Examine
RC-18	29"	B-J	Cast Stainless Steel	CHM-2333-B	S/G Noz Safe End to	No Scan From Nozzle Elbow	25%	No Scan Due To S/G Nozzle Config.
RC-22	31"	B-J	Cast Stainless Steel	CHM-2333-B	RC Pump To Elbow	No Scan From RC Pump	80%	No Scan Due To Reactor Coolant Pump
RC-23	27.5"	B-J	Cast Stainless Steel	CHM-2333-B	RC Pump To pipe	No Scan From RC Pump	75%	No Scan Due To Reactor Coolant Pump

REQUEST FOR RELIEF 1-ISI-20

Components: Pressure-Retaining Welds in Piping

Class: ASME Code Class 1 (Equivalent)

Section XI Edition: 1977 Edition Summer 1978 Addenda

Code Table: IWB-2500-1

Code Category: B-J

Code Item Number: B9.31

Code Requirement: 100 percent volumetric and surface examination of branch connection welds greater than 2-inch NPS.

Impractical Requirement: To achieve 100 percent ultrasonic examination of piping branch connection welds greater than 2-inch NPS.

Basis for Relief: The ultrasonic examination of the branch connection welds are limited due to design configuration (i.e. the branch connection being "set on" the reactor coolant main loop piping), also the reactor coolant main loop piping is cast material. The limitations are noted on the ultrasonic examination data sheet and Attachment A of this request for relief.

Proposed Alternative Examination: TVA performed a surface examination on essentially 100 percent of the weld and an ultrasonic examination on accessible areas of these welds.

Justification: The configuration of the branch connection being set on the reactor coolant main loop piping fabricated of thick wall cast material is not amenable to ultrasonic examination. Due to the branch connection configuration and material type, current ultrasonic examination techniques are not sufficient to achieve essentially 100 percent code coverage of these branch connection piping welds.

Conclusion: Based on the above justification, it is concluded that the code requirement for the branch connection piping welds greater than 2-inch NPS listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-20

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
CVCW-3	3"	B-J	Stainless Steel	CHM-2335-C SH 2	3" SCH 160 Branch Conn. "Set on RxML 31" ID Pipe"	Scan From One Side Only	85%	Limited Due To Configuration And Cast Material
RCW-01	3"	B-J	Stainless Steel	CHM-2333-B SH 3	3" Sch 160 Branch Conn "Set on RxML 31" ID Pipe"	Scan From One Side Only	50%	Limited Due To Configuration And Cast Material
RCW-22	14"	B-J	Stainless Steel	CGN-2333-B SH-1	14" Sch 160 Branch Conn "Set on RxML 29" ID Pipe"	Scan From One Side Only	50%	Limited Due To Configuration And Cast Material
SIW-05	6"	B-J	Stainless Steel	CHM-2333-C SH 7	6" Sch 160 Branch Conn "Set on RxML 29" ID Pipe"	Scan From One Side Only	25%	Limited Due To Configuration And Cast Material
RHRW-02	6"	B-J	Stainless Steel	CHM-2336-C SH 6	6" Sch 160 Branch Conn "Set on RxML 27.5" ID Pipe"	Scan From One Side Only	80%	Limited Due To Configuration And Cast Material
RCW-14	4"	B-J	Stainless Steel	ISI-0369-C SH 2	4" Sch 120 Branch Conn "Set on RxML 27.5" ID Pipe"	Scan From One Side Only	75%	Limited Due To Configuration And Cast Material
SIW-08	10"	B-J	Stainless Steel	CHM-2333-C SH 9	10" Sch 140 Branch Conn "Set on RxML 27.5" ID Pipe"	Scan From One Side Only	75%	Limited Due to Configuration And Cast Material

NOTE: RxML - REACTOR COOLANT MAIN LOOP PIPE

REQUEST FOR RELIEF 1-ISI-21

Component:	Pressurizer Full Penetration Welds of Nozzles in Vessels
Class:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-D
Code Item Number:	B3.110
Code Requirement	100 percent volumetric examination of pressurizer nozzle-to-vessel full penetration welds.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the pressurizer nozzle-to-vessel welds.
Basis for Relief:	The ultrasonic examination of the pressurizer nozzle-to-vessel welds are limited due to configuration of the pressurizer nozzle. The limitations are noted on the ultrasonic examination data sheet and on Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed an ultrasonic examination on accessible areas of the nozzle-to-vessel welds from the vessel head side of the weld.
Justification:	The configuration of the pressurizer nozzle to head prevent ultrasonic scanning techniques from the nozzle side of the pressurizer nozzle to vessel weld.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the pressurizer nozzle-to-vessel welds listed on Attachment A of this request for relief is impractical. TVA's ultrasonic examination provides an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-21

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RCW-15	4"	B-D	Carbon Steel	ISI-0394-C	4" PZR Spray Nozzle To Vessel Top Head	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-16	6"	B-D	Carbon Steel	ISI-0394-C	6" PZR Safety Nozzle To Vessel Top Head	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-17	6"	B-D	Carbon Steel	ISI-0394-C	6" PZR Relief Nozzle To Vessel Top Head	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-18	6"	B-D	Carbon Steel	ISI-0394-C	6" PZR Safety Nozzle To Vessel Top Head	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-19	6"	B-D	Carbon Steel	ISI-0394-C	6" PZR Safety Nozzle To Vessel Top Head	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-21	14"	B-D	Carbon Steel	ISI-0394-C	14" PZR Surge Nozzle To Vessel Bottom Head	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration

REQUEST FOR RELIEF 1-ISI-22

Components: Pressurizer and Steam Generator (S/G) Pressure-Retaining Dissimilar Metal Welds

Class: ASME Code Class 1 (Equivalent)

Section XI Edition: 1977 Edition Summer 1978 Addenda

Code Table: IWB-2500-1

Code Category: B-F

Code Item Number: B5.20 and B5.30

Code Requirements: 100 percent volumetric and surface examination of pressure retaining dissimilar metal welds.

Impractical Requirement: To achieve 100 percent ultrasonic examination of the pressurizer and S/G nozzle-to-safe end welds.

