

## CATEGORY 1

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9603150070    DOC. DATE: 96/03/11    NOTARIZED: NO    DOCKET #  
 FACIL: 50-275 Diablo Canyon Nuclear Power Plant, Unit 1, Pacific Ga 05000275  
 50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323

AUTH. NAME .	AUTHOR AFFILIATION	<i>See Rpt.</i>
FUJIMOTO, W.H.	Pacific Gas & Electric Co.	
RECIP. NAME	RECIPIENT AFFILIATION	
	Document Control Branch (Document Control Desk)	

SUBJECT: Forwards ISI program plan second 10-yr insp interval ISI relief requests.

DISTRIBUTION CODE: A047D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 77  
 TITLE: OR Submittal: Inservice/Testing/Relief From ASME Code - GL-89-04

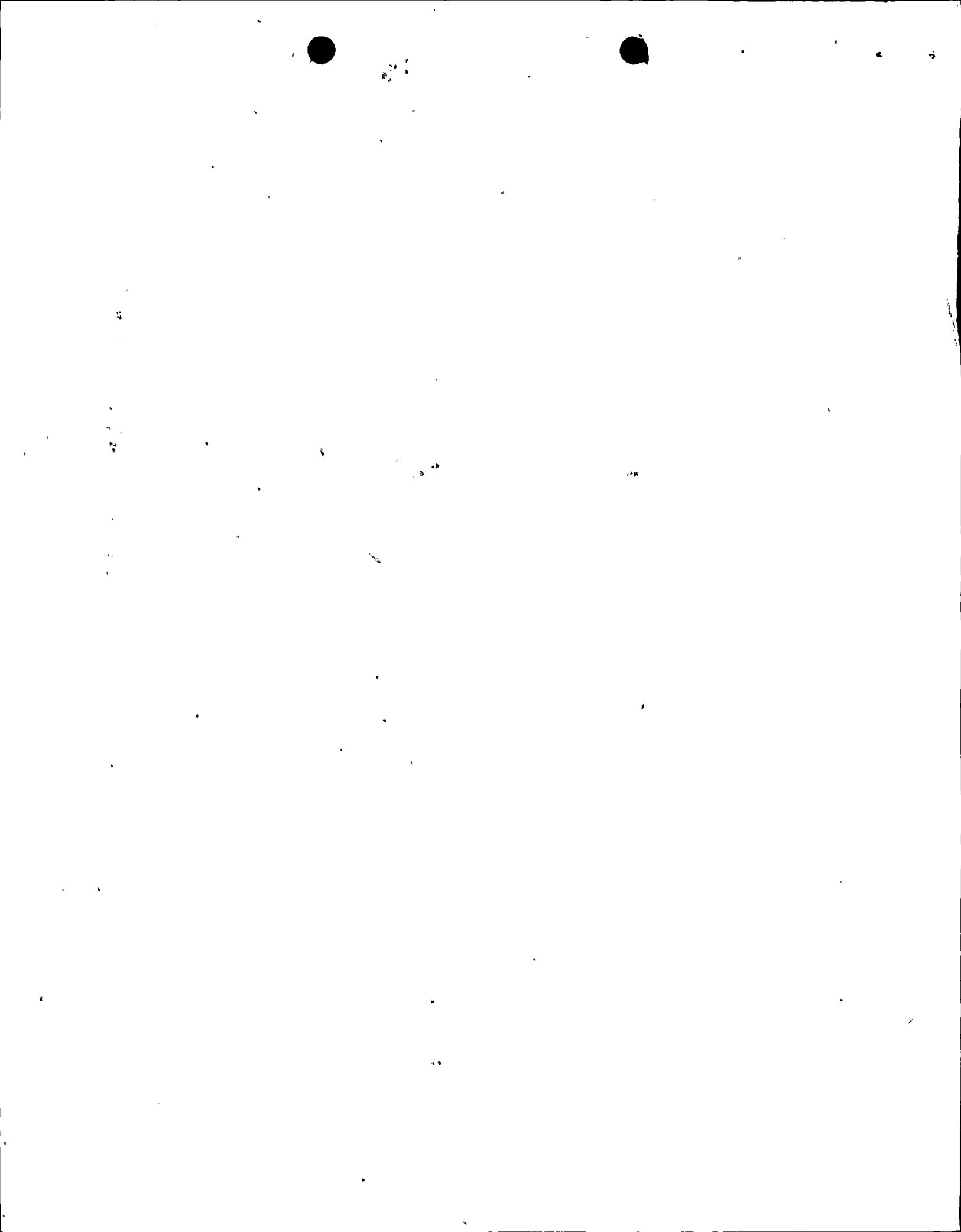
## NOTES:

	RECIPIENT ID CODE/NAME	COPIES		RECIPIENT ID CODE/NAME	COPIES	
		LTTR	ENCL		LTTR	ENCL
INTERNAL:	PD4-2 LA	1	1	PD4-2 PD	1	1
	BLOOM, S	1	1			
	ACRS	6	0	AEOD/SPD/RAB	1	1
	FILE CENTER 01	1	1	NRR/DE/ECGB	1	1
	NRR/DE/EMCB	1	1	NRR/DE/EMEB	1	1
	NUDOCS-ABSTRACT	1	1	OGC/HDS3	1	0
	RES/DET/EMMEB	1	1	RES/DSIR/EIB	1	1
EXTERNAL:	LITCO ANDERSON	1	1	NOAC	1	1
	NRC PDR	1	1			

NOTE TO ALL "RIDS" RECIPIENTS:  
 PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK,  
 ROOM OWFN 5D-5(EXT. 415-2083) TO ELIMINATE YOUR NAME FROM  
 DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 21 ENCL 14

*MA 2*



Pacific Gas and Electric Company

Diablo Canyon Power Plant  
P.O. Box 56  
Avila Beach, CA 93424  
805/545-6000

Warren H. Fujimoto  
Vice President—Diablo Canyon  
Operations and Plant Manager

March 11, 1996



PG&E Letter DCL-96-031

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

Docket No. 50-275, OL-DPR-80

Docket No. 50-323, OL-DPR-82

Diablo Canyon Units 1 and 2

Inservice Inspection Program Plan - Second Ten Year Inspection Interval

Inservice Inspection (ISI) Relief Requests

Dear Commissioners and Staff:

PG&E Diablo Canyon Power Plant (DCPP) is preparing to start its second ten-year inservice inspection (ISI) intervals for Units 1 and 2. The requirements of ASME Code Section XI, 1989 Edition, are being applied to Units 1 and 2, in accordance with 10 CFR 50.55a(g)(4)(ii) and 50.55a(b)(2).

The start dates for the second ten-year intervals are as follows:

Unit 1 Start Date:

The start date for Unit 1 is January 1, 1996, which corresponds approximately with the completion of Unit 1's seventh refueling outage. Unit 1's first ten-year ISI interval began on May 7, 1985 (commercial operation date), and nominally expired on May 7, 1995. The extension of Unit 1's first ten-year interval from May 7th to January 1st (approximately 8 months) is as allowed by ASME Section XI, Paragraph IWA-2400. This allows each ISI interval to be increased or decreased (but not cumulatively) by as much as one year.

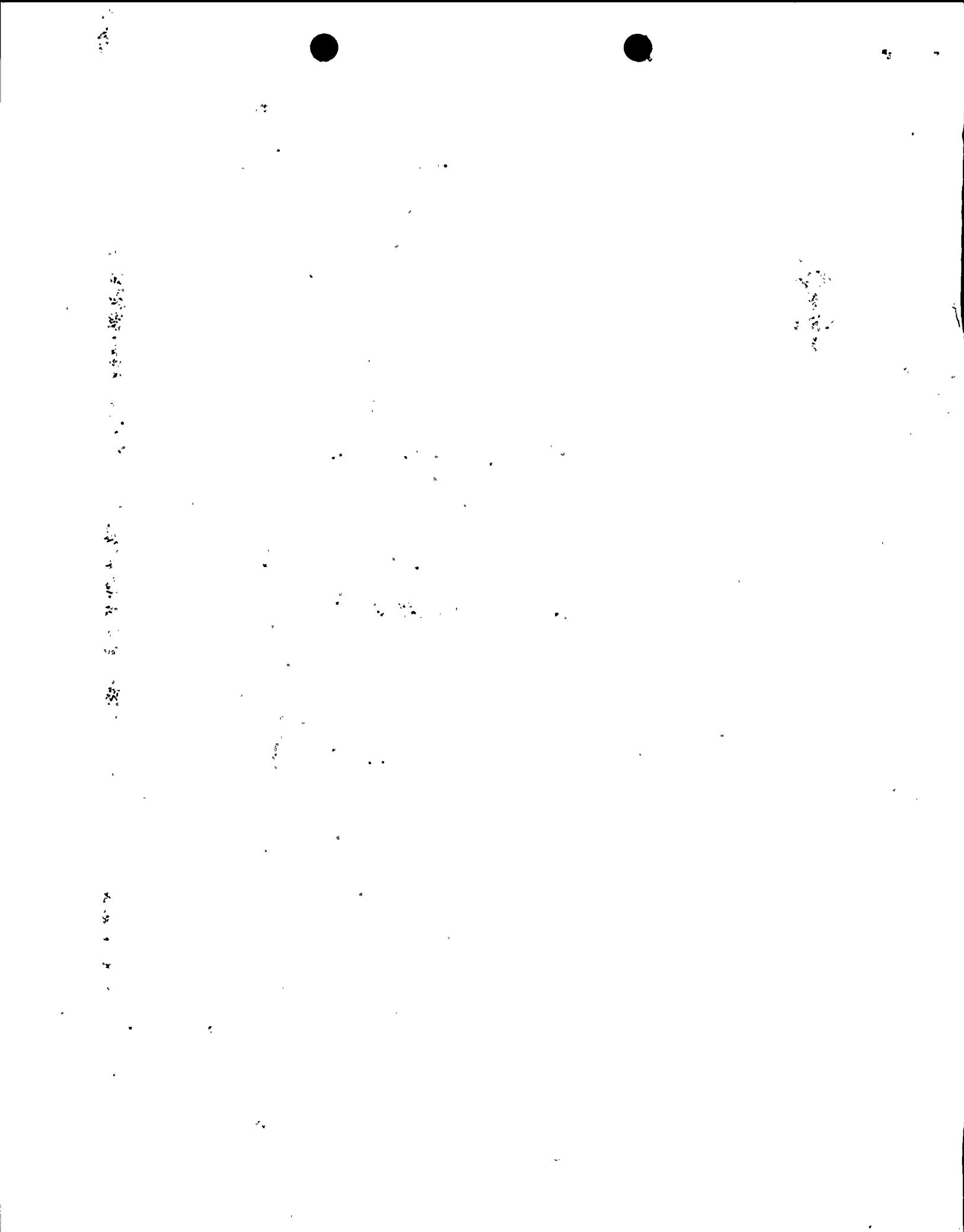
Unit 2 Start Date:

The start date for Unit 2 is June 1, 1996, which corresponds approximately with the completion of Unit 2's seventh refueling outage (2R7). Unit 2's first ten-year ISI interval began on March 13, 1986 (commercial operation date), and nominally expires on March 13, 1996. The extension of Unit 2's first ten-year ISI interval from March 13th to June 1st (approximately 2 1/2 months) is as allowed by ASME Section XI, Paragraph IWA-2400. This allows each ISI interval to be decreased or extended (but not cumulatively) by as much as one year.

150027

9603150070 960311  
PDR ADDCK 05000275  
Q PDR

A047  
11



Document Control Desk  
March 11, 1996  
Page 2

Note: These start dates are the same as those stated in PG&E letter DCL-95-288, dated December 29, 1995, for the Inservice Testing (IST) Program. This results in the ISI and IST programs having concurrent second ten-year intervals for administrative convenience.

