

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Neil S. "Buzz" Carns
President and
Chief Executive Officer

February 16, 1994

WM 94-0027

U. S. Nuclear Regulatory Commission
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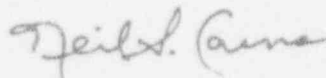
Subject: Docket No. 50-482: Inservice Inspection Program
Relief Requests

Gentlemen:

The purpose of this letter is to transmit requests for relief from ASME Section XI requirements for the Wolf Creek Generating Station Inservice Inspection (ISI) Program in accordance with 10 CFR 50.55a(g)(5)(iii). Provided in the attachment to this letter are the relief requests which apply to ISI Period 3. Relief Requests IIR-32 through IIR-37 concern incomplete examinations as a result of weld configurations, Relief Request IIR-38 concerns the visual examination of a single casting, and Relief Request IIR-39 concerns a permanently fixed box hanger that completely obstructs a weld from being examined.

If you have any questions concerning this matter, please contact me at (316) 364-8831, extension 4000, or Mr. Kevin J. Moles at extension 4565.

Very truly yours,



Neil S. Carns
President and
Chief Executive Officer

NSC/jra

Attachment

cc: L. J. Callan (NRC), w/a
G. A. Pick (NRC), w/a
W. D. Reckley (NRC), w/a
L. A. Yandell (NRC), w/a

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A047
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ISI RELIEF REQUEST IIR-32

Component:

- 1) BB-04-F001, BB-04-F014, BB-04-F015, EP-02-F010, EP-02-F021, EP-02-S003-G
EP-02-S008-D and EP-02-S008-F
- 2) BB-09-V178-1, BG-23-F003A and BG-23-F004
- 3) EJ-04-F047

Category:

- 1) ASME Section XI 1980 Edition Winter 1981 Addenda, Table IWB-2500-1, Examination Category B-J, Item Number B9.11
- 2) Augmented examination for break exclusion piping (NUREG-0800), Examinations performed to ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWC-2500-1, Examination Category C-F, Item Number C5.11
- 3) ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWC-2500-1, Examination Category C-F, Item Number C5.21

Description:

- 1) Pressurizer Spray Line 4" pipe to 4" spray nozzle safe-end (BB-04-F001), Pressurizer Spray Line valve PCV-455C to 4" pipe (BB-04-F014), Pressurizer Spray Line 4" pipe to valve PCV-455C (BB-04-F015), Accumulator Safety Injection Line valve 8818B to 6" pipe (EP-02-F010), Accumulator Safety Injection Line valve 8818C to 6" pipe (EP-02-F021), Accumulator Safety Injection Line 10" X 10" X 6" tee to 6" pipe (EP-02-S003-G), Accumulator Safety Injection Line 10" X 10" X 6" tee to 10" pipe (EP-02-S008-D) and Accumulator Safety Injection Line 10" pipe to 10" X 10" X 6" tee (EP-02-S008-F)
- 2) Reactor Coolant Pump "C" Seal Water Injection Line valve V178 to 2" pup piece (BB-09-V178-1), Chemical and Volume Control System Charging Line valve 8381 to 3" pipe (BG-23-F003A) and Chemical and Volume Control System Charging Line 3" pipe to valve 8381 (BG-23-F004)
- 3) Residual Heat Removal Line valve HV-87(1A) to 12" pipe (EJ-04-F047)

Code Requirement:

Volumetric Requirements:

- 1) Requires the inner 1/3t of the weld plus 1/4" of the base metal beyond the weld toe to be scanned in two directions as specified by Appendix III, paragraph III-4400 and Figure IWB-2500-8.

ISI RELIEF REQUEST IIR-32
(continued)

- 2) Requires the inner 1/3t of the weld plus 1/4" of the base metal beyond the weld toe to be scanned in two directions as specified by Appendix III, paragraph III-4400 and Figure IWC-2500-7.
- 3) Requires the inner 1/3t of the weld plus 1/4" of the base metal beyond the weld toe to be scanned in two directions as specified by Appendix III, paragraph III-4400 and Figure IWC-2500-7.

Surface Requirements:

- 1) 100% surface examination as defined by Article 6 of ASME Section V and Figure IWB-2500-8.
- 2) 100% surface examination as defined by Article 6 of ASME Section V and Figure IWC-2500-7.
- 3) 100% surface examination as defined by Article 6 of ASME Section V and Figure IWC-2500-7.

Basis For Relief:

Complete ultrasonic examination of the subject welds was not feasible because of limitations in geometry and metallurgic properties. The weld configurations (valve bodies, pipe tees, etc.) do not provide an adequate examination surface to allow a complete examination from two directions. Alternative examination through the use of a full vee path technique from one side has been determined to not provide confidence that the weld coverage is being satisfactorily examined. This results from the dendritic properties of austenitic steel material which causes sound redirection and attenuation.

ISI RELIEF REQUEST IIR-32
(continued)

Weld ID	Req. Method	Extent Examined
BB-04-F001 (pipe to safe-end)	UT	58% in one beam direction 9% in two beam directions 33% of WRV not examined 100% Circ. Scan Reference Figure 1
	PT	100%
BB-04-F014 (pipe to valve)	UT	100%, pipe side only 100% Circ. Scan Reference Figure 2
	PT	100%
BB-04-F015 (pipe to valve)	UT	100%, pipe side only 100% Circ. Scan Reference Figure 2
	PT	100%
EP-02-F010 (valve to pipe)	UT	67% in one beam direction 33% in two beam direction 100% Circ. Scan Reference Figure 3
	PT	100%
EP-02-F021 (valve to pipe)	UT	72% in one beam direction 100% Circ. Scan Reference Figure 4
	PT	100%
EP-02-S003-G (tee to pipe)	UT	100%, pipe side only 100% Circ. Scan Reference Figure 5
	PT	100%
EP-02-S008-D (tee to pipe)	UT	100%, pipe side only 100% Circ. Scan Reference Figure 5
	PT	100%
EP-02-S008-F (pipe to tee)	UT	100%, pipe side only 100% Circ. Scan Reference Figure 5
	PT	100%
BB-09-V178-1 (valve to pipe)	UT	93.5%, pipe side only 100% Circ. Scan Reference Figure 6
	PT	100%

ISI RELIEF REQUEST IIR-32
(continued)

Weld ID	Req. Method	Extent Examined
BG-23-F003A (valve to pipe)	UT	82% examined in one direction 9% examined in two directions 9% not examined 50% Circ. Scan Reference Figure 7
	PT	Not Required per Program Plan
BG-23-F004 (pipe to valve)	UT	82% examined in one direction 9% examined in two directions 9% not examined 50% Circ. Scan Reference Figure 7
	PT	Not Required per Program Plan
EJ-04-F047 (valve to pipe)	UT	62.5% examined in one direct. 37.5% examined in two direct. 100% Circ. Scan Reference Figure 8
	PT	100%

Alternate Examination:

None; because of geometry and attenuation variables, the required volumetric and surface examinations were completed to the maximum extent practical.