Basis for Relief: The ultrasonic examination of the pressurizer nozzle-to-safe end welds and the S/G nozzle-to-safe end welds are limited due to the design configuration and cast stainless material. Due to the design configuration, no ultrasonic examination was performed from the nozzle side on each weld. Additional limitations were noted on the S/G safe end due to the cast stainless material. The limitations are noted on the ultrasonic examination data sheet and Attachment A of this request for relief.

Proposed Alternative Examination: TVA performed a surface examination on essentially 100 percent of the weld and an ultrasonic examination on accessible areas of the pressurizer and S/G nozzle-to-safe end welds.

Justification: The design configuration of the pressurizer and S/G nozzle-to-safe end weld and the cast stainless material limit the ultrasonic examinations. No ultrasonic examination was performed from the nozzle side of each weld and a limited ultrasonic examination was performed on the S/G safe ends due to cast stainless material.

Conclusion: Based on the above justification, it is concluded that the code requirements for pressurizer and S/G nozzle-to-safe end welds listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-22

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RC-02-SE	29"	B-F	Stainless Steel	ISI-0399-C	S/G Nozzle Safe End	No Scan From Nozzle And Cast Material	25%	No Scan Due To Nozzle Configuration
RC-03-SE	31"	B-F	Stainless Steel	ISI-0399-C	S/G Nozzle Safe End	No Scan From Nozzle And Cast Material	25%	No Scan Due To Nozzle Configuration
RC-10-SE	29"	B-F	Stainless Steel	ISI-0399-C	S/G Nozzle Safe End	No Scan From Nozzle And Cast Material	22%	No Scan Due To Nozzle Configuration
RC-11-SE	31"	B-F	Stainless Steel	ISI-0399-C	S/G Nozzle Safe End	No Scan From Nozzle And Cast Material	15%	No Scan Due to Nozzle Configuration
RC-18-SE	29"	B-F	Stainless Steel	ISI-0399-C	S/G Nozzle Safe End	No Scan From Nozzle And Cast Material	25%	No Scan Due To Nozzle Configuration
RC-19-SE	31"	B-F	Stainless Steel	ISI-0399-C	S/G Nozzle Safe End	No Scan From Nozzle And Cast Material	25%	No Scan Due To Nozzle Configuration
RC-26-SE	29"	B-F	Stainless Steel	ISI-0399-C	S/G Nozzle Safe End	No Scan From Nozzle And Cast Material	17%	No Scan Due To Nozzle Configuration
RC-27-SE	31"	B-F	Stainless Steel	ISI-0399-C	S/G Nozzle Safe End	No Scan From Nozzle And Cast Material	12%	No Scan Due To Nozzle Configuration
RCW-24-SE	4"	B-F	Stainless/ Carbon Steel	ISI-0394-C	4" PZR Spray Nozzle Safe End	No Scan From Nozzle	50%	No Scan Due To Nozzle Configuration

REQUEST FOR RELIEF 1-ISI-22
(CONTINUED)

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RCW-27-SE	6"	B-F	Stainless/ Carbon Steel	ISI-0394-C	6" PZR Safety Nozzle Safe End	No Scan From Nozzle	75%	No Scan Due To Nozzle Configuration
RCW-28-SE	6"	B-F	Stainless/ Carbon Steel	ISI-0394-C	6" PZR Safety Nozzle Safe End	No Scan From Nozzle	75%	No Scan Due To Nozzle Configuration
RCW-29-SE	14"	B-F	Stainless/ Carbon Steel	ISI-0394-C	14" PZR Surge Nozzle Safe End	No Scan From Nozzle	75%	No Scan Due To Nozzle Configuration

REQUEST FOR RELIEF 1-ISI-23

Component: S/G and Centrifugal Charging Pump Tank (CCPT) Pressure-Retaining Nozzle Welds in Vessels

Class: ASME Code Class 2 (Equivalent)

Section XI Edition: 1977 Edition Summer 1978 Addenda

Code Table: IWC-2500-1

Code Category: C-B

Code Item Number: C2.20

Code Requirement: 100 percent surface and volumetric examination of nozzles in vessels over 1/2-inch nominal thickness.

Impractical Requirement: To achieve 100 percent ultrasonic examination of the S/G and centrifugal charging pump tank nozzle-to-vessel welds.

Basis For Relief: The ultrasonic examination of the S/G and centrifugal charging pump tank nozzle-to-vessel welds are limited due to the design configuration. No ultrasonic examination was performed from the nozzle side on each weld. The limitations are noted on the ultrasonic examination data sheets and on Attachment A of this request for relief.

Proposed Alternative Examination: TVA performed a surface examination on essentially 100 percent of the weld and an ultrasonic examination on accessible areas of the S/G and centrifugal charging pump tank nozzle-to-vessel welds.

Justification: The configuration of the S/G and centrifugal charging pump tank nozzle-to-vessel welds prevents ultrasonic scanning techniques from the nozzle side of each weld.

Conclusion: Based on the above justification, it is concluded that for the S/G and centrifugal charging pump tank nozzle-to-vessel welds listed on Attachment A of this request for relief, the code requirements are impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-23

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
FDW-1	16"	C-B	Carbon Steel	ISI-0399-C	16" Nozzle To Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
FDW-2	16"	C-B	Carbon Steel	ISI-0399-C	16" Nozzle To Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
FDW-3	16"	C-B	Carbon Steel	ISI-0399-C	16" Nozzle To Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
FDW-4	16"	C-B	Carbon Steel	ISI-0399-C	16" Nozzle To Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
MSW-1	32"	C-B	Carbon Steel	ISI-0399-C	32" Nozzle To Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
MSW-2	32"	C-B	Carbon Steel	ISI-0399-C	32" Nozzle To Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
MSW-3	32"	C-B	Carbon Steel	ISI-0399-C	32" Nozzle To Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
MSW-4	32"	C-B	Carbon Steel	ISI-0399-C	32" Nozzle To Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
BIT-2	6"	C-B	Carbon Steel with Stainless Cladding	ISI-0069-A	6" CCP Tank Nozzle To Vessel (Head)	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
BIT-5	6"	C-B	Carbon Steel With Stainless Cladding	ISI-0069-A	6" CCP Tank Nozzle To Vessel (Head)	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration

REQUEST FOR RELIEF 1-ISI-24

Component:	Residual Heat Removal (RHR) Heat Exchanger (Two per Unit)
Class:	ASME Code Class 2 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWC-2500-1
Code Category	C-A
Code Item Number	C1.20
Code Requirement:	100 percent volumetric examination of pressure retaining welds in pressure vessels.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the RHR heat exchanger head-to-shell circumferential welds.
Basis for Relief:	Each RHR heat exchanger consists of an inlet-outlet head chamber with one inlet and one outlet nozzle, two integrally attached support brackets, and a circumferential vessel head-to-shell weld. The design configuration of the head, nozzles, and support brackets restricts examination of the head-to-shell weld. The vessel head-to-shell weld is 113 inches in length. The weld examinations are distributed in three segments, identified as: RHRW-17-A-1, 37 inches; RHRW-17-A-2, 38 inches; and RHRW-17-A-3, 38 inches. RHRW-17-A-1 was ultrasonically examined in the first inspection period. RHRW-17-A-2 was examined in the second period. RHRW-17-A-3 was examined during the third period. Based on the examinations performed, 80 percent examination volume coverage of the RHR heat exchanger circumferential head-to-shell weld was achieved. These limitations are noted on the ultrasonic examination data sheet and on Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed an ultrasonic examination on the accessible areas on one head-to-shell circumferential weld on one RHR heat exchanger to achieve maximum code coverage with meaningful results.
Justification:	The design configuration of the RHR heat exchanger (head, nozzles, and support brackets) restrict ultrasonic examination of the head-to-shell circumferential weld.
Conclusion:	Based on the above information, it is concluded that the code requirement for the RHR heat exchanger head-to-shell circumferential weld listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-24

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>WELD LENGTH</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RHRW-17-A-1	37"	C-A	Stainless Steel	CHM-2404-A	RHR Heat Exch. Head-To Shell	Scan Restriction Due To Head, Nozzles And Support Brackets	80%	Ultrasonic Scan Restrictions Due To Configuration Of Head, Nozzles, And Support Brackets
RHRW-17-A-2	38"	C-A	Stainless Steel	CHM-2404-A	RHR Heat Exch. Head-To Shell	Scan Restriction Due To Head, Nozzles And Support Brackets	80%	Ultrasonic Scan Restrictions Due To Configuration Of Head, Nozzles, And Support Brackets
RHRW-17-A-3	38"	C-A	Stainless Steel	CHM-2404-A	RHR Heat Exch. Head-To Shell	Scan Restriction Due To Head, Nozzles And Support Brackets	80%	Ultrasonic Scan Restrictions Due To Configuration Of Head, Nozzles, And Support Brackets

REQUEST FOR RELIEF 1-ISI-25

Component: Reactor Vessel Welds

Class: ASME Code Class 1 (Equivalent)

Section XI Edition: 1977 Edition Summer 1978 Addenda

Code Table: IWB-2500-1

Code Category: B-A

Code Item Number: B1.11

Code Requirement: 100 percent volumetric examination of pressure retaining welds in the reactor vessel.

Impractical Requirement: To achieve 100 percent ultrasonic examination of the reactor vessel bottom-head to lower-shell circumferential weld, W02-03.

Basic For Relief: The ultrasonic examination of the reactor vessel bottom-head to lower-shell circumferential weld (W02-03) is limited due to the design configuration, (i.e., location of the reactor vessel core support lugs). The limitations are noted on the ultrasonic examination data sheets and on Attachment A of this request for relief.

Proposed Alternative Examination: TVA utilized 0°, 45°, 60°, 50°/70° scans oriented clockwise, counterclockwise, up and down of the bottom-head to lower-shell weld to achieve ≥ 90 percent code examination coverage for reflectors oriented parallel to the weld and 67 percent code examination coverage for reflectors oriented transverse to the weld.

Justification: The design configuration of the reactor vessel bottom-head to lower-shell weld limits ultrasonic examinations due to the location of the core support lugs. TVA performed ultrasonic examinations on the accessible areas of the weld.

Conclusion: Based on the above justification, it is concluded that the code requirement for the reactor vessel bottom-head to lower-shell circumferential weld listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-25

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>EXAM CATEGORY</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>% EXAM COVERAGE</u>
W02-03	B-A	CHM-2343-B	Bottom Head To Lower Shell Circumferential Weld	$\geq 90\%$ Code Coverage for Reflectors Oriented Parallel to the Weld. 67% Code Coverage for Reflectors Oriented Transverse to the Weld.

REQUEST FOR RELIEF 1-ISI-26

Component:	Reactor Vessel Weld
Class:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-A
Code Item Number:	B1.30
Code Requirement:	100 percent volumetric examination of pressure retaining welds in the reactor vessel.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the reactor vessel shell to flange weld, W06-07.
Basis for Relief:	The ultrasonic examination of the reactor vessel upper shell to flange weld, (W06-07) is limited due to the design configuration. The upper shell to flange weld has limitations on the shell side due to the reactor vessel nozzle locations and on the flange side due to the keyway location. The limitations are noted on the ultrasonic examination data sheets and Attachment A of this request for relief.
Proposed Alternative Examination:	TVA utilized 0°, 45°, 60°, 50°/70° scans oriented clockwise, counterclockwise, up and down of the upper shell to flange weld, to achieve 85 percent code examination coverage for reflectors oriented parallel to the weld and 65 percent code examination coverage for reflectors oriented transverse to the weld.
Justification:	The design configuration of the reactor vessel upper shell to flange weld limits ultrasonic examination due to the location of the keyways and nozzles.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the reactor vessel upper shell to flange weld listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-26

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>EXAM CATEGORY</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>% EXAM COVERAGE</u>
W06-07	B-A	CHM-2343-B	Upper Shell To Flange	85% Code Coverage for Reflectors Oriented Parallel to the Weld. 65% Code Coverage for Reflectors Oriented Transverse to the Weld.