#### Second Ten-Year Interval ISI Program Plan

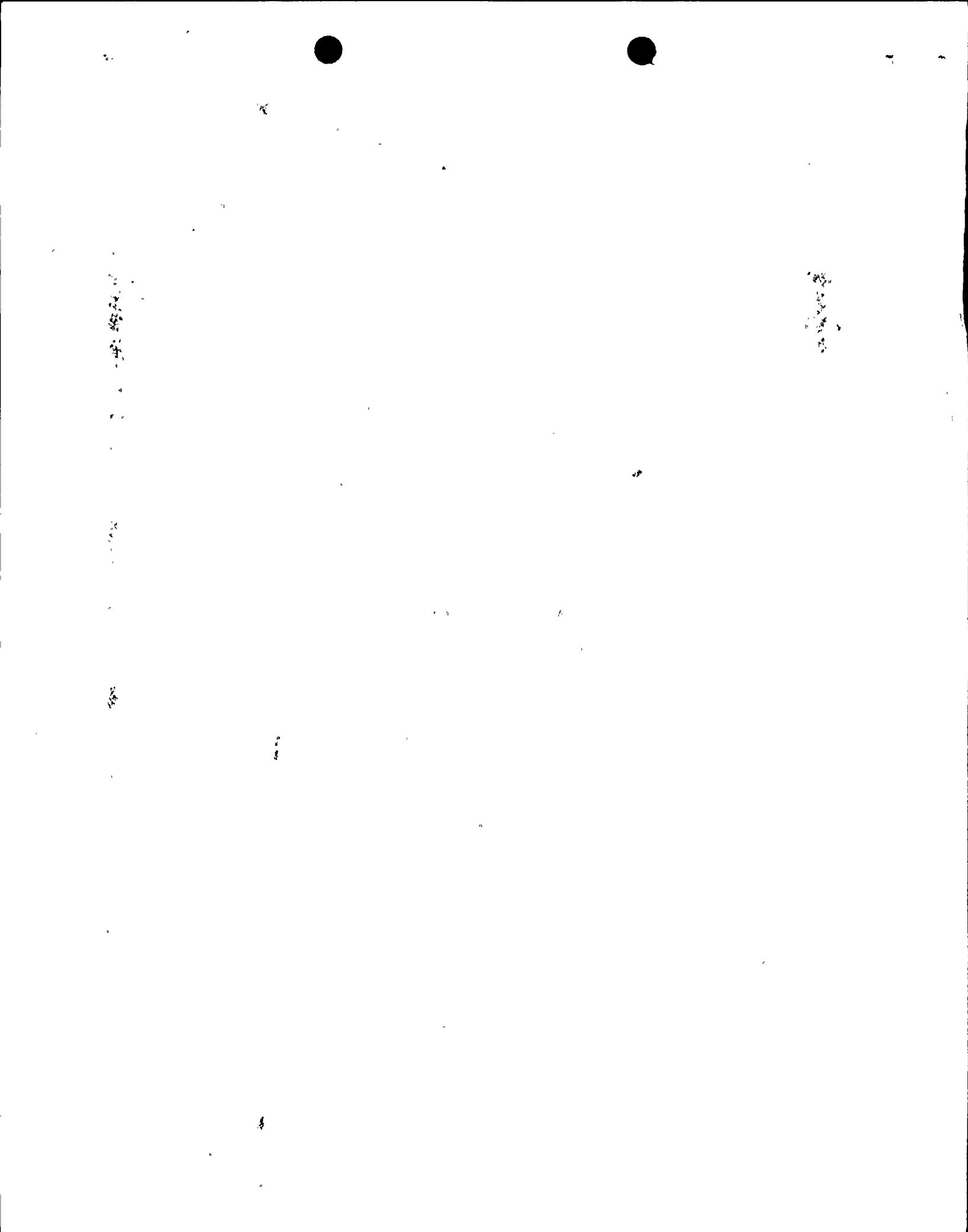
The second ten-year interval ISI program plan is scheduled for submittal approximately 90 days after 2R7. The 2R7 outage is currently scheduled to begin April 6, 1996, and be completed on or about May 11, 1996.

#### Relief Requests

Pursuant to 10 CFR 50.55a(g)(5)(iv), enclosed are the relief requests for the Diablo Canyon Units 1 and 2 second ten-year ISI intervals. The requests apply to both units, unless otherwise noted. Two additional relief requests for use of Code Cases N-416-1 and N-498-1 have been previously granted by the NRC for use in the second ISI interval (Ref. NRC letters dated June 13, 1995, and June 12, 1995). These two requests are not included here.

The enclosed requests for relief are justified in accordance with 10 CFR 50.55a(a)(3) because compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The partial or alternative examinations provide reasonable assurance of the continued structural integrity of the items. The health and safety of the public is not compromised by these reliefs because there is reasonable assurance that any existing flaw would be detected by the partial or alternative examinations.

References to relief requests for the first ISI interval in the enclosures are based on the Unit 1 ISI program plan for the first ten year interval; the Unit 2 program was similar, but the relief requests may be numbered differently. Some differences in actual weld coverage from that stated in the enclosures may occur due to the use of automated data acquisition systems and automated scanners, instead of manual scans. The automated equipment provides a significantly higher quality examination, but access to the examination surface may be somewhat more limited. In each case, PG&E examines all of the accessible area.



Document Control Desk  
March 11, 1996  
Page 3

PG&E anticipates relying on these relief requests during the first scheduled refueling outages of the second ten year interval. However, due to unanticipated plant operational conditions such as forced outages, there may be need to rely on the reliefs before that time. Therefore, PG&E requests that these relief requests be expeditiously approved.

Sincerely,



Warren H. Fujimoto

Enclosures

1399S/DDM/469

cc: Steven D. Bloom w/a  
L. J. Callan  
Kenneth E. Perkins  
Michael D. Tschiltz  
Diablo Distribution



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-1

### System/Component for Which Relief is Requested

Reactor vessel shell to bottom head weld.

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-A, Item B1.10, requires that the reactor vessel shell to bottom head weld (Unit 1 weld number 10-442; Unit 2 weld number 10-201) be volumetrically examined once at or near the end of the interval. Essentially, 100 percent of the weld volume is required to be examined by shear and longitudinal beams from both sides and along the weld axis, as shown in Figure IWB-2500-1, using the acceptance standard of IWB-3510.

### Code Requirement from Which Relief is Requested

Relief is requested from performing a portion of the volumetric examination where access is restricted by core support lugs and the bottom head taper.

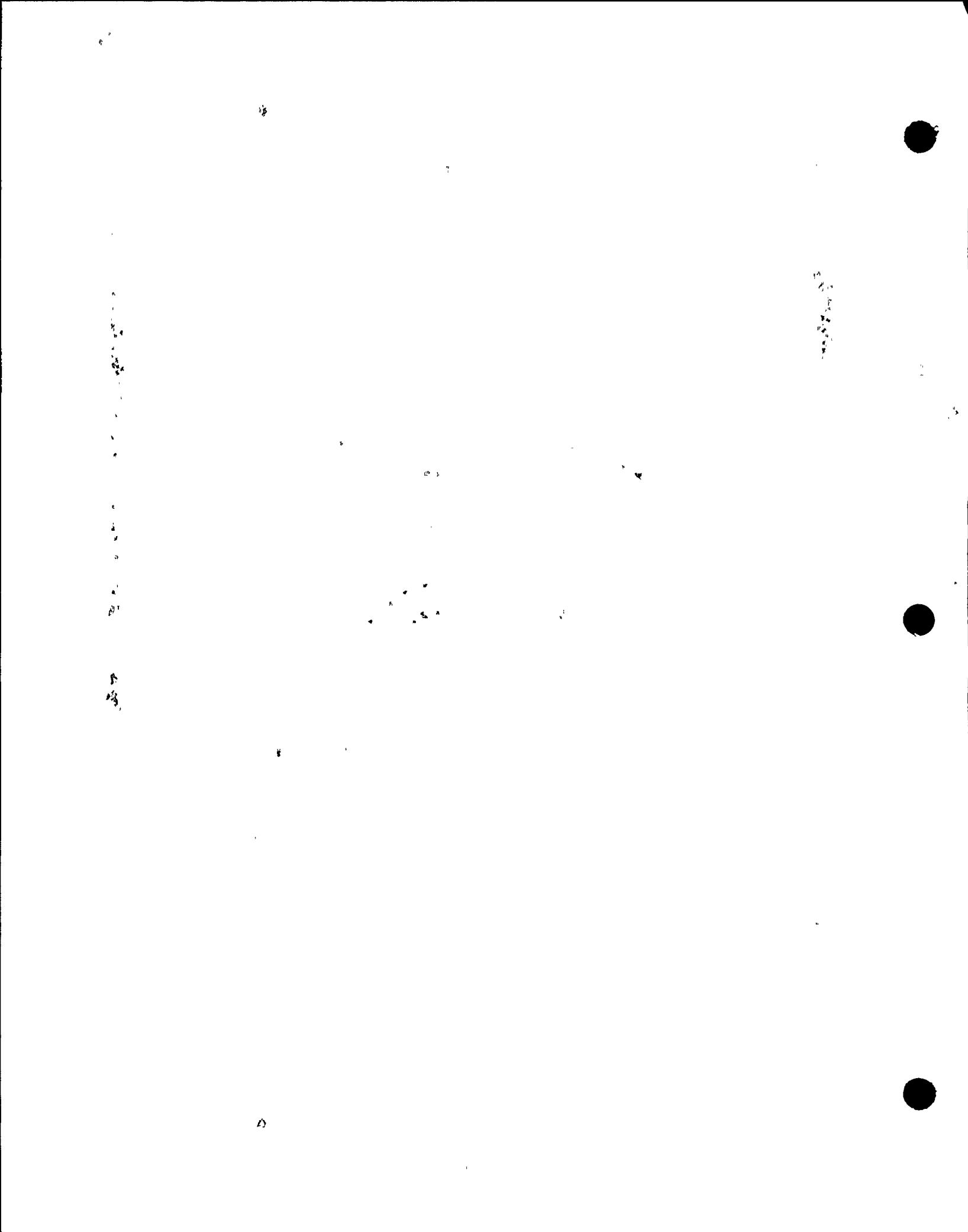
### Basis for Relief Request

Design of the vessel shell to bottom head weld precludes a portion of the required examination due to the presence of the 12 core support lugs. The core support lugs and bottom head taper prohibit access by the vendor's reactor vessel examination tool to a portion of the examination volume. Approximately 57 percent of the weld is accessible for Code volumetric examination and all accessible areas will be examined as required.

### Proposed Alternative

All accessible areas (approximately 57 percent of the required volume) will be completely examined as required.

.9603150070



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-1**

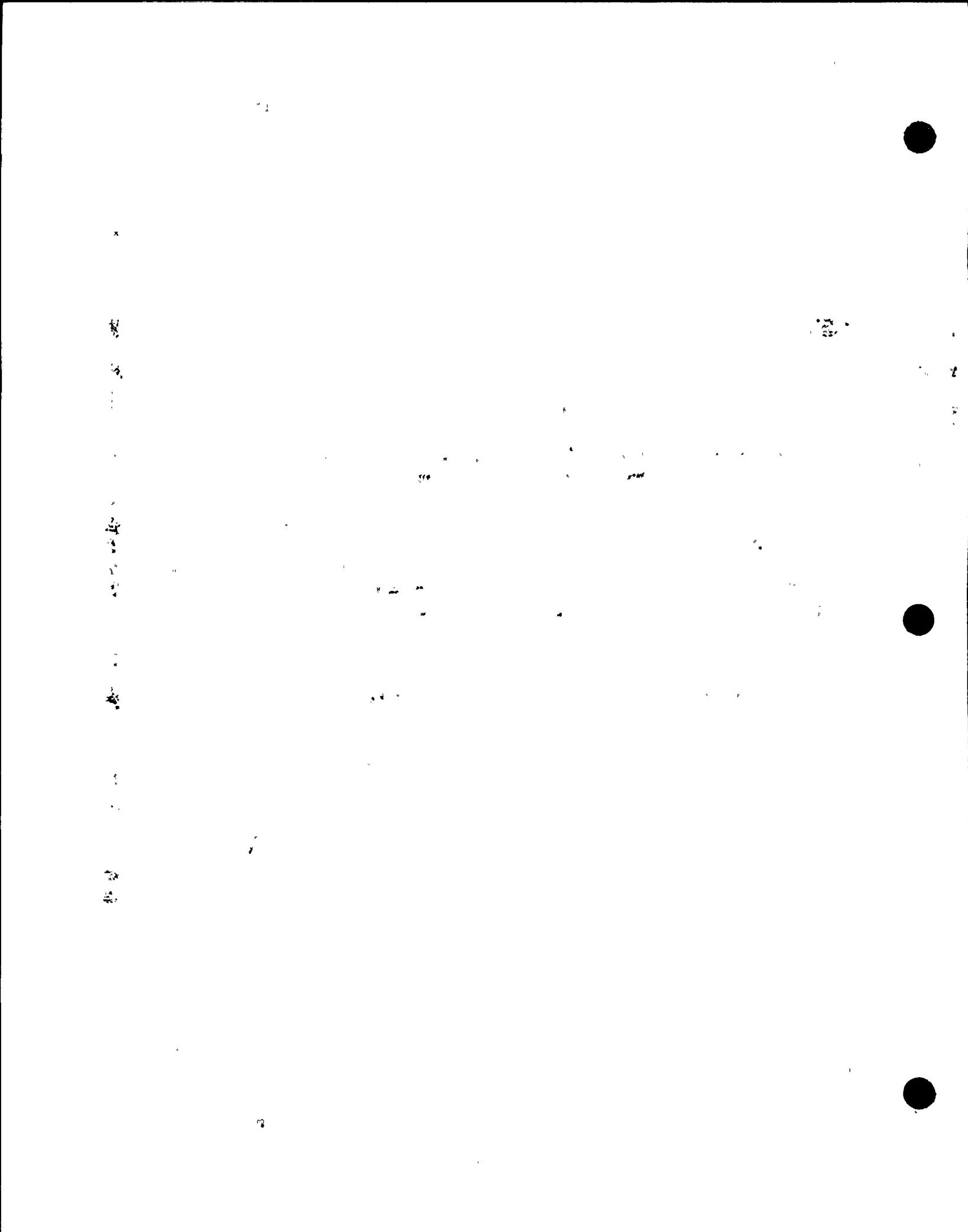
**Justification for Granting of Relief**

A portion of the weld is physically inaccessible due to the core support lug design. All areas accessible to the vendor's examination tool will be completely examined as required. In addition to the volumetric examination, visual examination of the vessel interior is performed per Code Category B-N-1 and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the visual examinations provide continued assurance of weld integrity.

**Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals. The examinations are expected to be performed during the second half of the intervals.

This request is essentially the same as NDE-001 from the first ISI interval and was approved in NRC letter dated December 14, 1988.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-2**

**System/Component for Which Relief is Requested**

Reactor Vessel Circumferential Head Welds.

**ASME Section XI Code Requirements**

1989 Edition, Table IWB-2500-1, Category B-A, Item B1.21, requires that the reactor vessel circumferential head welds (Unit 1 bottom head weld number 4-443 and closure head weld number 6-446B; Unit 2 bottom head weld number 4-202 and closure head weld number 6-205B) be volumetrically examined once at or near the end of the interval. Essentially, 100 percent of the weld volume is required to be examined by shear and longitudinal beams from both sides and along the weld axis as shown in Figure IWB-2500-3, with acceptance standard of IWB-3510.

**Code Requirement from Which Relief is Requested**

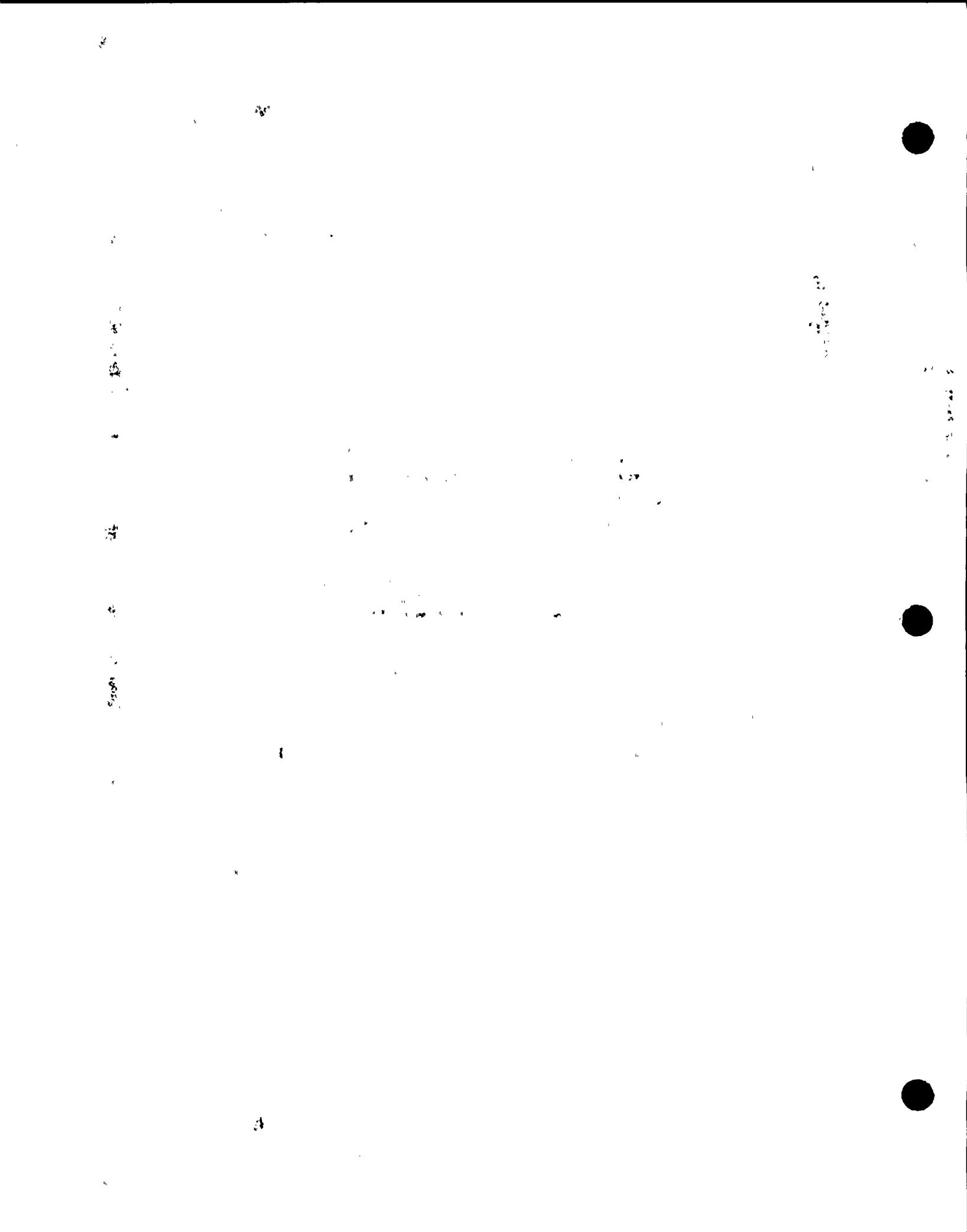
Relief is requested from performing the volumetric examination on these inaccessible welds.

**Basis for Relief Request**

Design of the reactor vessel circumferential head welds precludes the required examination due to the presence of the bottom head instrument penetrations which prohibit access by the vendor's reactor vessel inspection tool, and the control rod drive mechanism penetrations and cooling duct shroud on the closure head, which prevent access for manual or automated examination.

**Proposed Alternative**

None.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-2

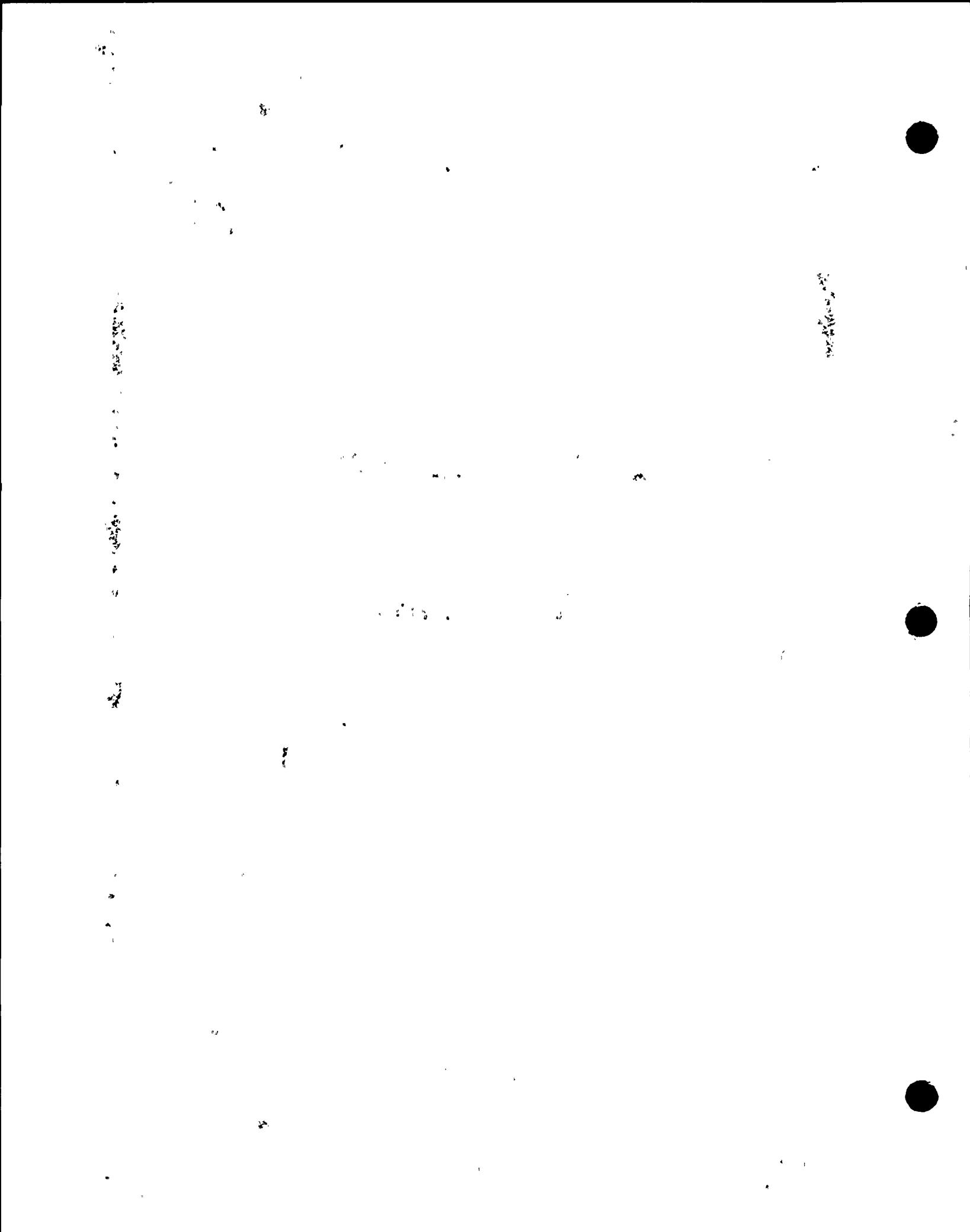
### Justification for Granting of Relief

The head circumferential welds are completely inaccessible for volumetric examination due to the vessel penetrations design. The welds are farthest from the "beltline" region of the shell; therefore, see the least neutron fluence. The bottom head weld area is visually examined as required by Code Category B-N-1 and all welds are subject to visual examination conducted during pressure test per Code Category B-P. These visual examinations and the volumetric examination of all other accessible weld areas on the reactor vessel provide continued assurance of weld integrity.

### Implementation Schedule

This relief request will be implemented during Units 1 and 2 second ISI intervals.

This request is essentially the same as a portion of NDE-002 from the first ISI interval and was approved in NRC letter dated December 14, 1988.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-3

### System/Component for Which Relief is Requested

Reactor vessel meridional head welds.