ASME Code Section III:

Components were accepted in accordance with the requirements of Section III, which included volumetric and surface examinations as well as pressure tests.

Evaluation of Plant Safety:

Strict ASME Section III quality controls were used when designing, fabricating and installing these welds. In addition, these welds were surface and volumetrically examined (Preservice Examination (PSI) as well as the current ISI) with no irregularities found. The probability of a flaw occurring and not being detected by the examination already performed is small. Future indications of significant size will be found by examination of the weld as it is now.

Based on the above, reasonable assurance of the continued inservice structural integrity of the subject welds is achieved without providing a complete examination.

Component: BB-04-F001

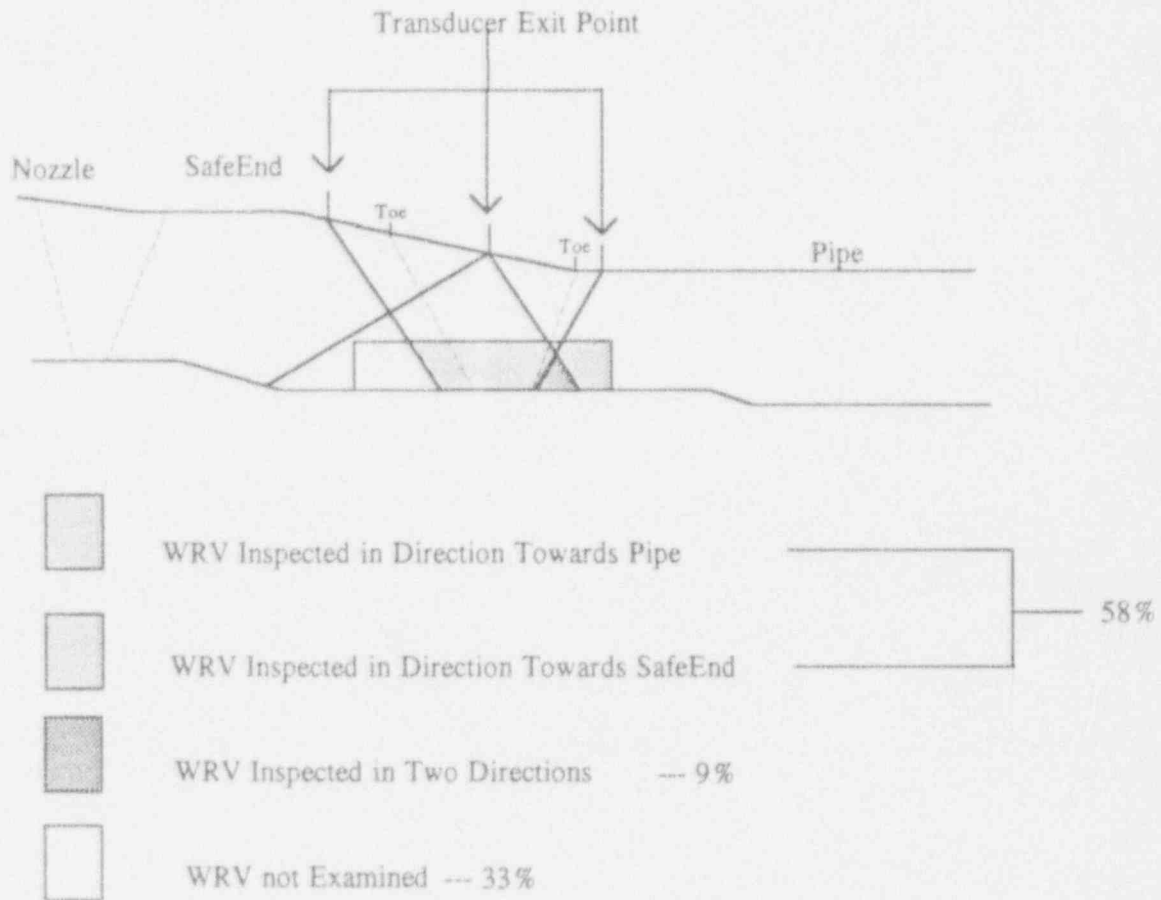


Figure 1

Component: BB-04-F014
BB-04-F015

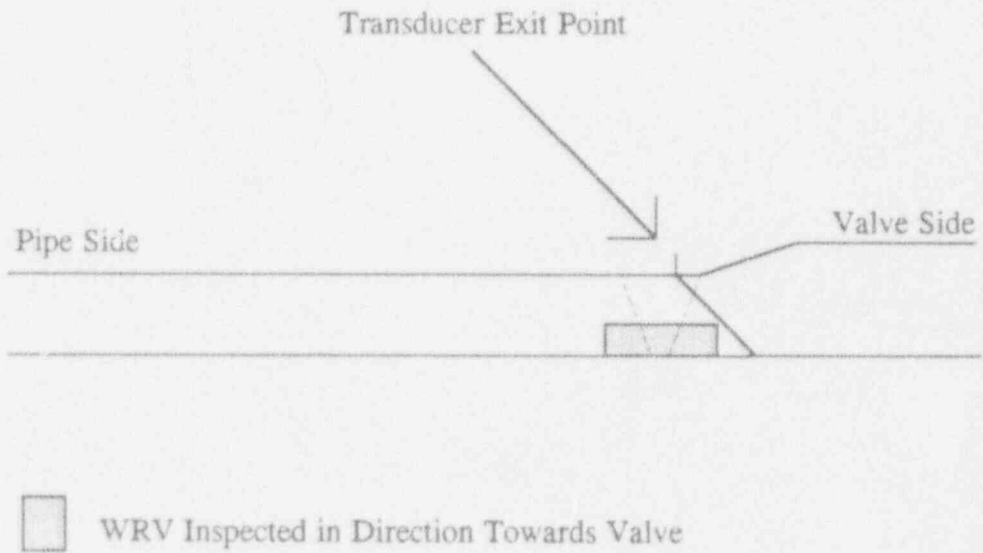


Figure 2

Component: EP-02-F010