REQUEST FOR RELIEF 1-ISI-27

Component: Reactor Vessel Outlet Nozzle Welds

Class: ASME Code Class 1 (Equivalent)

Section XI Edition: 1977 Edition Summer 1978 Addenda

Code Table: IWB-2500-1

Code Category: B-D

Code Item Number: B3.90

Code Requirement: 100 percent volumetric examination of full penetration welds of nozzles in the vessels.

Impractical Requirement: To achieve 100 percent ultrasonic examination of the reactor vessel outlet nozzle to vessel welds, N-15, N-16, N-17, and N-18.

Basis for Relief: The ultrasonic examination of the reactor vessel outlet nozzle to vessel welds (N-15, -16, -17 and -18) are limited due to the design configuration, (i.e., the integral extensions and the location of the adjacent nozzles). The limitations are noted on the ultrasonic examination data sheets and Attachment A of this request for relief.

Proposed Alternative Examinations: TVA utilized 0°, 45°, 60°, 50°/70° and 10° examinations to achieve 100 percent code examination coverage for reflectors parallel to the weld. For reflectors transverse to the weld, code examination coverage for N-15 is 55 percent, N-16 is 39 percent, N-17 is 46 percent and N-18 is 37 percent.

Justification: The design configuration of the reactor vessel outlet nozzle to vessel welds, integral extensions, and the proximity of adjacent nozzles limits ultrasonic examination. An ultrasonic examination was performed on the accessible areas of these welds.

Conclusion: Based on the above justification, it is concluded that the code requirement for the reactor vessel outlet nozzle to shell welds listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i) it is recommended that relief be granted.

REQUEST FOR RELIEF 1-ISI-27

ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>EXAM CATEGORY</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>% EXAM COVERAGE</u>
N-15	B-D	CHM-2343-B	Outlet Nozzle (With Integral Extension) To Shell	100% Code Coverage for Reflectors Oriented Parallel to the Weld. 55% Code Coverage for Reflectors Oriented Transverse to the Weld.
N-16	B-D	CHM-2343-B	Outlet Nozzle (With Integral Extension) To Shell	100% Code Coverage for Reflectors Oriented Parallel to the Weld. 39% Code Coverage for Reflectors Oriented Transverse to the Weld.
N-17	B-D	CHM-2343-B	Outlet Nozzle (With Integral Extension) To Shell	100% Code Coverage for Reflectors Oriented Parallel to the Weld. 46% Code Coverage for Reflectors Oriented Transverse to the Weld.
N-18	B-D	CHM-2343-B	Outlet Nozzle (With Integral Extension) To Shell	100% Code Coverage for Reflectors Oriented Parallel to the Weld. 37% Code Coverage for Reflectors Oriented Transverse to the Weld.

REQUEST FOR RELIEF 2-ISI-20

Components:	Pressure-Retaining Welds in Piping
Class:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-J
Code Item Number:	B9.31
Code Requirement:	100 percent volumetric and surface examination of branch connection welds greater than 2-inch NPS.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of piping branch connection welds greater than 2-inch NPS.
Basis for Relief:	The ultrasonic examination of the branch connection welds are limited due to the design configuration (i.e the branch connection being "set on" the reactor coolant main loop piping). Also, the reactor coolant main loop piping is cast stainless material. The limitations are noted on the ultrasonic examination data sheet and Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed a surface examination on essentially 100 percent of the weld and an ultrasonic examination on accessible areas of these welds.
Justification:	The configuration of the branch connection being set on the reactor coolant main loop piping, which is fabricated of thick wall cast stainless material, is not amenable to ultrasonic examination. Due to the branch connection configuration and material type, current ultrasonic examination techniques are not sufficient to achieve essentially 100 percent code coverage of these branch connection piping welds.
Conclusion:	Based on the above justification, it is concluded that the code requirement for branch connection piping welds greater than 2-inch NPS listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-20
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RCW-01	3"	B-J	Stainless Steel	ISI-0008-B	Branch Connection 3" SCH160 Forged Nozzle set on 31" ID Header	Scan From One Side Only	50%	Limited Due to Configuration and Cast Material
RCW-22	14"	B-J	Stainless Steel	ISI-0008-B	Branch Connection 14" SCH160 Forged Nozzle set on 29" ID Header	Scan From One Side Only	65%	Limited Due to Configuration and Cast Material
RHRW-02	6"	B-J	Stainless Steel	ISI-0003-C	Branch Connection 6" SCH160 Forged Nozzle set on 29" ID Header	Scan From One Side Only	80%	Limited Due to Configuration and Cast Material
SIW-09	10"	B-J	Stainless Steel	ISI-0002-C	Branch Connection 10" SCH140 Forged Nozzle set on 27-1/2" ID Header	Scan From One Side Only	80%	Limited Due to Configuration and Cast Material

REQUEST FOR RELIEF 2-ISI-21

Component:	Pressurizer Full Penetration Welds of Nozzles in Vessels
Class:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-D
Code Item Number:	B3.110
Code Requirement:	100 percent volumetric examination of pressurizer nozzle-to-vessel full penetration welds.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the pressurizer nozzle-to-vessel welds.
Basis for Relief:	The ultrasonic examination of the pressurizer nozzle-to-vessel welds are limited due to the configuration of the pressurizer nozzle. The limitations are noted on the ultrasonic examination data sheet and on Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed an ultrasonic examination on accessible areas of the nozzle-to-vessel welds from the vessel head side of the weld.
Justification:	The configuration of the pressurizer nozzle to head prevents ultrasonic scanning techniques from the nozzle side of the pressurizer nozzle to vessel weld.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the pressurizer nozzle-to-vessel welds listed on Attachment A of this request for relief is impractical. TVA's examination provides an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-21
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RCW-15	4"	B-D	Carbon Steel	ISI-0396-C	4" Nozzle-To-Pressurizer Vessel (Top Head)	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-16	6"	B-D	Carbon Steel	ISI-0396-C	6" Nozzle-To-Pressurizer Vessel (Top Head)	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-17	6"	B-D	Carbon Steel	ISI-0396-C	6" Nozzle-To-Pressurizer Vessel (Top Head)	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-18	6"	B-D	Carbon Steel	ISI-0396-C	6" Nozzle-To-Pressurizer Vessel (Top Head)	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-19	6"	B-D	Carbon Steel	ISI-0396-C	6" Nozzle-To-Pressurizer Vessel (Top Head)	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration
RCW-21	14"	B-D	Carbon Steel	ISI-0396-C	14" Nozzle-To-Pressurizer Vessel (Bottom Head)	No Scan From Nozzle Side	50%	No Scan Due To Nozzle & Pressurizer Configuration