### ASME Section XI Code Requirements

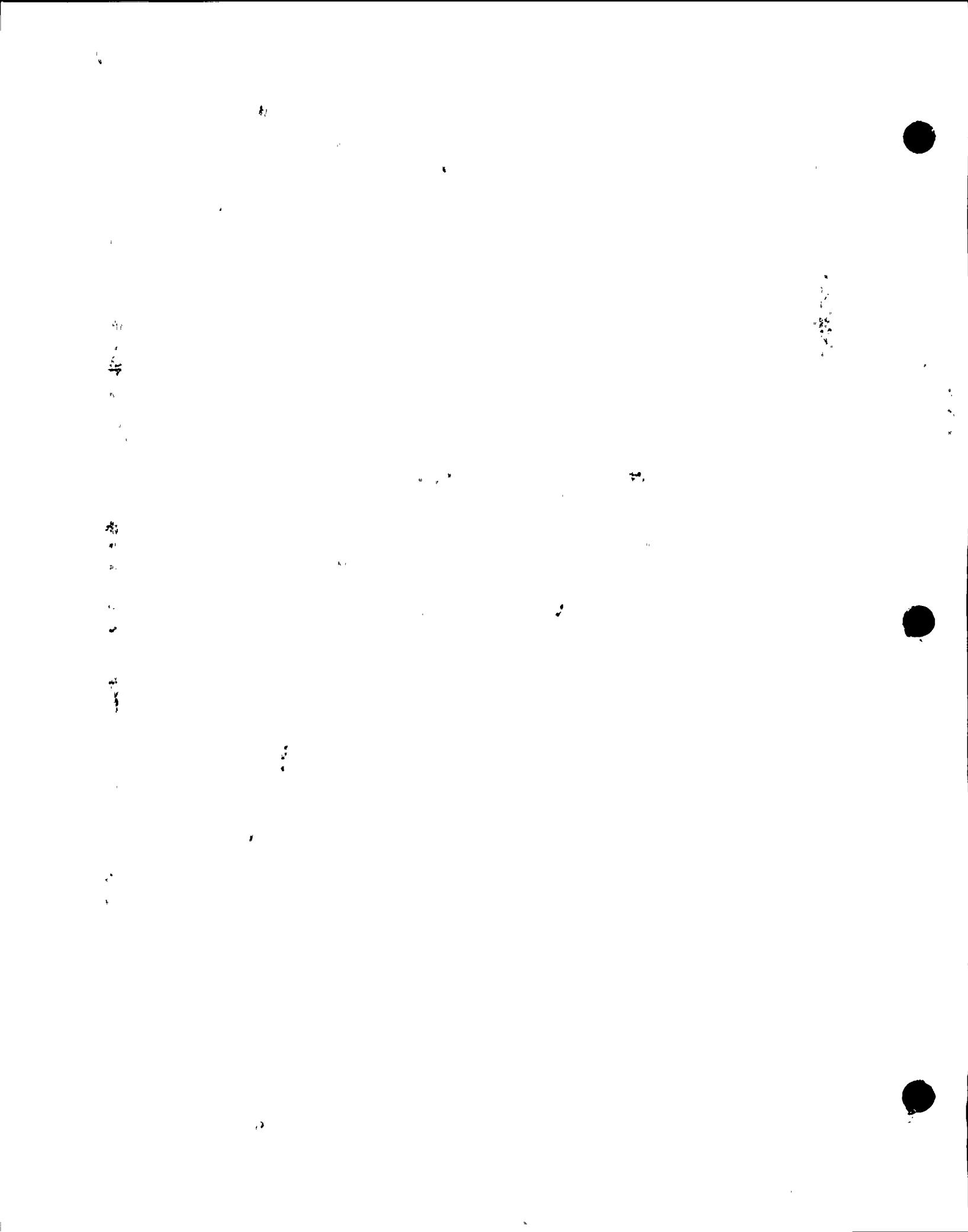
1989 Edition, Table IWB-2500-1, Category B-A, Item B1.22, requires that the reactor vessel meridional head welds (Unit 1 bottom head weld numbers 1-443A through F and closure head weld numbers 1-446A through F; Unit 2 bottom head weld numbers 1-202A through F and closure head weld numbers 1-205A through F) be volumetrically examined once during the interval. Essentially, 100 percent of the weld volume is required to be examined by shear and longitudinal beams from both sides and along the weld axis as shown in Figure IWB-2500-3, with acceptance standard of IWB-3510.

### Code Requirement from Which Relief is Requested

Relief is requested from performing a portion of the volumetric examination where access is restricted by bottom head instrument penetrations or closure head control rod drive mechanism (CRDM) penetrations and the closure head cooling duct shroud.

### Basis for Relief Request

Design of the reactor vessel meridional head welds precludes a portion of the required examinations due to the presence of the bottom head instrument penetrations, which limit the vendor's reactor vessel inspection tool to a portion of the examination volume. The CRDM penetrations and cooling duct shroud on the closure head which limit access for manual or automated examination to the section of weld below the shroud. Approximately 39 percent of the bottom head welds are accessible and approximately 50 percent of the closure head welds are accessible for Code volumetric examination. All accessible areas will be examined as required.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-3

### Proposed Alternative

All accessible areas (approximately 39 percent of the required volume for the bottom head meridional welds and approximately 50 percent of the required volume for the closure head meridional welds) will be completely examined as required.

### Justification for Granting of Relief

Access to portions of these welds is physically limited. All areas of the bottom head welds accessible to the vendor's examination tool will be completely examined as required. All accessible areas below the closure head cooling duct shroud will be completely examined as required. In addition to the volumetric examination, visual examination of the vessel interior is performed per Code Category B-N-1 and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the visual examinations provide continued assurance of the welds integrity.

### Implementation Schedule

This relief request will be implemented during Units 1 and 2 second ISI intervals. The examinations of the bottom head welds are expected to be performed during the second half of the intervals. The examinations of the closure head welds are distributed evenly throughout the intervals.

This request is essentially the same as a portion of NDE-002 from the first ISI interval and was approved in NRC letter dated December 14, 1988.

A:

## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-4

### System/Component for Which Relief is Requested

Reactor vessel shell to flange weld.

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-A, Item B1.30, requires that the reactor vessel shell to flange weld (Unit 1 weld number 7-442; Unit 2 weld number 7-201) be volumetrically examined once during the interval. Essentially, 100 percent of the weld volume is required to be examined by shear and longitudinal beams from both sides and along the weld axis as shown in Figure IWB-2500-4, with acceptance standard of IWB-3510.

### Code Requirement from Which Relief is Requested

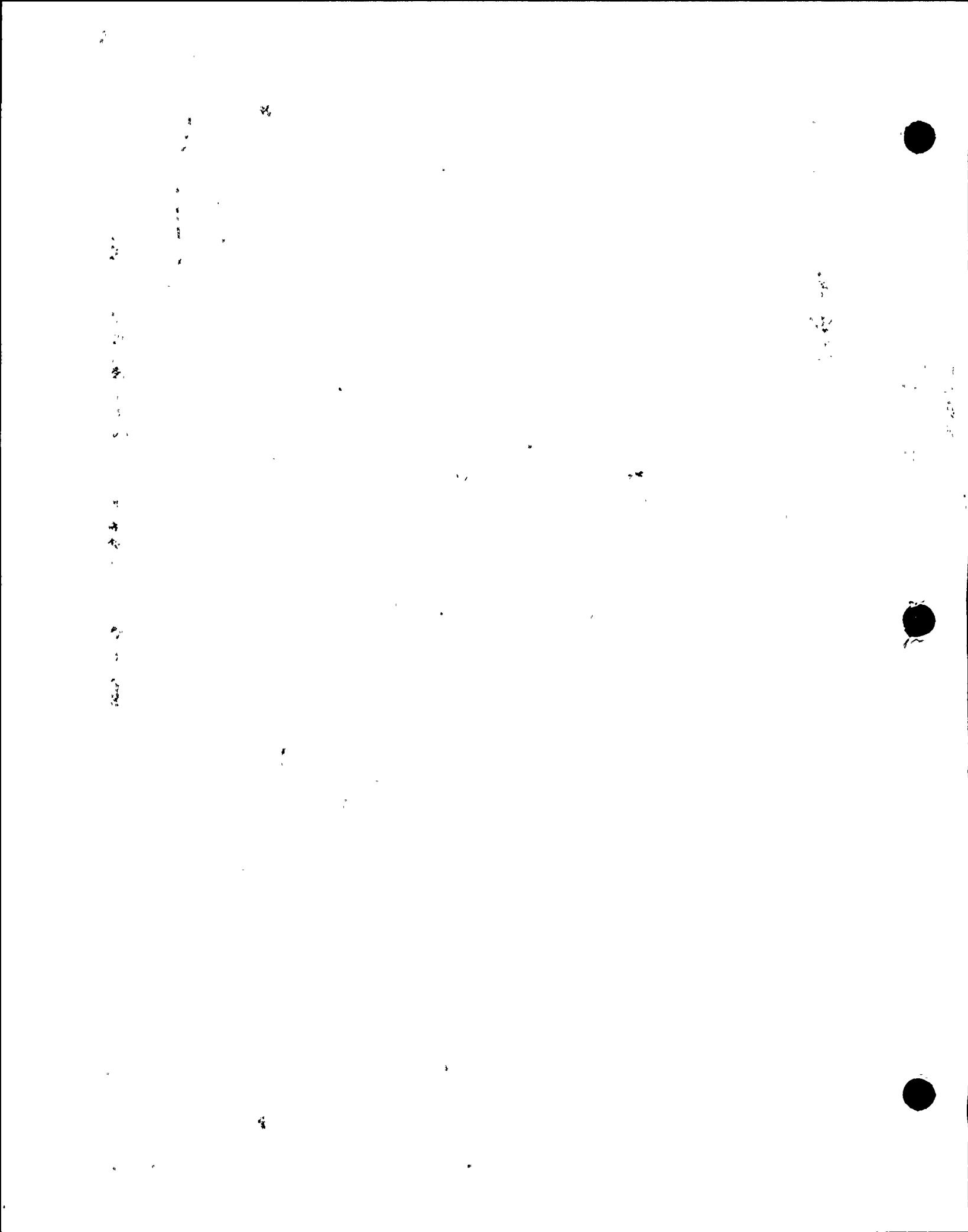
Relief is requested from performing a portion of the volumetric examination where access is restricted due to taper of the shell adjacent to the weld. This restriction affects a portion of the parallel scan from the vessel flange forging.

### Basis for Relief Request

Design of the reactor vessel shell to flange weld precludes a portion of the required examination due to the presence of an abrupt taper in the flange forging immediately adjacent to the weld. This taper causes lift-off of the transducer shoe of the vendor's reactor vessel inspection tool during the parallel scan from the vessel surface. All of the weld is accessible for perpendicular scans (done from the flange surface) and approximately 32 percent of the weld is accessible for parallel scans. Overall weld coverage is approximately 66 percent. All accessible areas will be examined as required.

### Proposed Alternative

All accessible areas (approximately 66 percent of the required volume) will be completely examined as required.



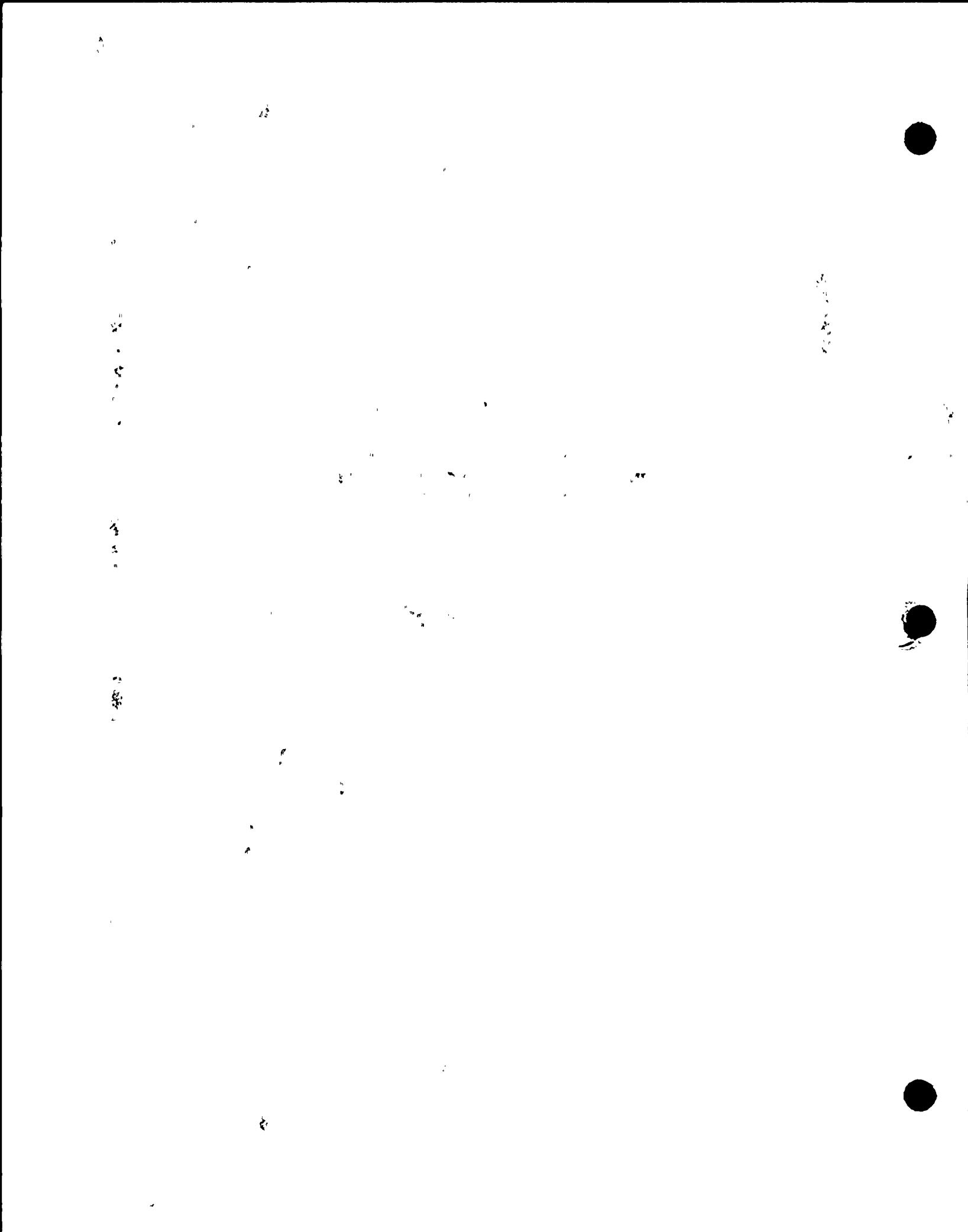
**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-4**

**Justification for Granting of Relief**

The taper adjacent to the weld physically limits access for a portion of the required examination. All areas of the shell to flange weld accessible to the vendor's examination tool for the parallel scans will be completely examined as required. Additionally, 100 percent of the required examination from the flange surface is completed using manual scanning techniques. In addition to the volumetric examination, visual examination of the vessel interior is performed per Code Category B-N-1 and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the visual examinations provide continued assurance of the weld integrity.

**Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals. The parallel scan examination of the shell to flange weld is expected to be performed during the second half of the intervals.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-5

### System/Component for Which Relief is Requested

Reactor vessel head to flange weld.

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-A, Item B1.40, requires that the reactor vessel head to flange weld (Unit 1 weld number 6-446A; Unit 2 weld number 6-205A) be volumetrically examined once during the interval. Essentially, 100 percent of the weld volume is required to be examined by shear and longitudinal beams from both sides and along the weld axis, as shown in Figure IWB-2500-5, with acceptance standard of IWB-3510.

### Code Requirement from Which Relief is Requested

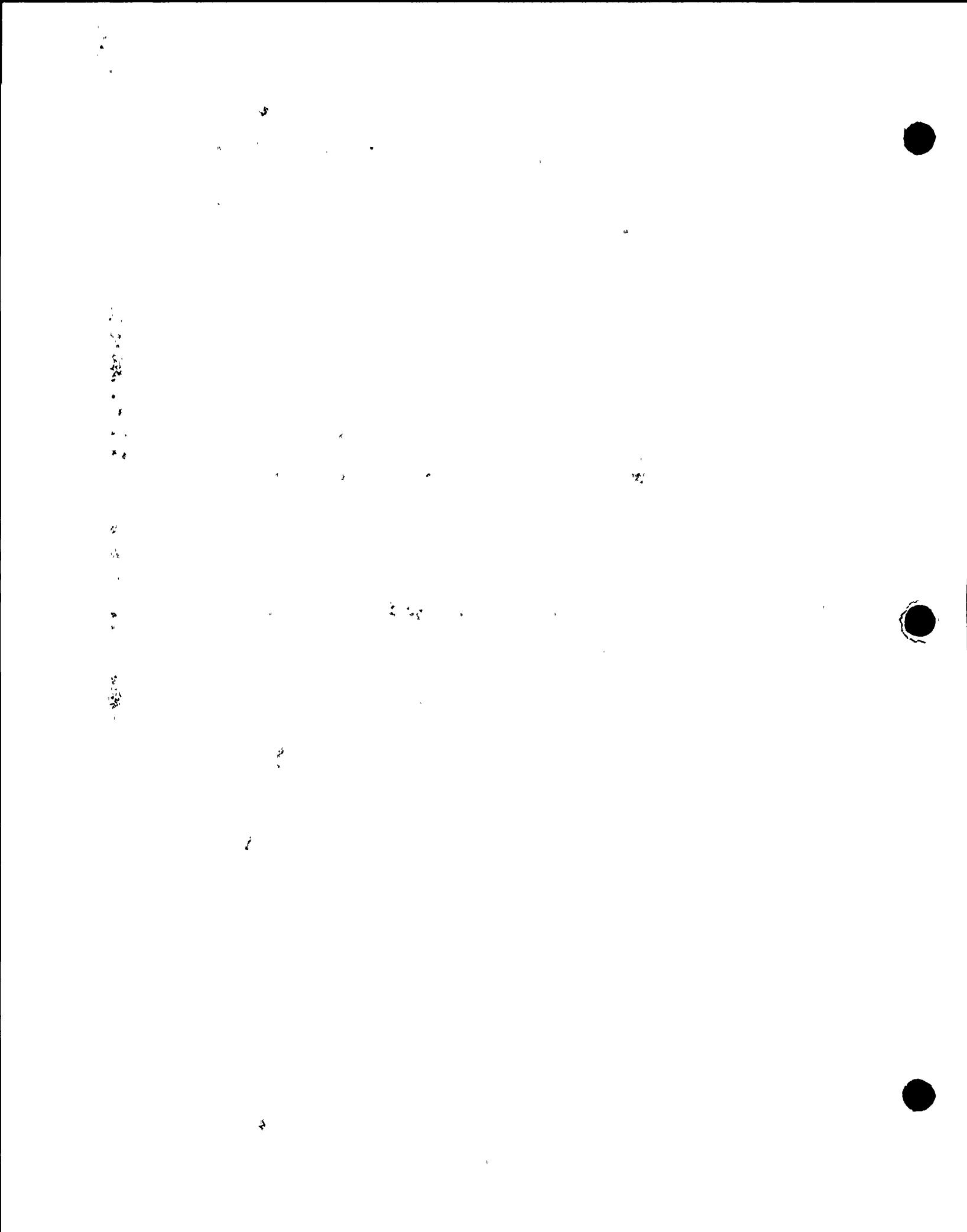
Relief is requested from performing a portion of the volumetric examination where access is restricted due to the blend radius of the flange and flange bolt holes adjacent to the weld. This restriction affects scans from the flange side. Additionally, the three closure head lifting lugs limit full access from the head side.

### Basis for Relief Request

Design of the reactor vessel head to flange weld precludes a portion of the required volumetric examination due to the blend radius of the flange and the flange bolt holes immediately adjacent to the weld. The radius causes lift-off of the transducer shoe and redirection of the sound beam during examination from the flange side, and the holes prevent general access. The three closure head lifting lugs also limit access from the head side. Approximately 68 percent of the weld is accessible. All accessible areas will be examined as required.

### Proposed Alternative

All accessible areas (approximately 68 percent of the required volume) will be completely examined as required.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-5

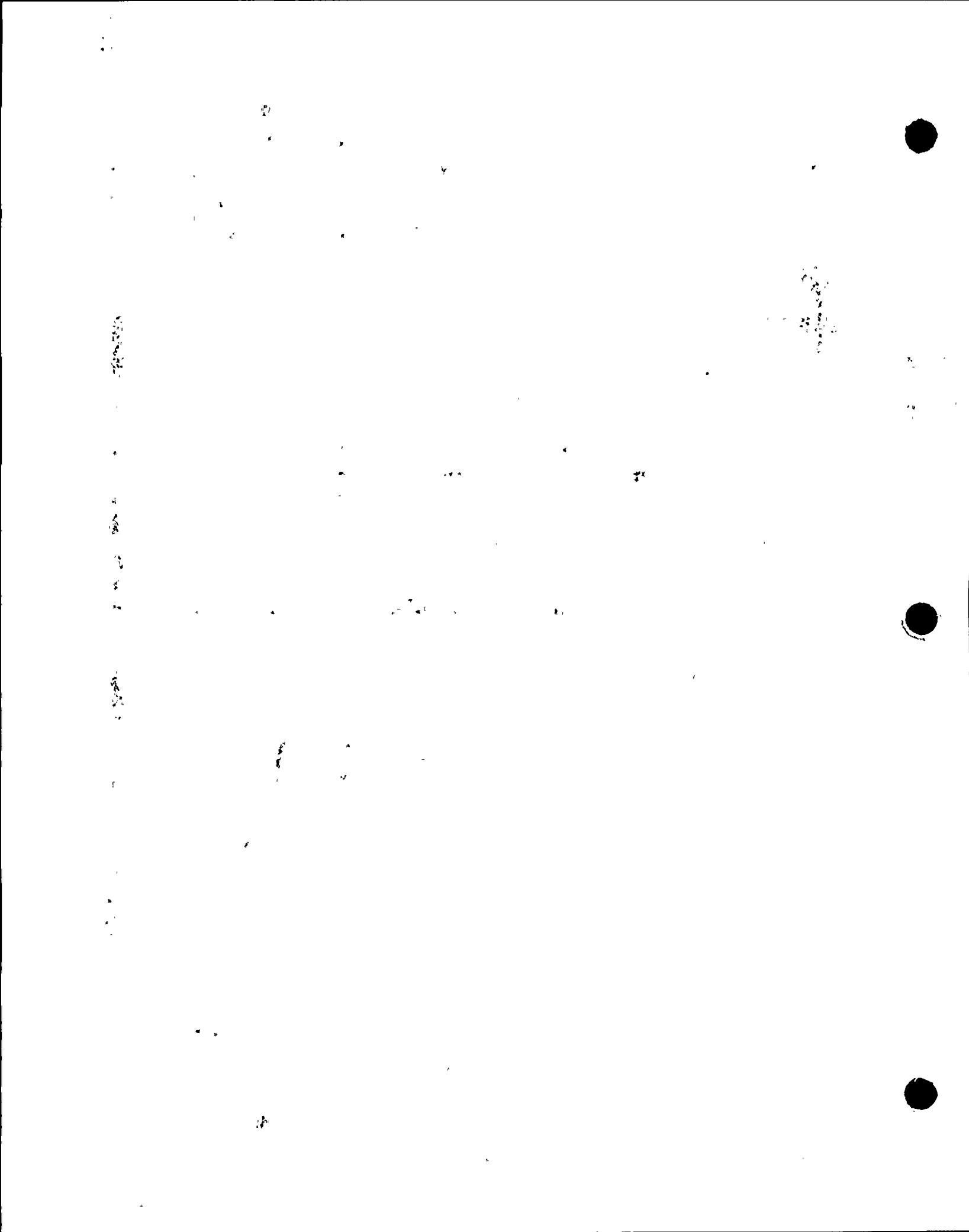
### Justification for Granting of Relief

The head to flange blend radius and lifting lugs limit access for a portion of the required examination volume. All accessible areas of the head to flange weld will be completely examined as required. In addition to the volumetric examination, a surface examination is performed, and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the surface and visual examinations provides continued assurance of the welds integrity.

### Implementation Schedule

This relief request will be implemented during the Units 1 and 2 second ISI intervals. The examination of the head to flange weld is performed in sections apportioned evenly throughout the intervals.

This request is essentially the same as NDE-003 from the first ISI interval and was approved in NRC letter dated December 14, 1988.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-6

### System/Component for Which Relief is Requested

Reactor vessel nozzle to vessel welds.