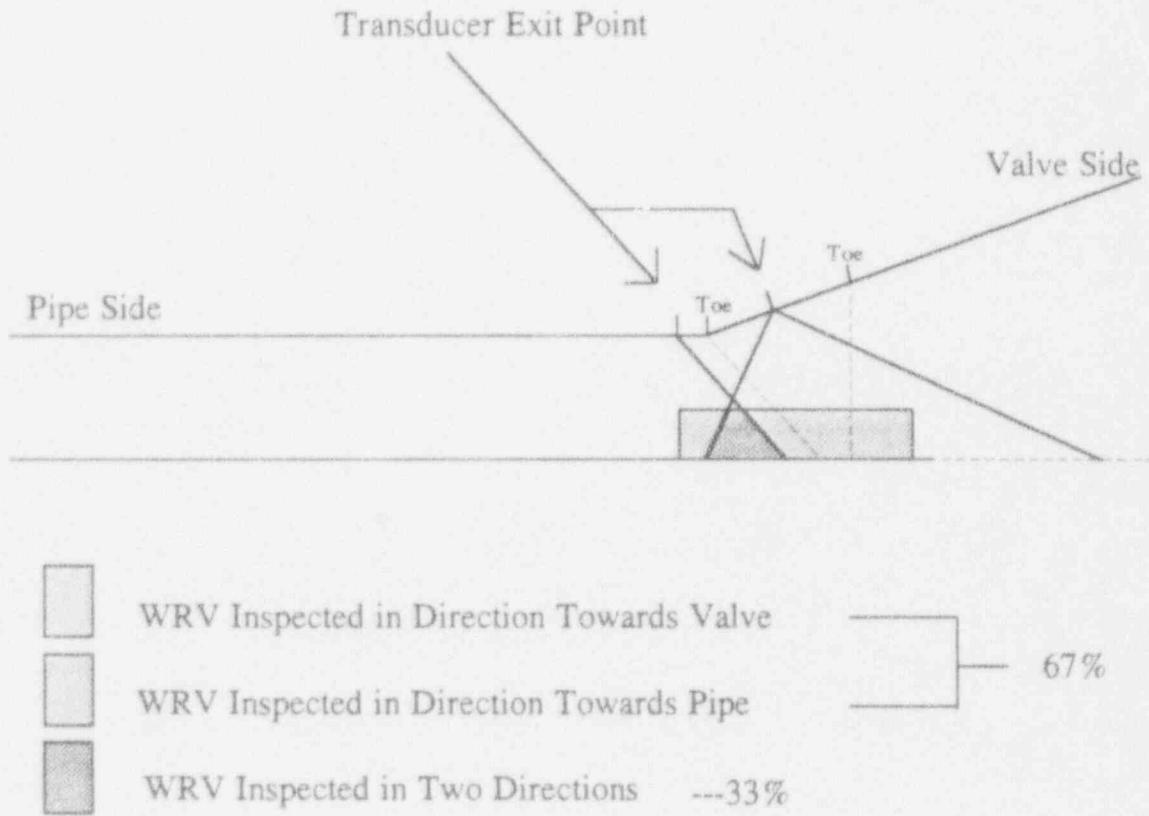


Figure 3

Component: EP-02-F021

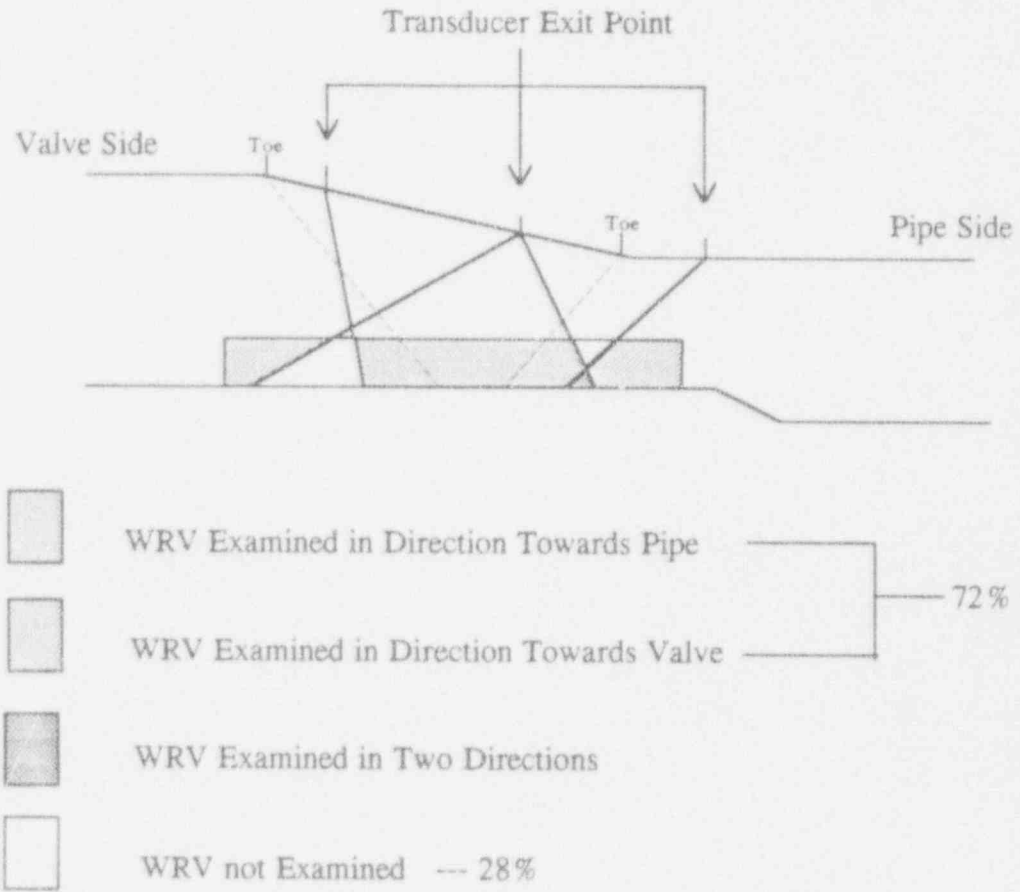


Figure 4

Component: EP-02-S003-G
EP-02-S008-D
EP-02-S008-F

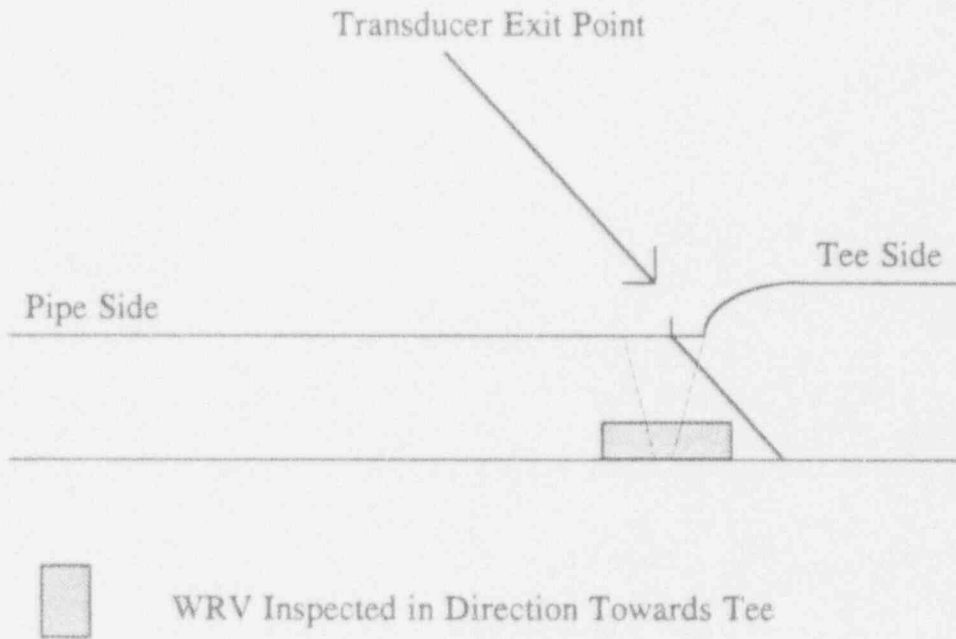
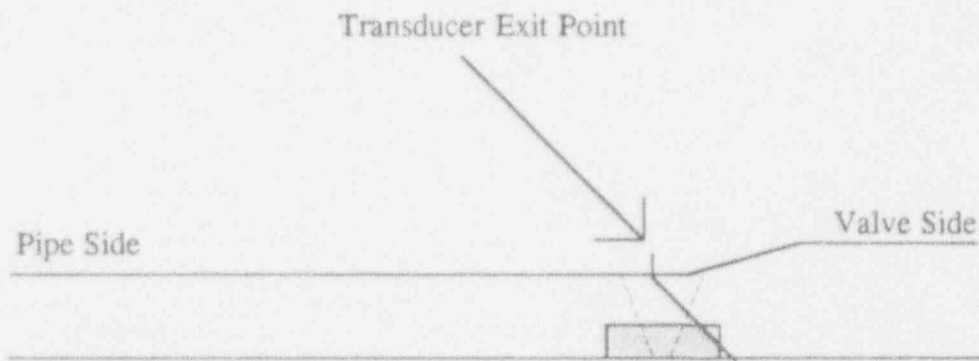


Figure 5

Component:

BB-09-V178-1



- WRV Inspected in Direction Towards Valve ---- 93.5%
- WRV not Examined ---6.5%

Figure 6

Component: BG-23-F003A
BG-23-F004

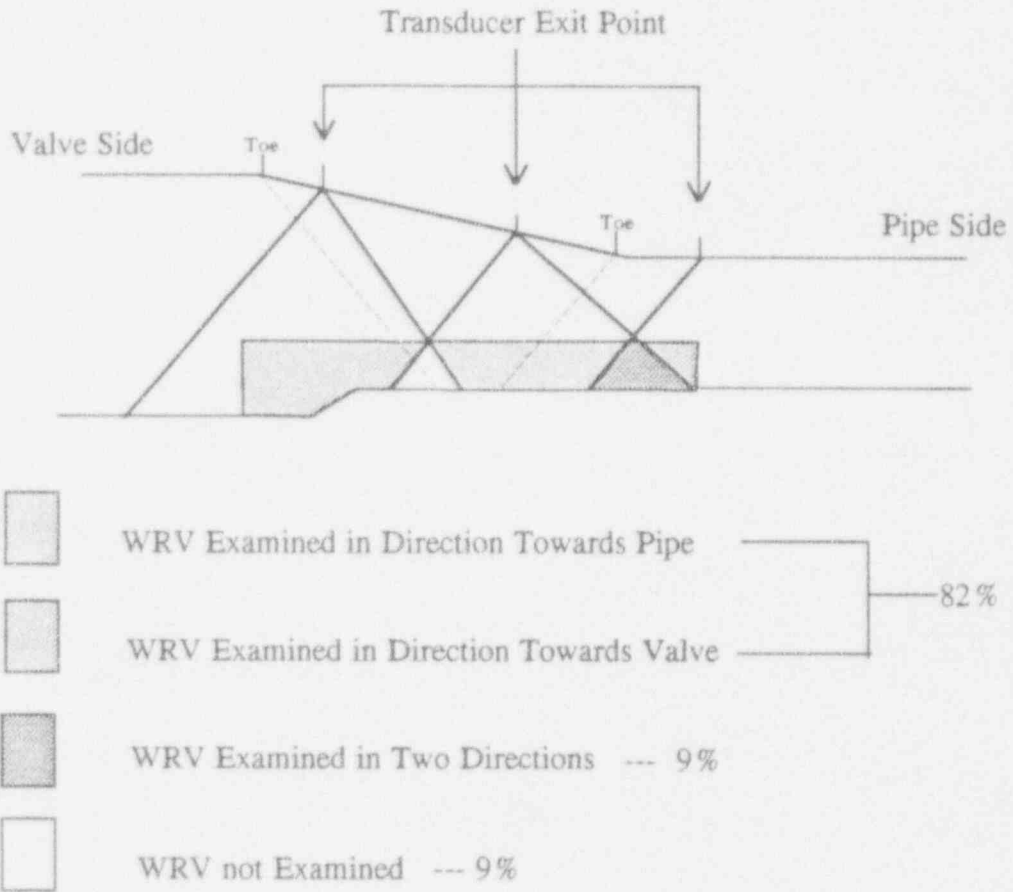


Figure 7

Component:

EJ-04-F047

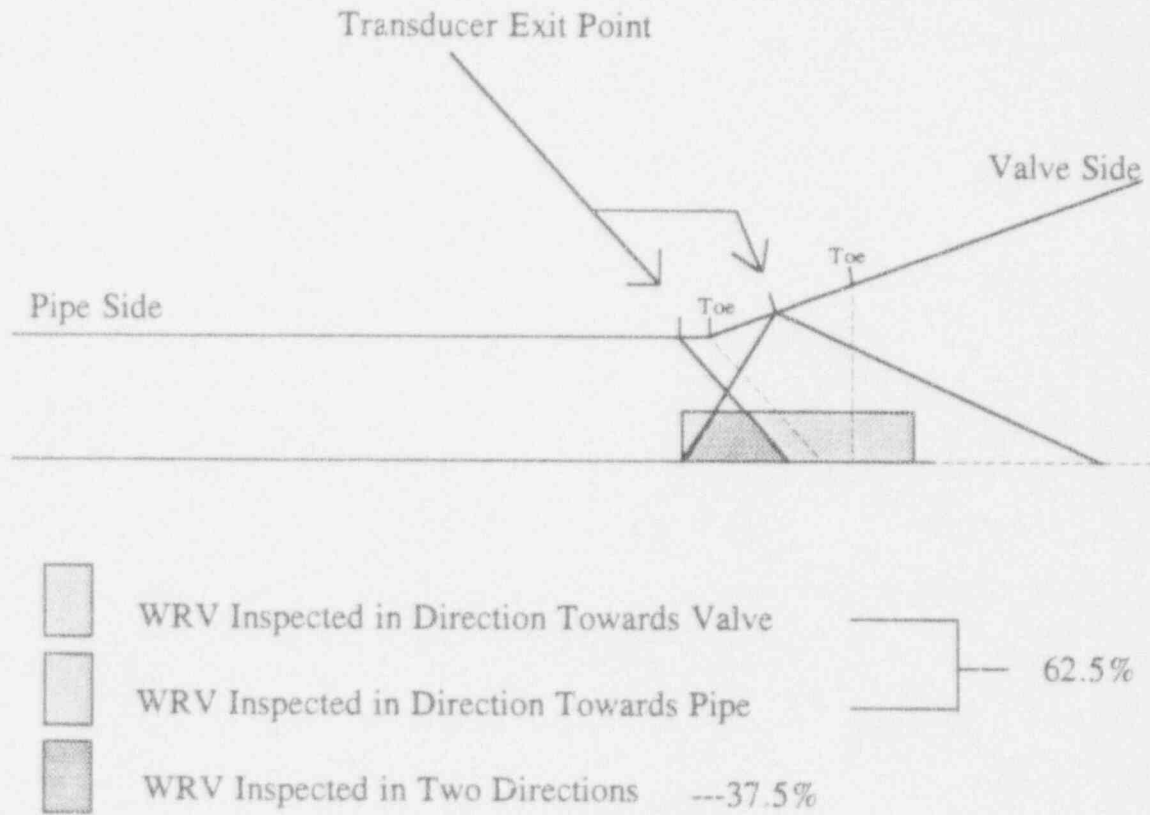


Figure 8

ISI RELIEF REQUEST IIR-33

Component:

BG-23-F005

Category:

Augmented examination for break exclusion piping (NUREG-0800), Examination performed to ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWC-2500-1, Examination Category C-F, Item Number C5.11

Description:

Chemical Volume Control System Charging Line 3" pipe to 3" pipe

Code Requirement:

Requires the inner 1/3t of the weld plus 1/4" of the base metal beyond the weld toe to be scanned in two directions as specified by Appendix III, paragraph III-4400 and Figure IWC-2500-7.

Basis for Relief:

Complete ultrasonic examination of the weld was not feasible because of limitations in geometry and metallurgic properties. Geometric limitations resulted from weld shrinkage at the toe of the weld which causes loss of search unit contact due to lift off. Alternative examination through the use of a full vee path technique from one side has been determined to not provide confidence that the weld coverage is being satisfactorily examined. This results from the dendritic properties of austenitic steel material which causes sound redirection and attenuation. 37% of the weld required volume was not examined with two beam directions (reference Figure 9).

Alternate Examination:

None; because of geometry and attenuation variables, the required volumetric examination was completed to the maximum extent practical.

ASME Code Section III:

Components were accepted in accordance with the requirements of Section III, which included volumetric and surface examinations as well as pressure tests.

ISI RELIEF REQUEST IIR-33
(continued)

Evaluation of Plant Safety:

Strict ASME Section III quality controls were used when designing, fabricating and installing the weld. In addition, the weld was volumetrically examined (PSI as well as the current ISI) with no irregularities found. The probability of a flaw occurring and not being detected by the examination already performed is small. Future indications of significant size will be found by examination of the weld as it is now.

Based on the above, reasonable assurance of the continued inservice structural integrity of the subject weld is achieved without providing a complete examination.

Component: BG-23-F005

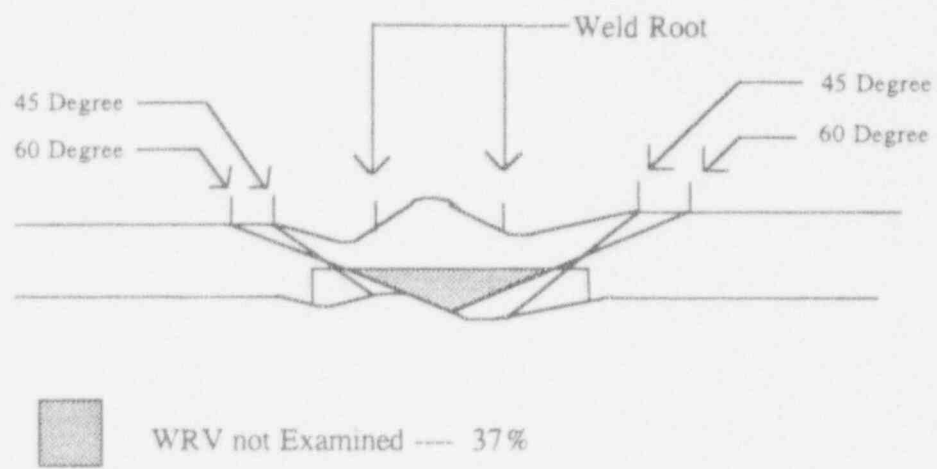


Figure 9

ISI RELIEF REQUEST IIR-34

Component:

EBB01D-SEAM-1-W

Category:

ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWB-2500-1, Examination Category B-B, Item Number B2.40

Description:

Steam Generator "D" bottom head to tubesheet weld

Code Requirements:

Requires the weld plus 1/2t of the base metal beyond the weld toe to be examined. The weld metal is to be examined with 0 degree and two beam angles in two directions. The adjacent base metal included in the examination volume need be examined with 0 degree and two beam angles from one direction. Reference Article 4, paragraph T-441.4 of ASME Section V and Figure IWB-2500-6 of ASME Section XI for volumetric requirements.

Basis for Relief:

The subject weld could not be fully Ultrasonically examined due to interferences from the steam generator support legs (4), support flange and the code data plate. The steam generator support leg interference resulted in 22.4% of the Weld Required Volume (WRV) not being examined. The 60 degree axial scan on the tubesheet side is 34% obstructed by the support flange. The obstruction results from insufficient base metal between the weld and flange to complete this angle beam examination. There is approximately 1% obstruction due to the code data plate. Reference Figure 10 for weld layout.