Request for Relief 2-ISI-22

Component:	Pressurizer and S/G Pressure-Retaining Dissimilar Metal Welds
Class:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-F
Code Item Number:	B5.20 and B5.30
Code Requirement:	100 percent volumetric and surface examination of pressure retaining dissimilar metal welds.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the pressurizer and S/G nozzle-to-safe end welds.
Basis for Relief:	The ultrasonic examination of the pressurizer nozzle-to-safe end welds and the S/G nozzle-to-safe end welds are limited due to the design configuration and cast stainless material. Due to the design configuration, no ultrasonic examination was performed from the nozzle side on each weld. Additional limitation was noted on the S/G safe end due to the cast stainless material. The limitations are noted on the ultrasonic examination data sheet and Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed a surface examination on essentially 100 percent of the weld and an ultrasonic examination on accessible areas of the pressurizer and S/G nozzle-to-safe end welds.
Justification:	The design configuration of the pressurizer and S/G nozzle-to-safe end weld and the cast stainless material limit the ultrasonic examinations. No ultrasonic examination was performed from the nozzle side of each weld and a limited ultrasonic examination was performed on the S/G safe ends due to cast stainless material.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the pressurizer and S/G nozzle-to-safe end welds listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-22
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RC-02-SE	29"	B-F	Stainless Steel	ISI-0401-C	29" S/G Nozzle Safe End	No Scan From Nozzle & Cast Material	25%	No Scan Due To Nozzle Configuration
RC-03-SE	31"	B-F	Stainless Steel	ISI-0401-C	31" S/G Nozzle-Safe End	No Scan From Nozzle & Cast Material	25%	No Scan Due To Nozzle Configuration
RC-10-SE	29"	B-F	Stainless Steel	ISI-0401-C	29" S/G Nozzle-Safe End	No Scan From Nozzle & Cast Material	25%	No Scan Due To Nozzle Configuration
RC-11-SE	31"	B-F	Stainless Steel	ISI-0401-C	31" S/G Nozzle-Safe End	No Scan From Nozzle & Cast Material	25%	No Scan Due To Nozzle Configuration
RC-18-SE	29"	B-F	Stainless Steel	ISI-0401-C	29" S/G Nozzle-Safe End	No Scan From Nozzle & Cast Material	25%	No Scan Due To Nozzle Configuration
RCW-25SE	6"	B-F	Stainless/ Carbon Steel	ISI-0396-C	6" Pressurizer Safety Nozzle-Safe End	No Scan From Nozzle	70%	No Scan Due To Nozzle Configuration
RCW-26SE	6"	B-F	Stainless/ Carbon Steel	ISI-0396-C	6" Pressurizer Safety Nozzle-Safe End	No Scan From Nozzle	70%	No Scan Due To Nozzle Configuration
RCW-27SE	6"	B-F	Stainless/ Carbon Steel	ISI-0396-C	6" Pressurizer Relief Nozzle Relief	No Scan From Nozzle	80%	No Scan Due to Nozzle Configuration
RCW-28SE	6"	B-F	Stainless/ Carbon Steel	ISI-0396-C	6" Pressurizer Safety Nozzle-Safe End	No Scan From Nozzle	80%	No Scan Due To Nozzle Configuration
RCW-29SE	14"	B-F	Stainless/ Carbon Steel	ISI-0396-C	14" Pressurizer Surge Line Nozzle-Safe End	No Scan From Nozzle	75%	No Scan Due To Nozzle Configuration

Request for Relief 2-ISI-23

Component: S/G and Centrifugal Charging Pump Tank (CCPT) Pressure-Retaining Nozzle Welds in Vessels

Class: ASME Code Class 2 (Equivalent)

Section XI Edition: 1977 Edition Summer 1978 Addenda

Code Table: IWC-2500-1

Code Category: C-B

Code Item Number: C2.20

Code Requirement: 100 percent surface and volumetric examination of nozzles in vessels over 1/2-inch nominal thickness.

Impractical Requirement: To achieve 100 percent ultrasonic examination of the S/G and centrifugal charging pump tank nozzle-to-vessel welds.

Basis for Relief: The ultrasonic examination of the S/G and centrifugal charging pump tank nozzle-to-vessel welds are limited due to the design configuration. No ultrasonic examination was performed from the nozzle side on each weld. The limitations are noted on the ultrasonic examination data sheets on Attachment A of this request for relief.

Proposed Alternative Examination: TVA performed a surface examination on essentially 100 percent of the weld and an ultrasonic examination on accessible areas of the S/G and centrifugal charging pump tank nozzle-to-vessel welds.

Justification: The configuration of the S/G and centrifugal charging pump tank nozzle-to-vessel welds prevents ultrasonic scanning techniques from the nozzle side of each weld.

Conclusion: Based on the above justification, it is concluded that the code requirement for the S/G and centrifugal charging pump tank nozzle-to-vessel welds listed on Attachment A of this request for relief is impractical. TVA's examinations provide an level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i) it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-23
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
FDW-1	16"	C-B	Carbon Steel	ISI-0401-C	16" Nozzle-To-Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
FDW-2	16"	C-B	Carbon Steel	ISI-0401-C	16" Nozzle-To-Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
FDW-3	16"	C-B	Carbon Steel	ISI-0401-C	16" Nozzle-To-Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
FDW-4	16"	C-B	Carbon Steel	ISI-0401-C	16" Nozzle-To-Vessel (Shell) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
MSW-1	32"	C-B	Carbon Steel	ISI-0401-C	32" Nozzle-To-Vessel (Head) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
MSW-2	32"	C-B	Carbon Steel	ISI-0401-C	32" Nozzle-To-Vessel (Head) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
MSW-3	32"	C-B	Carbon Steel	ISI-0401-C	32" Nozzle-To-Vessel (Head) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
MSW-4	32"	C-B	Carbon Steel	ISI-0401-C	32" Nozzle-To-Vessel (Head) S/G	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
BIT-2	6"	C-B	Carbon Steel With Stainless Cladding	ISI-0074-A	6" Nozzle-To-Vessel (Head) CCP Tank	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration
BIT-5	6"	C-B	Carbon Steel With Stainless Cladding	ISI-0074-A	6" Nozzle-To-Vessel (Head) CCP Tank	No Scan From Nozzle Side	75%	No Scan Due To Nozzle Configuration