### ASME Section XI Code Requirements

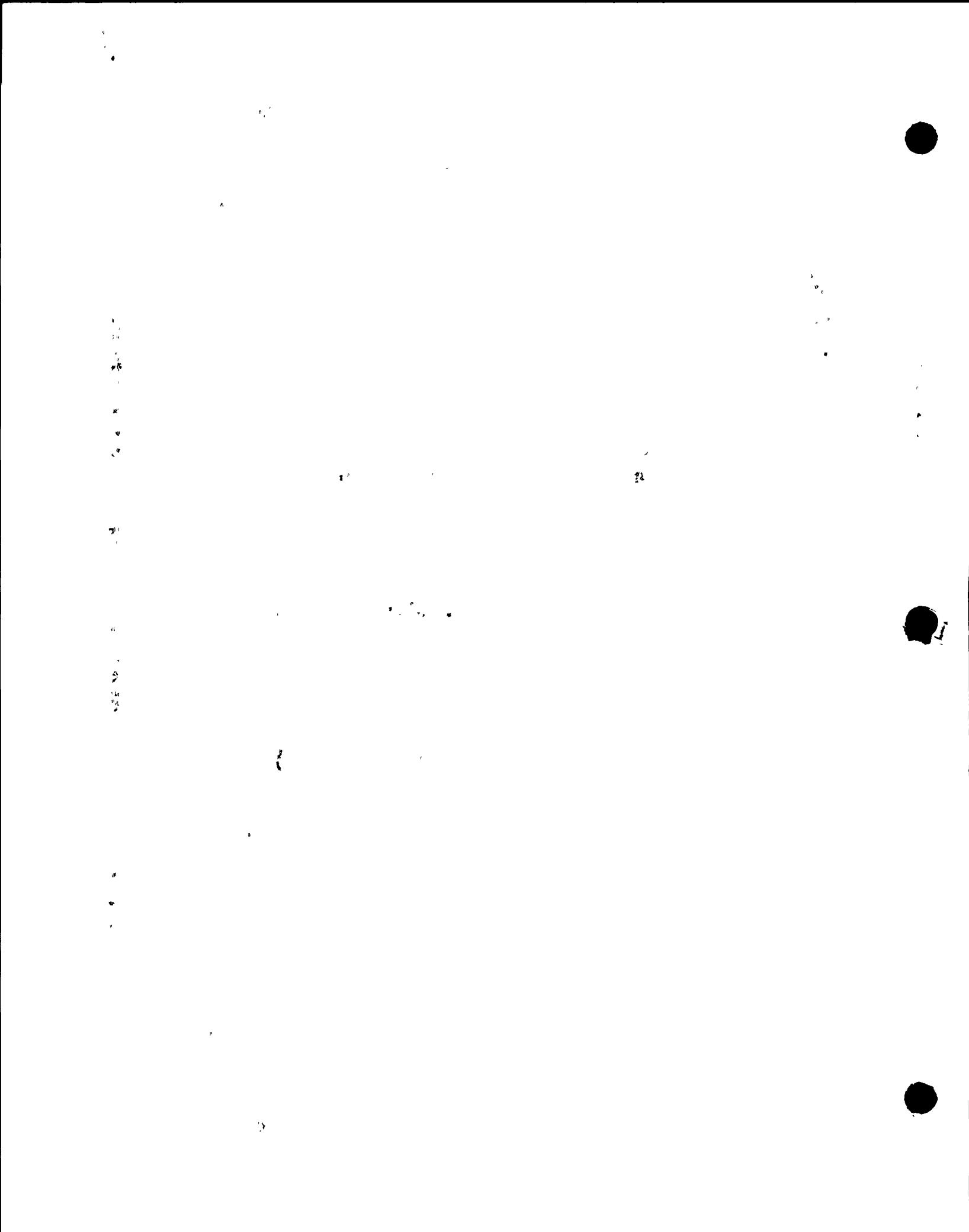
1989 Edition, Table IWB-2500-1, Category B-D, Item B3.90, requires that the reactor vessel nozzle-to-vessel welds (four each 29 inch nominal pipe diameter outlet nozzles and 27.5 inch nominal pipe diameter inlet nozzles) be volumetrically examined once during the interval. Essentially, 100 percent of the weld volume is required to be examined by shear and longitudinal beams from inside the nozzle and from the vessel shell as shown in Figures IWB-2500-7(a), with acceptance standard of IWB-3512. At least 25 percent of the nozzle welds are required to be examined in the first inspection period. Partial deferral is conditionally permitted by Code Footnote 3.

### Code Requirement from Which Relief is Requested

Relief is requested from performing a portion of the volumetric examination from the vessel shell (parallel to the weld) where access is restricted due to the outlet nozzle reinforcement, the adjacent nozzle opening, and the vessel closure flange transition; and from performing period one examinations, including the deferral conditions of the shell side exam required by Code Footnotes 2 and 3.

### Basis for Relief Request

Design of the reactor vessel and nozzles precludes a portion of the required examination from the vessel shell side due to the reinforcement on the outlet nozzles which break the plane of the vessel shell, the presence of the adjacent nozzles which limit scan travel, and the closure flange transition which presents a ramp on the scanning surface causing transducer liftoff. Overall, approximately 90 percent of each inlet nozzle weld and 80 percent of each outlet nozzle weld is accessible. All accessible areas will be examined.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-6

### Basis for Relief Request (Continued)

Performing partial examination of two nozzles in period one cost over a quarter million dollars per Unit in direct vendor billing, not counting local support or any costs associated with radiation exposure. There has never been a failure of nozzle welds in a pressurized water reactor, and the welds will be fully examined (with the minor limitations noted above) at or near the end of the interval at minor incremental cost as part of the full vessel examination. The large cost associated solely with early schedule of the examination constitutes an extreme burden with no compensating benefit to safety.

### Proposed Alternative

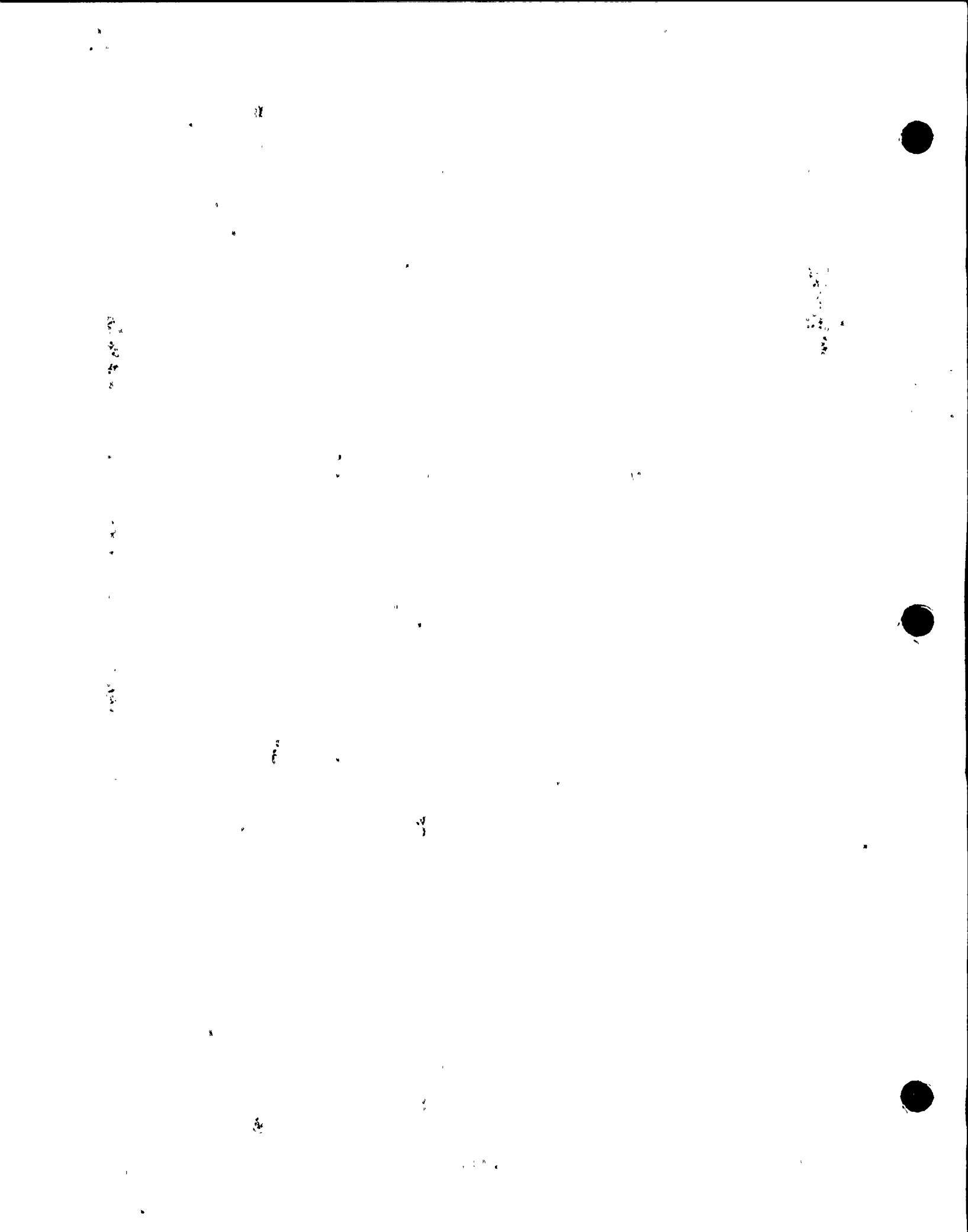
All accessible areas (approximately 86 percent of the required volume of inlet nozzles and 66 percent of the required volume for outlet nozzles; in both cases coverage from inside the bore is approximately 100 percent) will be completely examined as required at or near the end of the inspection interval.

### Justification for Granting of Relief

Access to a portion of the examination area is physically limited from the vessel shell side. All accessible areas of the nozzle-to-vessel weld will be completely examined, including full coverage from inside the nozzle bore. In addition to the partial volumetric examination, visual examination of the vessel interior is performed per Code Category B-N-1 and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the visual examinations provide continued assurance of weld integrity. The high cost of early partial examination of two nozzles is not justified by any increase in quality or safety.

### Implementation Schedule

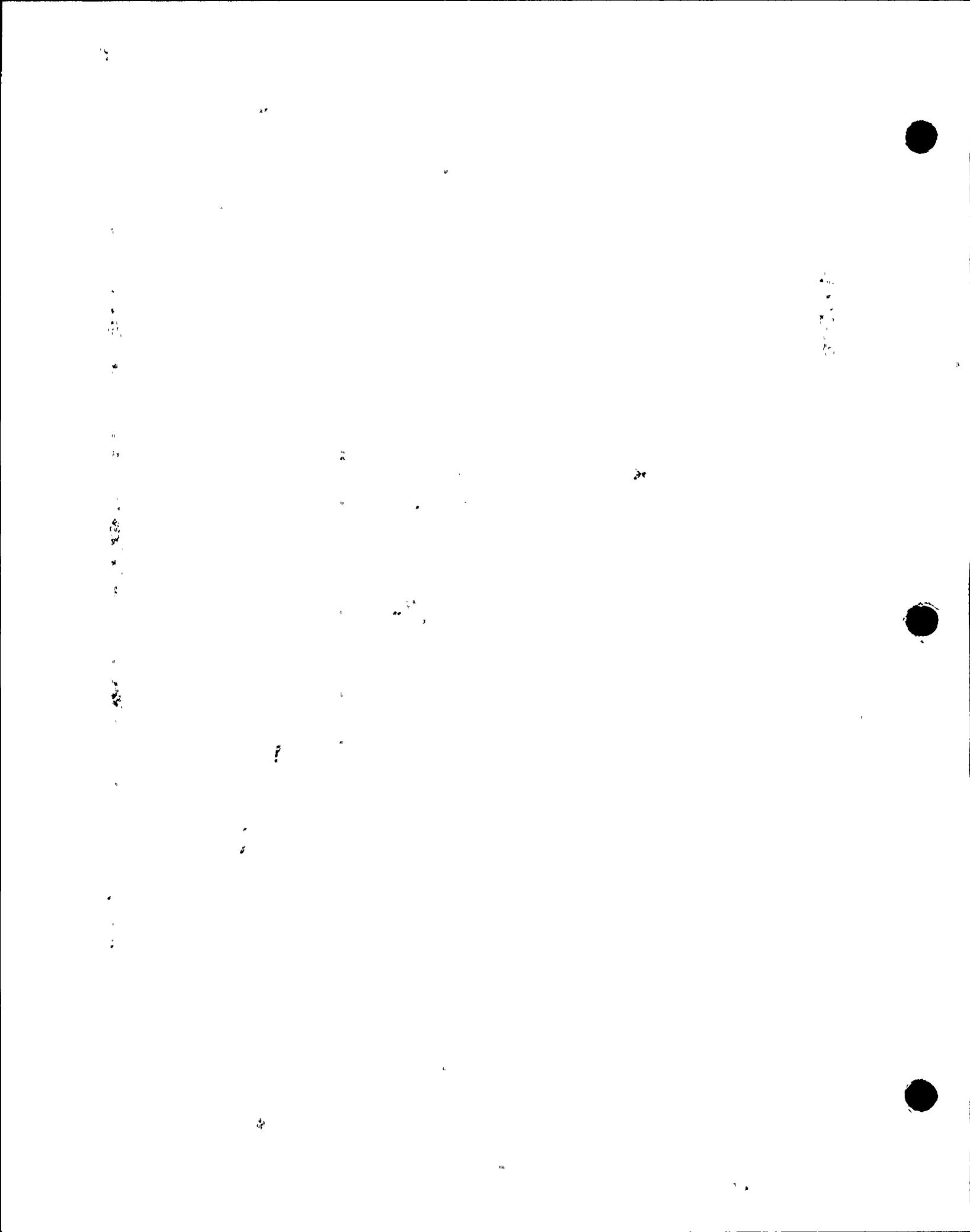
This relief request will be implemented during the Units 1 and 2 second ISI intervals. The examinations of the nozzle-to-vessel welds are planned for the second half of the intervals.