Alternate Examination:

None; the required volumetric examination was completed to the maximum extent possible.

ASME Code Section III:

Components were accepted in accordance with the requirements of Section III, which included volumetric and surface examinations as well as pressure tests.

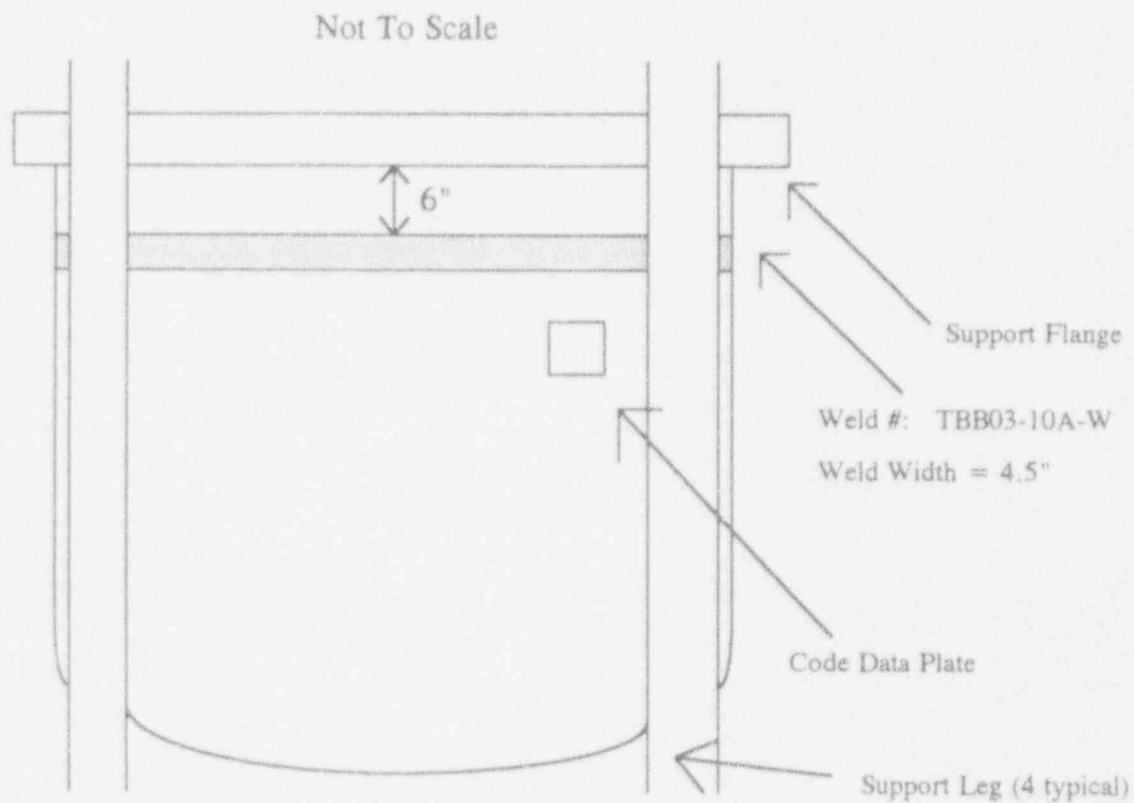
ISI RELIEF REQUEST IIR-34
(continued)

Evaluation of Plant Safety:

Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. In addition, this weld was volumetrically examined (PSI as well as the current ISI) with no irregularities found. The probability of a flaw occurring and not being detected by the examination already performed is small. Future indications of significant size will be found by examination of the weld as it is now.

Based on the above, reasonable assurance of the continued inservice structural integrity of the subject weld is achieved without providing a complete examination.

Component: EBBO1D-SEAM-1-W



Support Leg Locations

- 21" to 45" CCW from Datum N
- 61 1/4" to 81 1/4" CW from Datum N
- 38" to 64" CW from Datum No
- 43" to 67" CCW form Datum No

Figure 10

ISI RELIEF REQUEST IIR-35

Component:

TBB03-10A-W

Category:

ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWB-2500-1, Examination Category B-D, Item Number E3.110

Description:

Pressurizer surge nozzle to bottom head weld

Code Requirement:

Requires the weld plus 1/2t of the base metal beyond the weld toe to be examined. The weld metal is to be examined with 0 degree and two beam angles in two directions. The adjacent base metal included in the examination volume need be examined with 0 degree and two beam angles from one direction. Reference Article 4, paragraph T-441.4 of ASME Section V and Figure IWB-2500-7(b) of ASME Section XI for volumetric requirements.

Basis for Relief:

The subject weld could not be fully Ultrasonically examined due to the surge nozzle to shell configuration and the pressurizer heaters. This configuration resulted in 35% of the weld required volume not being examined with the 0 degree or with the parallel angle beam scan (reference Figure 11). In addition, the weld metal was only examined in one direction and the adjacent base metal was not fully examined in one direction with two beam angles (92% complete with 60 degree angle beam and 88.4% complete with 45 degree angle beam, reference Figure 12).

Alternate Examination:

None; the required volumetric examination was completed to the maximum extent possible.

ASME Code Section III:

Components were accepted in accordance with the requirements of Section III, which included volumetric and surface examinations as well as pressure tests.

ISI RELIEF REQUEST IIR-35
(continued)

Evaluation of Plant Safety:

Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. In addition, this weld was volumetrically examined (PSI as well as the current ISI) with no irregularities found. The probability of a flaw occurring and not being detected by the examination already performed is small. Future indications of significant size will be found by examination of the weld as it is now.

Based on the above, reasonable assurance of the continued inservice structural integrity of the subject weld is achieved without providing a complete examination.