Request for Relief 2-ISI-24

Components:	RHR Heat Exchanger (Two per Unit)
Class:	ASME Code Class 2 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWC-2500-1
Code Category:	C-A
Code Item Number:	C1.20
Code Requirement:	100 percent volumetric examination of pressure retaining welds in the pressure vessels.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the RHR heat exchanger head-to-shell circumferential welds.
Basis for Relief:	Each RHR heat exchanger consists of an inlet-outlet head chamber with one inlet and one outlet nozzle, two integrally attached support brackets and a circumferential vessel head-to-shell weld. The design configuration of the head, nozzles, and support brackets restricts examination of the head-to-shell weld. The vessel head-to-shell weld is 113 inches in length. The weld examinations are distributed in three segments, identified as: RHRW-17-A-1, 37 inches; RHRW-17-A-2, 38 inches; and RHRW-17-A-3, 38 inches. RHRW-17-A-1 was ultrasonically examined in the first inspection period. RHRW-17-A-2 was examined in the second period. RHRW-17-A-3 was examined during the third period. Based on the examinations performed, 75 percent examination volume coverage of the RHR heat exchanger circumferential head-to-shell weld was achieved. These limitations are noted on the ultrasonic examination data sheet and on Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed an ultrasonic examination on the accessible areas on one head-to-shell circumferential weld on one RHR heat exchanger to achieve maximum code coverage with meaningful results.
Justification:	The design configuration of the RHR heat exchanger (head, nozzles, and support brackets) restrict ultrasonic examination of the head-to-shell circumferential weld.
Conclusion:	Based on the above information, it is concluded that the code requirement for the RHR heat exchanger head-to-shell circumferential weld listed on Attachment A of this request for relief is impractical. TVA's examination provides an acceptable level of quality and safety. Therefore, pursuant to 10CFR5055a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-24
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>WELD LENGTH</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RHRW-17-A-1	37" Length	C-A	Stainless Steel	ISI-0289-A	RHR Heat Exch Head-To-Shell	Scan Restriction Due To Head, Nozzle and Support Brackets	80%	Ultrasonic Scan Restrictions Due To Configuration Of Head Nozzles, and Support Brackets
RHRW-17-A-2	38" Length	C-A	Stainless Steel	ISI-0289-A	RHR Heat Exch Head-To-Shell	Scan Restriction Due To Head, Nozzle and Support Brackets	80%	Ultrasonic Scan Restrictions Due To Configuration Of head, Nozzles and Support Brackets
RHRW-17-A-3	38" Length	C-A	Stainless Steel	ISI-0289-A	RHR Heat Exch Head-To-Shell	Scan Restriction Due To Head, Nozzle and Support Brackets	65%	Ultrasonic Scan Restrictions Due To Configuration Of Head, Nozzles and Support Brackets

Request for Relief 2-ISI-25

Component:	Pressure-Retaining Welds in Piping
Class:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-J
Code Item Number:	B9.11
Code Requirement:	100 percent volumetric and surface examination of 4-inch NPS and greater circumferential pipe welds.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of 4-inch nominal pipe size and greater circumferential pipe welds.
Basis for Relief:	The ultrasonic examination of the piping welds are limited due to physical configuration and/or cast stainless material. The limitations are noted on the ultrasonic examination data sheet and Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed a surface examination on essentially 100 percent of the weld and an ultrasonic examination on accessible areas of these welds.
Justification:	The physical configuration at structural discontinuities (elbow to nozzle, elbow to pipe, pump to elbow, etc.) may create scan limitations preventing 100 percent code examination volume coverage. In addition, the reactor coolant main loop piping is fabricated of cast stainless material with a nominal wall thickness ranging from 2.69 inches NW for cold leg, 2.84 inches NW for hot leg, and 2.99 inches NW for the crossover leg. Current ultrasonic capabilities are not sufficient to examine cast stainless materials of this thickness. Due to the physical configuration and material type, these piping welds were ultrasonically examined, but unable to achieve essentially 100 percent code coverage.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the piping welds listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-25
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RC-15	27.5"	B-J	Stainless Steel	ISI-0008-B	27.5" Main Loop Reactor Coolant Pump Casing Outlet	No Scan On Pump	40%	No Scan Due To Reactor Coolant Pump
RC-02	29"	B-J	Stainless Steel	ISI-0008-B	29" Elbow to S/G Nozzle	No Scan From Nozzle	25%	No Scan Due To S/G Nozzle Configuration
RC-23	27.5"	B-J	Stainless Steel	ISI-0008-B	27.5 Main Loop Pipe to Reactor Coolant Pump Casing Outlet	No Scan On Pump	65%	No Scan Due To Reactor Coolant Pump
RC-35	14"	B-J	Stainless Steel	ISI-0008-B	14" Pipe to Pressurizer Nozzle	No Scan From Nozzle	85%	No Scan Due To Pressurizer Nozzle Configuration