Enclosure  
PG&E Letter DCL-96-031

**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-6**

The portion of this request involving physical limits is essentially the same as NDE-004 from the first ISI interval and was approved in NRC letter dated December 14, 1988. The portion dealing with examination schedule is a new request based on first interval experience and related to NDE-7 which follows.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-7

### System/Component for Which Relief is Requested

Reactor vessel nozzle inside radius section (schedule).

### ASME Section XI Code Requirements

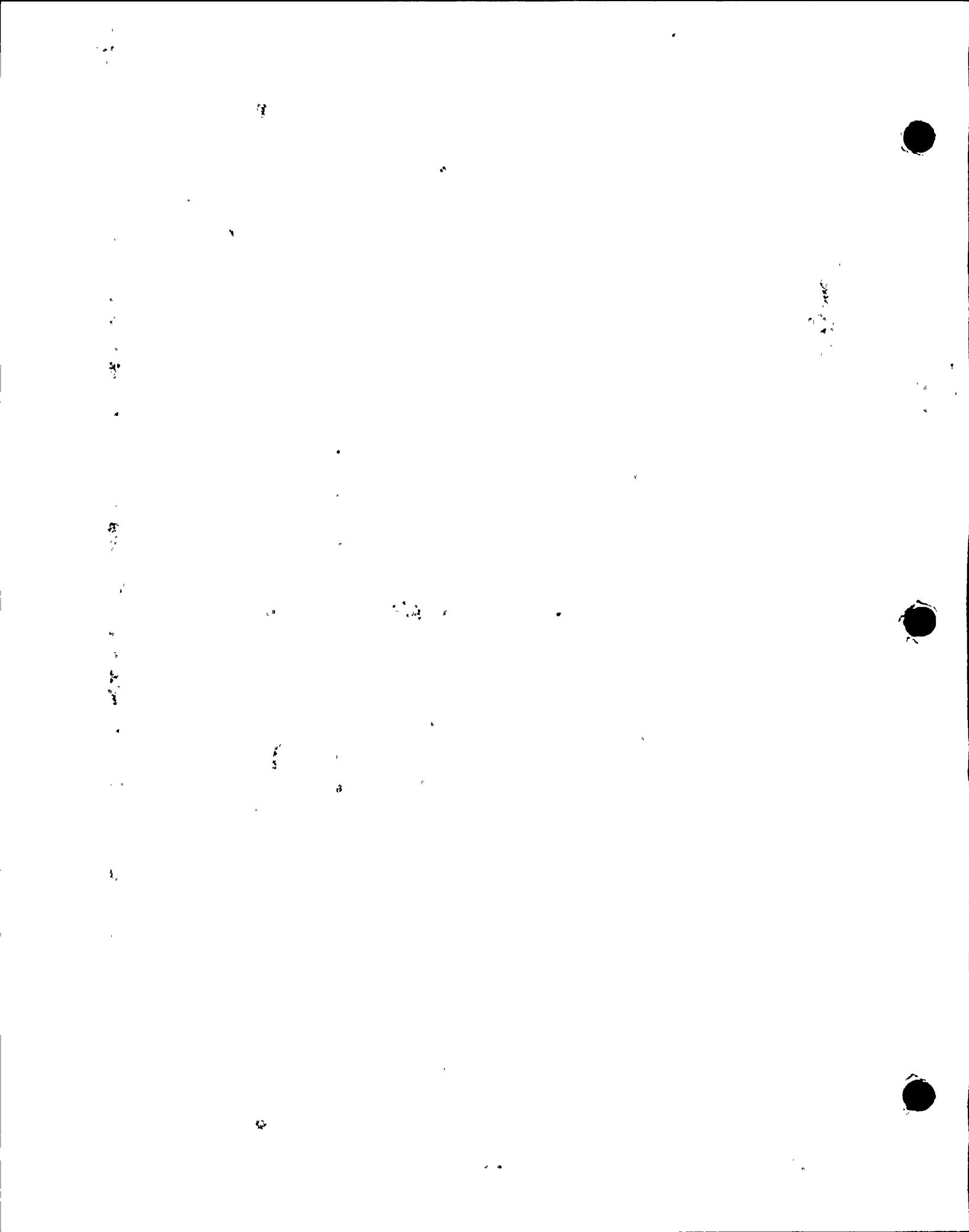
1989 Edition, Table IWB-2500-1, Category B-D, Item B3.100, requires that the reactor vessel nozzle inside radius section (four each 29 inch nominal pipe diameter outlet nozzles and 27.5 inch nominal pipe diameter inlet nozzles) be volumetrically examined. Essentially, 100 percent of the nozzles inside radius section is required to be examined using near surface ultrasonic techniques from the nozzle radius as shown in Figure IWB-2500-7(a), with acceptance standard of IWB-3512. Deferral of the examination of two of the inside radius sections to the end of the inspection interval is not permitted, according to Code Footnote 2.

### Code Requirement from Which Relief is Requested

Relief is requested from the distributed schedule requirement which does not permit deferral of examination of 25 percent (two) of the nozzles inside radius section to the end of the inspection interval, as stated in Code Footnote 2.

### Basis for Relief Request

Relief from the schedule requirement is necessary because performing examinations of the nozzle inside radius section requires use of a vendor inspection tool and is not cost effective to perform separately from the rest of the vessel examinations. A separate examination of the two nozzles, including the inside radius section, cost over a quarter million dollars in direct vendor billing in the first interval, and constitutes an extreme burden with no compensating increase in safety. The same examinations can be performed at or near the end of the interval together with the remainder of the vessel examinations at minor incremental cost.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-7**

**Proposed Alternative**

All of the required nozzles inside radius section will be completely examined at or near the end of the inspection interval, concurrently with the examination of the rest of the reactor vessel.

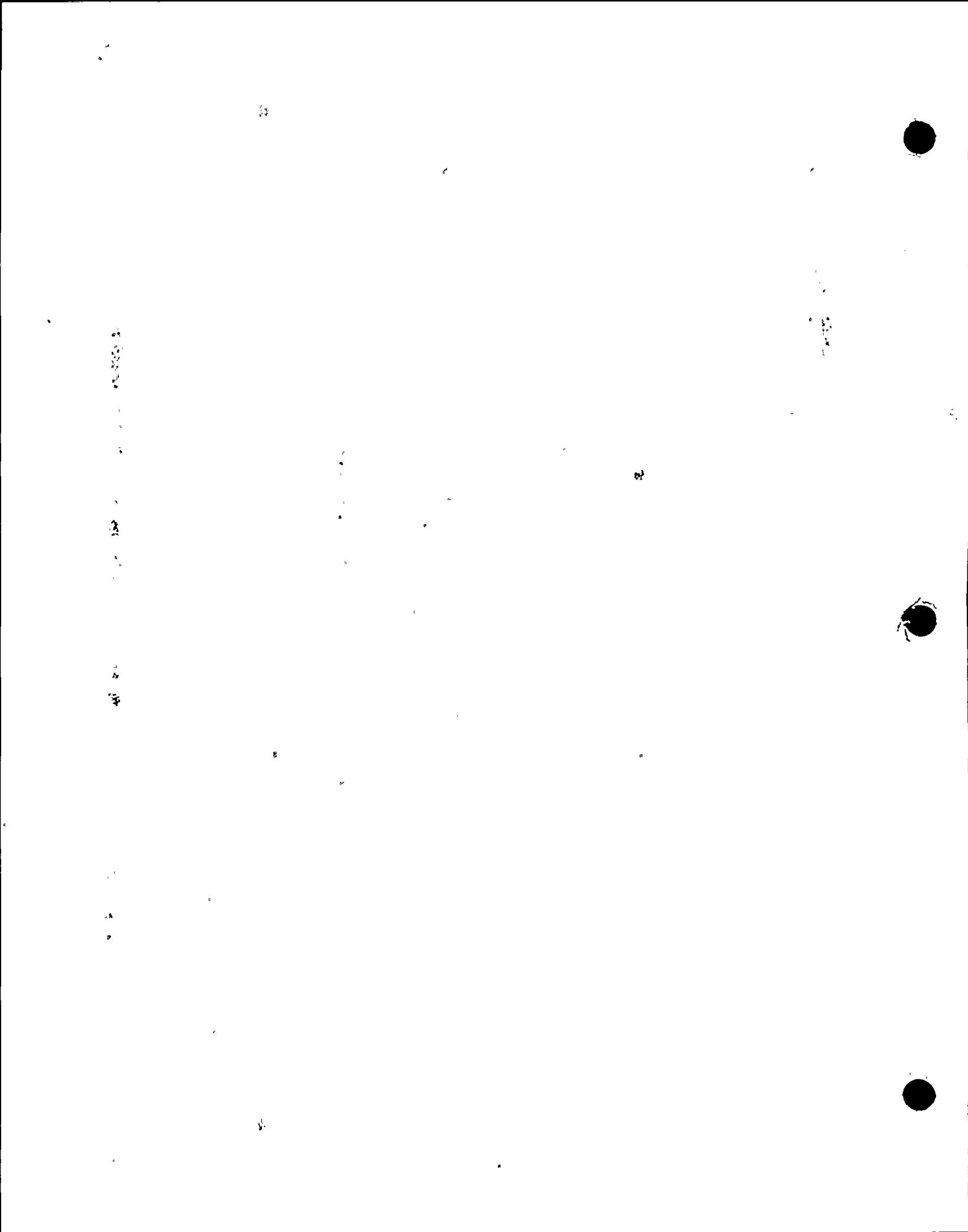
**Justification for Granting of Relief**

All of the nozzles inside radius section will be completely examined to provide continued assurance of integrity; however, the burden of additional scheduled examination is not justified by any benefit derived from performing the examinations of two nozzles inside radius section on a distributed schedule before the end of the inspection interval. Interim assurance of the integrity of the two nozzles inside radius section is provided by the demonstrated adequacy of the remaining nozzles as shown by the examinations performed in the first interval, third period. There have been no documented failures in the inside radius section of pressurized water reactor nozzles.

**Implementation Schedule**

This relief request will be implemented during the Units 1 and 2 second ISI intervals. The examinations of the two nozzles inside radius section are planned for the second half of the intervals, concurrently with the balance of the reactor vessel examinations.

This is a new request and is related to a portion of the preceding NDE-6.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-8

### System/Component for Which Relief is Requested

Pressurizer nozzle inside radius section.

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-D, Item B3.120, requires that the pressurizer nozzle inside radius section (four each 6 inch nominal pipe diameter relief nozzles, one four inch nominal pipe diameter spray nozzle and one 14 inch nominal pipe diameter surge nozzle) be volumetrically examined once during the interval. Essentially, 100 percent of the nozzle inside radius section is required to be examined as shown in Figure IWB-2500-7(b) for Unit 1 and IWB-2500-7(d) for Unit 2, with acceptance standard of IWB-3512.