Component:

TBB03-10A-W

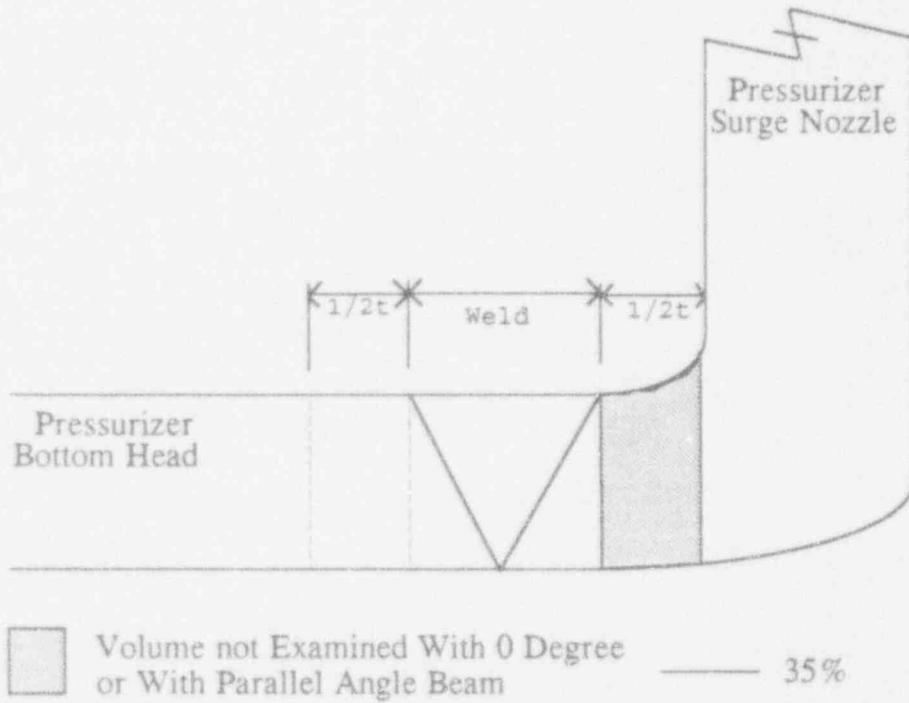


Figure 11

Component:

TBB03-10A-W

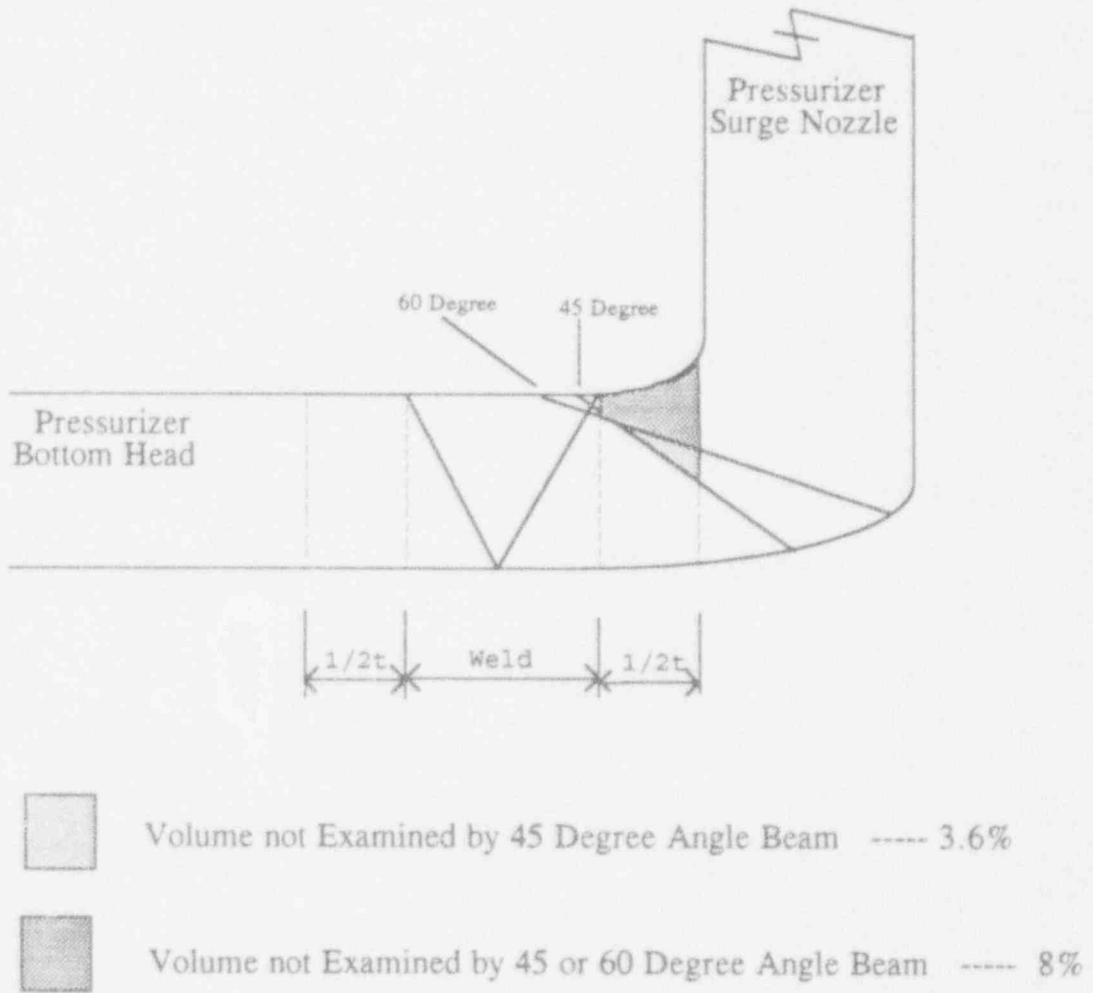


Figure 12

ISI RELIEF REQUEST IIR-36

Component:

TBB03-10A-IR

Category:

ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWB-2500-1, Examination Category B-D, Item Number B3.120

Description:

Pressurizer surge nozzle inner radius

Code Requirement:

Requires that the inside corner region of the nozzle shall be completely ultrasonic examined to a depth of $1/2t$, measured from the inside surface of the nozzle. Reference Figure IWB-2500-7(b) of ASME Section XI for volumetric requirements.

Basis for Relief:

The subject nozzle inner radius could not be fully Ultrasonically examined due to interferences from the pressurizer heaters penetrations and the nozzle configuration. This resulted in 70% of the required examination volume not being inspected (reference Figure 13).

Alternate Examination:

None; the required volumetric examination was completed to the maximum extent possible.