Request for Relief 2-ISI-26

Components:	Pressure-Retaining Weld in Piping
Class:	ASME Code Class 2 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWC-2500-1
Code Category:	C-F
Code Item Number:	C5.21
Code Requirement:	100 percent surface and volumetric examination of pressure retaining circumferential welds in piping over 1/2-nominal wall thickness.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of circumferential piping welds over 1/2-inch nominal wall thickness.
Basis for Relief:	The ultrasonic examination of the 6-inch circumferential flange to main steam piping header weld (MSS-32) is limited due to the design configuration. The limitations are noted on the ultrasonic examination data sheets and Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed a surface on essentially 100 percent of the weld and an ultrasonic examination on accessible areas of the 6-inch circumferential flange to main steam pipe header weld, MSS-32.
Justification:	The design configuration of the 6-inch circumferential flange to header weld limits ultrasonic examination preventing 100 percent code examination coverage.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the pressure retaining circumferential weld over 1/2-inch nominal wall thickness, MSS-32, listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-26
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>SIZE</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
MSS-32	6"	C-F	Carbon Steel	ISI-0015-C	6" Flange Main Steam Header Pipe	Scan Restrictions	75%	Scan Restrictions Due To Configuration of The 6" Flange to Main Steam Header Circumferential Weld Connection

Request for Relief 2-ISI-27

Components:	RHR heat exchanger integrally welded support attachment.
Class:	ASME Code Class 2 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWC-2500-1
Code Category:	C-C
Code Item Number:	C3.10
Code Requirement:	100 percent surface examination of pressure vessels integrally welded support attachments.
Impractical Requirement:	To achieve 100 percent surface examination pressure vessels integrally welded support attachments.
Basis for Relief:	The surface examination of the RHR heat exchanger integrally welded support attachment is limited due to the design configuration of the RHR heat exchanger head and integrally welded support attachment. The limitations are noted on the examination data sheet and on Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed a surface examination on the accessible areas of the RHR heat exchanger integrally welded support attachment weld, RHRW-19A-IA.
Justification:	The design configuration of the RHR heat exchanger inlet nozzle, outlet nozzle, and head flange limits the surface examination of the RHR heat exchanger integrally welded support attachment.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the RHR heat exchanger integrally welded support attachment, RHRW-19-A-IA, listed on Attachment A of this request for relief is impractical. TVA's examination provides an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-27
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
RHRW-19-A-IA	C-C	Stainless Steel	ISI-0289-A	Integrally Welded Support Attachment to RHR Heat Exchanger Head	Weld Partially Inaccessible	75%	Access Limited Due To Configuration of RHR Heat Exchanger and Integral Attachment

Request for Relief 2-ISI-28

Components:	Support Members, Feedwater System Piping Integrally Welded Support Attachments
Class:	ASME Code Class 2 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWC-2500-1
Code Category:	C-C
Code Item Number:	C3.40
Code Requirement:	100 percent surface examination.
Impractical Requirement:	To achieve 100 percent surface examination of feedwater system piping integrally welded support attachment, 2-FDH-204-IA.
Basis for Relief:	Due to the design of the piping support, a surface examination can not be performed on the integrally welded attachment. The four integrally welded attachments have access limitations due to nonremovable pipe clamp interferences. Access to the integrally welded attachments would require removing support brackets for each support attachment lug and removing the pipe clamp by cutting out support welds. The removal of the pipe clamp on the 16-inch diameter pipe is also limited due to the physical location to wall pipe penetration and the location to the floor. These limitations are noted on the surface examination data sheet and on the Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed VT-3 examination on the integrally welded support attachment, 2-FDH-204-IA. A VT-3 was performed to determine the general mechanical condition and structural integrity of the attachments.
Justification:	The design configuration of the feedwater system piping integrally welded support attachment prevents a surface examination.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the feedwater system piping integrally welded support attachments, 2-FDH-204-IA, listed on Attachment A of this request for relief is impractical. TVA's examination (VT-3) provides an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-28
ATTACHMENT A

<u>SYSTEM</u>	<u>COMPONENT IDENTIFIER</u>	<u>EXAMINATION CATEGORY</u>	<u>DRAWING NUMBER</u>	<u>% EXAM COVERAGE</u>	<u>LIMITATIONS</u>
Feedwater	2-FDH-204-1A	C-C	MSG-0016-C	0% Surface	Due to the Design of the Support, Access to the Integrally Welded Attachment Cannot Be Obtained Without Cutting Out Eight Support Bracket Welds and Removing the Pipe Support 16" Clamp. The Removal of the 16" Pipe Clamp Is Limited Due to Configuration of the Pipe at the Wall Penetration and the Close Proximity to the Floor. No Surface Examination Coverage Was Obtained Due to the Configuration of the Support. TVA Performed the Visual Examination VT-3 on the Accessible Areas of the Integral Attachments.

Request for Relief 2-ISI-29

Component:	Reactor Outlet Nozzle Welds
Class:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-D
Code Item Number:	B3.90
Code Requirement:	100 percent volumetric examination of full penetration welds of nozzles in the vessels.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the reactor vessel outlet nozzle to vessel welds, N-15, N-16, N-17, and N-18.
Basis for Relief:	The ultrasonic examination of the reactor vessel outlet nozzle to vessel welds (N-15, -16, -17 and -18) are limited due to the design configuration, (i.e. the integral extensions and the location of the adjacent nozzles). The limitations are noted on the ultrasonic examination data sheets and Attachment A of this request for relief.
Proposed Alternative Examination:	TVA utilized 0°, 45°, 60°, 50°/70° and 10° examination to achieve 100 percent code examination coverage for reflectors parallel to the weld. For reflectors transverse to the weld, code examination coverage for N-15 is 80 percent, N-16 is 71 percent, N-17 is 71 percent, and N-18 is 71 percent.
Justification:	The design configuration of the reactor vessel outlet nozzle to vessel welds, integral extension and the proximity of adjacent nozzles limits ultrasonic examination. An ultrasonic examination was performed on the accessible areas of these welds.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the reactor vessel outlet nozzle to shell welds listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i) it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-29
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>EXAM CATEGORY</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>% EXAM COVERAGE</u>
N-15	B-D	ISI-0298-B	Outlet Nozzle (With integral Extension) to Shell	100% Code Coverage for Reflectors Oriented Parallel to the Weld. 80% Code Coverage for Reflectors Oriented Transverse to the Weld.
N-16	B-D	ISI-0298-B	Outlet Nozzle (With Integral Extension) To Shell	100% Code Coverage for Reflectors Oriented Parallel to the Weld. 71% Code Coverage for Reflectors Oriented Transverse to the Weld.
N-17	B-D	ISI-0298-B	Outlet Nozzle (With Integral Extension) to Shell	100% Code Coverage for Reflectors Oriented Parallel to the Weld. 71% Code Coverage for Reflectors Oriented Transverse to the Weld.
N-18	B-D	ISI-0298-B	Outlet Nozzle (With Integral Extension) to Shell	100% Code Coverage for Reflectors Oriented Parallel to the Weld. 71% Code Coverage for Reflectors Oriented Transverse to the Weld.