ASME Code Section III:

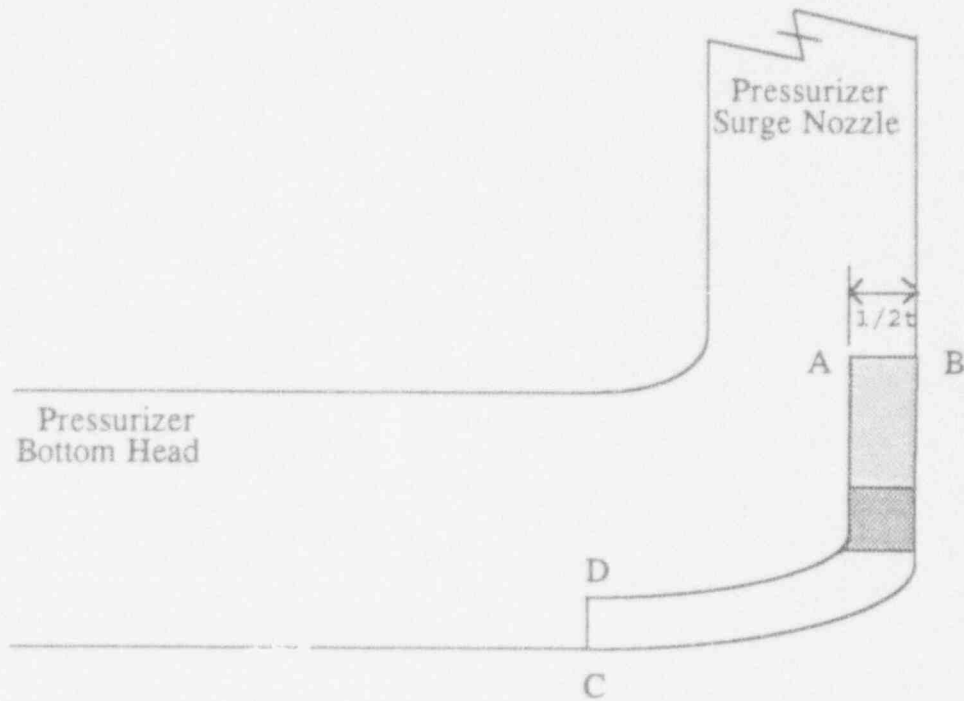
Components were accepted in accordance with the requirements of Section III, which included volumetric and surface examinations as well as pressure tests.




Evaluation of Plant Safety:

Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. In addition, this weld was volumetrically examined (PSI as well as the current ISI) with no irregularities found. The probability of a flaw occurring and not being detected by the examination already performed is small. Future indications of significant size will be found by examination of the weld as it is now.

Based on the above, reasonable assurance of the continued inservice structural integrity of the subject weld is achieved without providing a complete examination.

Component: TBB03-10A-IR



-  Volume not Examined, 360 Degrees ----- 41%
-  Volume Examined, 360 Degrees ----- 21%
-  Volume Examined, 86 Degrees Only ----- 38%
(resulting from 18" gap in heater penetrations)

• • 70% of Total Exam Volume is not Examined

NOTE: Exam Volume is the area of ABCD

Figure 13

ISI RELIEF REQUEST IIR-37

Component:

CH-103-101

Category:

ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWB-2500-1, Examination Category B-A, Item Number B1.21

Description:

Reactor Pressure Vessel closure head upper circumferential weld

Code Requirement:

Requires the weld plus 1/2t of the base metal beyond the weld toe to be examined. The weld metal is to be examined with 0 degree and two beam angles in two directions. The adjacent base metal included in the examination volume need be examined with 0 degree and two beam angles from one direction. Reference Article 4, paragraph T-441.4 of ASME Section V and Figure IWB-2500-3 of ASME Section XI for volumetric requirements.

Basis for Relief:

The subject weld could not be fully Ultrasonically examined due to the cooling duct ring limiting the required scan path and the three lifting lugs obstructing the required inspection volume. The weld metal was 100% inspected in one direction by the 45 degree and 60 degree angle beam, but was limited in the other direction due to the cooling ring. This resulted in 16.8% of weld metal not being inspected by the 45 degree angle beam and 47.3% not being inspected with the 60 degree angle beam. The three lifting lugs resulted in 5.2% of the required inspection volume not to be examined.

Alternate Examination:

None; the required volumetric examination was completed to the maximum extent possible.

ASME Code Section III:

Components were accepted in accordance with the requirements of Section III, which included volumetric and surface examinations as well as pressure tests.

ISI RELIEF REQUEST IIR-37
(continued)

Evaluation of Plant Safety:

Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. In addition, this weld was volumetrically examined (PSI as well as the current ISI) with no irregularities found. The probability of a flaw occurring and not being detected by the examination already performed is small. Future indications of significant size will be found by examination of the weld as it is now.

Based on the above, reasonable assurance of the continued inservice structural integrity of the subject weld is achieved without providing a complete examination.

ISI RELIEF REQUEST IIR-38

Component:

PBB01B-SURF

Category:

ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWB-2500-1,
Examination Category B-L-2, Item Number B12.20

Description:

Reactor Coolant Pump "B" internal pressure surface

Code Requirement:

Requires that a visual (VT-3) examination be performed on the pump
internal pressure surface. This examination is to be performed each
inspection interval.

Basis for Relief:

ASME Section XI, 1989 Edition, specifies that the visual examination
(VT-3) of the pumps internal pressure surface need only be examined if
the pump is disassembled for maintenance, repair or volumetric
examination. Since the pumps are a single casting, volumetric
examination is not applicable.

Alternate Examination:

The visual examination (VT-3) of the pumps internal pressure surface
will be done when the pump is disassembled for maintenance or repair.
The visual examination will only be done once per interval if
disassembled more often.

ISI RELIEF REQUEST IIR-39

Component:

BB-08-FW304

Category:

Augmented examination for break exclusion piping (NUREG-0800),
Examinations performed to ASME Section XI, 1980 Edition, Winter 1981
Addenda, Table IWC-2500-1, Examination Category C-F, Item Number C5.11

Description:

Reactor Coolant System Reactor Coolant Pump "A" Seal Water Injection 2"
pipe to 2" pipe

Code Requirement:

Volumetric Requirements:

Requires the inner 1/3t of the weld plus 1/4" of the base metal beyond
the weld toe to be scanned in two directions as specified by Appendix
III, paragraph III-4400 and Figure IWC-2500-7.

Surface Requirements:

100% surface examination as defined by Article 6 of ASME Section V and
Figure IWC-2500-7.

Basis for Relief:

The surface and volumetric examination of the subject weld was not able
to be performed due to a permanent box hanger located directly over the
subject weld. The box hanger has four integral attachments welded to it
which are in direct contact with the pipe. The integral attachments are
located directly on the subject weld, making it impossible to get access
to the weld for inspection purposes.

Alternate Examination:

None. There is not a replacement weld to inspect. All the welds that
are within the scope of NUREG-0800 for this system have been selected.

ASME Code Section III:

Components were accepted in accordance with the requirements of Section
III, which included volumetric and surface examinations as well as
pressure tests.

ISI RELIEF REQUEST IIR-39
(continued)

Evaluation of Plant Safety:

Strict ASME Section III quality controls were used when designing, fabricating and installing this weld. The PSI (surface and volumetric) of the subject weld identified no irregularities. In addition, all the remaining welds within the scope of NUREG-0800 for this system will or have been inspected.

Based on the above, reasonable assurance of the continued inservice structural integrity of the system is achieved without examining the above mentioned weld.