Request for Relief 2-ISI-30

Component:	Reactor Vessel Weld
Section XI Edition:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-A
Code Item Number:	B1.11
Code Requirement:	100 percent volumetric examination of pressure retaining welds in the reactor vessel.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the reactor vessel bottom-head to lower-shell circumferential weld, W02-03.
Basis for Relief:	The ultrasonic examination of the reactor vessel bottom-head to lower-shell circumferential weld (W02-03) is limited due to the design configuration, (i.e. location of the reactor vessel core support lugs). The limitations are noted on the ultrasonic examination data sheets and on Attachment A of this request for relief.
Proposed Alternative Examination:	TVA utilized 0°, 45°, 60°, 50°/70° scans oriented clockwise, counterclockwise, up and down of the bottom-head to lower-shell weld to achieve 73 percent code examination coverage for reflectors oriented parallel to the weld and 70 percent code examination coverage for reflectors oriented transverse to the weld.
Justification:	The design configuration of the reactor vessel bottom-head to lower-shell weld limits ultrasonic examinations due to the location of the core support lugs. TVA performed ultrasonic examinations on the accessible areas of the weld.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the reactor vessel bottom-head to lower-shell circumferential weld listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-30
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>EXAM CATEGORY</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>% EXAM COVERAGE</u>
W02-03	B-A	ISI-0298-B	Bottom Head to Lower Shell Circumferential Weld	73% Code Coverage for Reflectors Oriented Parallel to the Weld. 70% Code Coverage for Reflectors Oriented Transverse to the Weld.

Request for Relief 2-ISI-31

Component:	Reactor Vessel Weld
Class:	ASME Code Class 1 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWB-2500-1
Code Category:	B-A
Code Item Number:	B1.30
Code Requirement:	100 percent volumetric examination of pressure retaining welds in the reactor vessel.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the reactor vessel shell to flange weld, W06-07.
Basis for Relief:	The ultrasonic examination of the reactor vessel upper shell to flange weld (W06-07) is limited due to the design configuration. The upper shell to flange weld has limitations on the shell side due to the reactor vessel nozzle locations and on the flange side due to the keyway location. The limitations are noted on the ultrasonic examination data sheets and Attachment A of this request for relief.
Proposed Alternative Examination:	TVA utilized 0°, 45°, 60°, 50°/70° scans oriented clockwise, counterclockwise, up and down of the upper shell to flange weld, to achieve \geq 90 percent code examination coverage for reflectors oriented parallel to the weld and 65 percent code examination coverage for reflectors oriented transverse to the weld.
Justification:	The design configuration of the reactor vessel upper shell to flange weld limits ultrasonic examination due to the location of the keyways and nozzles.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the reactor vessel upper shell to flange weld listed on Attachment A of this request for relief is impractical. TVA's examinations provide an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2 ISI-31
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>EXAM CATEGORY</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>% EXAM COVERAGE</u>
W06-07	B-A	ISI-0298-B	Upper Shell to Flange	≥90% Code Coverage for Reflectors Oriented Parallel to the Weld. 65% Code Coverage for Reflectors Oriented Transverse to the Weld.

Request for Relief 2-ISI-32

Component:	Centrifugal Charging Pump Tank Pressure Retaining Welds in Pressure Vessels
Class:	ASME Code Class 2 (Equivalent)
Section XI Edition:	1977 Edition Summer 1978 Addenda
Code Table:	IWC-2500-1
Code Category:	C-A
Code Item Number:	C1.10
Code Requirement:	100 percent volumetric examination of pressure retaining welds in the pressure vessels, head to shell circumferential welds.
Impractical Requirement:	To achieve 100 percent ultrasonic examination of the centrifugal charging pump tank head to the shell circumferential weld.
Basis for Relief:	The ultrasonic examination of the centrifugal charging pump tank head to shell weld is limited due to the design configuration. The centrifugal charging pump tank consists of two circumferential shell welds, one inlet nozzle, one outlet nozzle, and four integrally welded support attachments. The design configuration restricts ultrasonic examination of circumferential head to shell weld, BIT-4. The limitations are noted on the ultrasonic examination data sheets and on Attachment A of this request for relief.
Proposed Alternative Examination:	TVA performed an ultrasonic examination on the accessible areas of the centrifugal charging pump tank circumferential head to shell weld.
Justification:	The design configuration of the centrifugal charging pump tank restricts ultrasonic examination of circumferential head to shell weld, BIT-4. TVA performed an ultrasonic examination to achieve maximum code examination volume coverage and with meaningful results, 79 percent examination volume coverage was achieved.
Conclusion:	Based on the above justification, it is concluded that the code requirement for the centrifugal charging pump tank circumferential head to shell weld, BIT-4, listed on Attachment A of this request for relief is impractical. TVA's examination provides an acceptable level of quality and safety. Therefore, pursuant to 10CFR50.55a(g)(6)(i), it is recommended that relief be granted.

REQUEST FOR RELIEF 2-ISI-32
ATTACHMENT A

<u>WELD IDENTIFIER</u>	<u>WELD LENGTH</u>	<u>EXAM CATEGORY</u>	<u>MATERIAL</u>	<u>DRAWING NUMBER</u>	<u>PHYSICAL CONFIGURATION</u>	<u>LIMITATIONS</u>	<u>% EXAM COVERAGE</u>	<u>REMARKS</u>
BIT-4	151"	C-A	Carbon Steel With Stainless Cladding	ISI-0074-A	Shell to Lower Head Weld	Scan Restrictions, Weld Partially Inaccessible Due to Four Integrally Welded Attachments	79%	Scan Restrictions Due to Configurations of Tank Integrally Welded Support Attachments