### Code Requirement from Which Relief is Requested

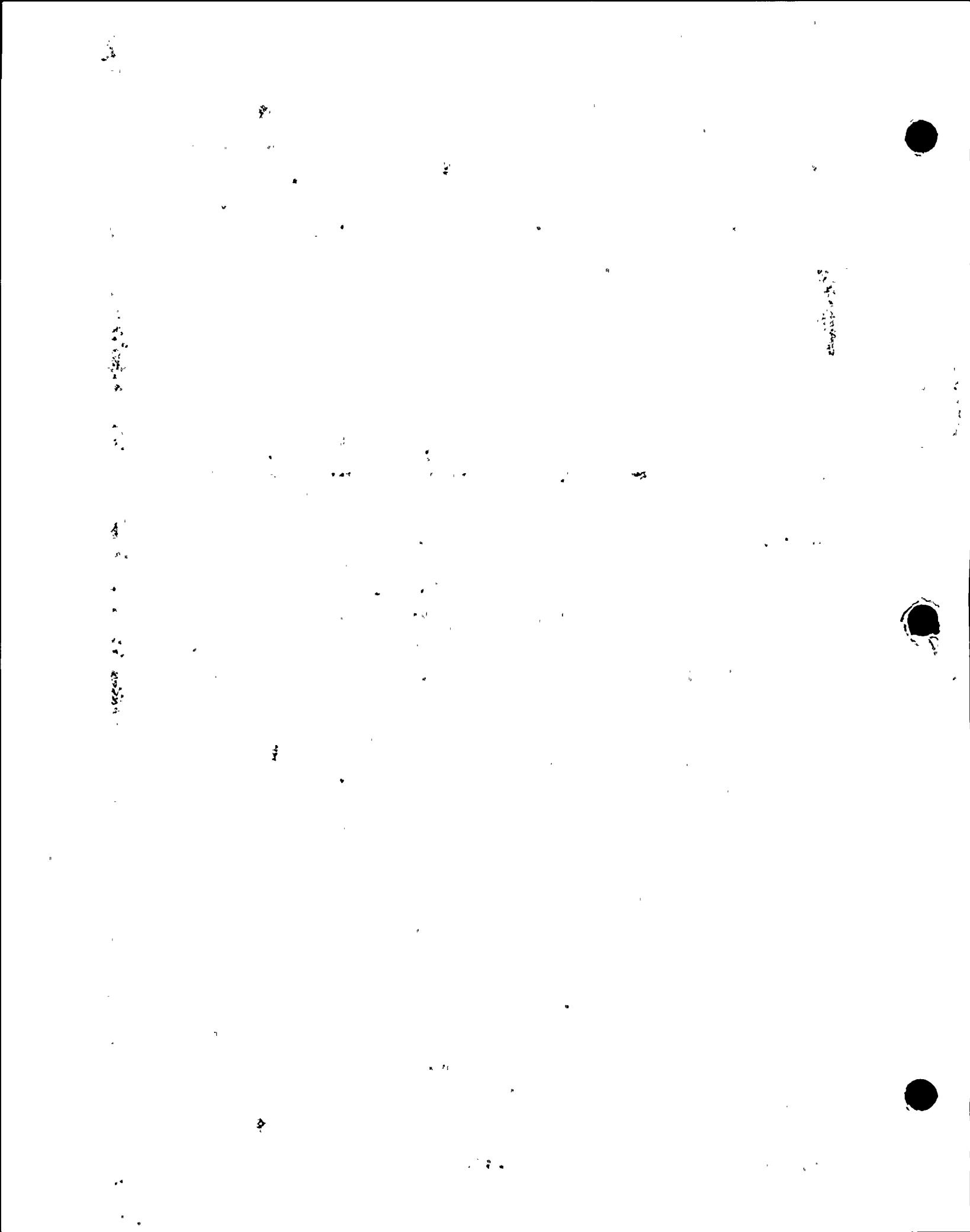
Relief is requested from performing the volumetric examination of the pressurizer nozzles inside radius section due to adverse surface conditions which make meaningful examination impossible.

### Basis for Relief Request

Design of the pressurizer and nozzles precludes performance of any meaningful examination of the inside radius section. The surge line nozzle is surrounded by heater penetrations which prohibit access to scan the inside radius area. On the top head, the compound curvature of the head combined with continuously variable orientation of the 6-inch nozzles, the short radii of all the nozzles and the irregularity of the surface make meaningful examination impossible. On Unit 2, the nozzles are welded and the weld crown presents an additional limitation.

### Proposed Alternative

None.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-8**

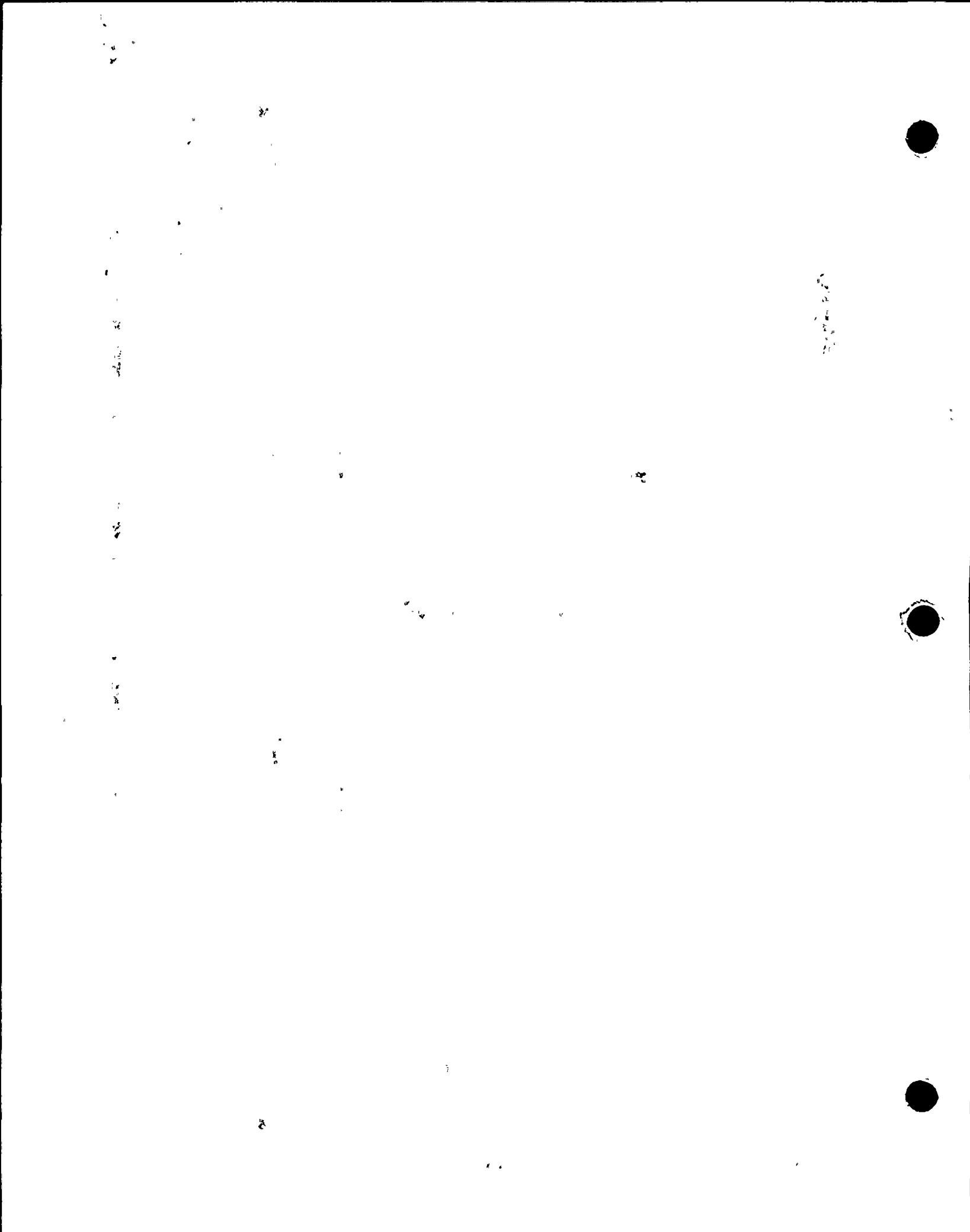
**Justification for Granting of Relief**

The vessel design and access limitations make meaningful nozzle inside radius section examination impossible. Visual examination is conducted during pressure test per Code Category B-P. For Unit 2, the nozzle to vessel welds on the top head are volumetrically examined from the head side. The visual examination together with the volumetric examination of a portion of the areas adjacent to the nozzle inside radius sections provides continued assurance of integrity.

**Implementation Schedule**

This relief request will be implemented during the Units 1 and 2 second ISI intervals.

This request is essentially the same as a portion of NDE-012A from the first ISI interval and was approved in NRC letter dated December 14, 1988.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-9

### System/Component for Which Relief is Requested

Steam generators (SG) (primary side) nozzle inside radius section.

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-D, Item B3.140, requires that the SGs primary side nozzle inside radius section (29 inch nominal pipe diameter inlet nozzle, 31 inch nominal pipe diameter outlet nozzle) be volumetrically examined once during the interval. Essentially, 100 percent of the nozzle inside radius section is required to be examined as shown in Figure IWB-2500-7(d), with acceptance standard IWB-3512.

### Code Requirement from Which Relief is Requested

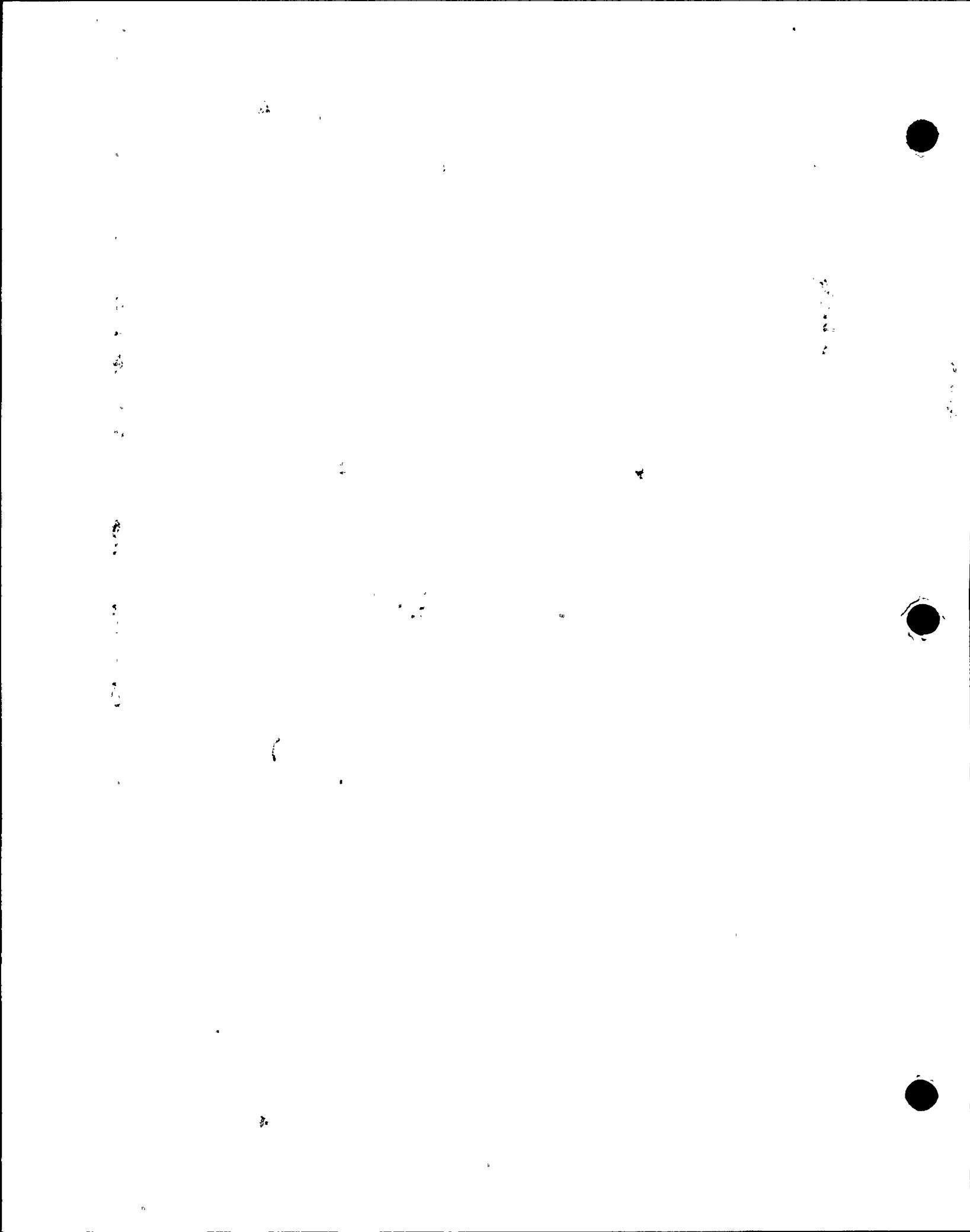
Relief is requested from performing the volumetric examination of the SG nozzles inside radius section.

### Basis for Relief Request

Design of the SG and nozzles precludes performance of any meaningful examination of the inside radius section. Compound curvature of the head combined with continuously variable orientation of the nozzle inside radius section and the irregularity of the surface make meaningful examination impossible. Inside the vessel, the nozzle dam rings are installed over the inside radius section, precluding access from that side.

### Proposed Alternative

None.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-9**

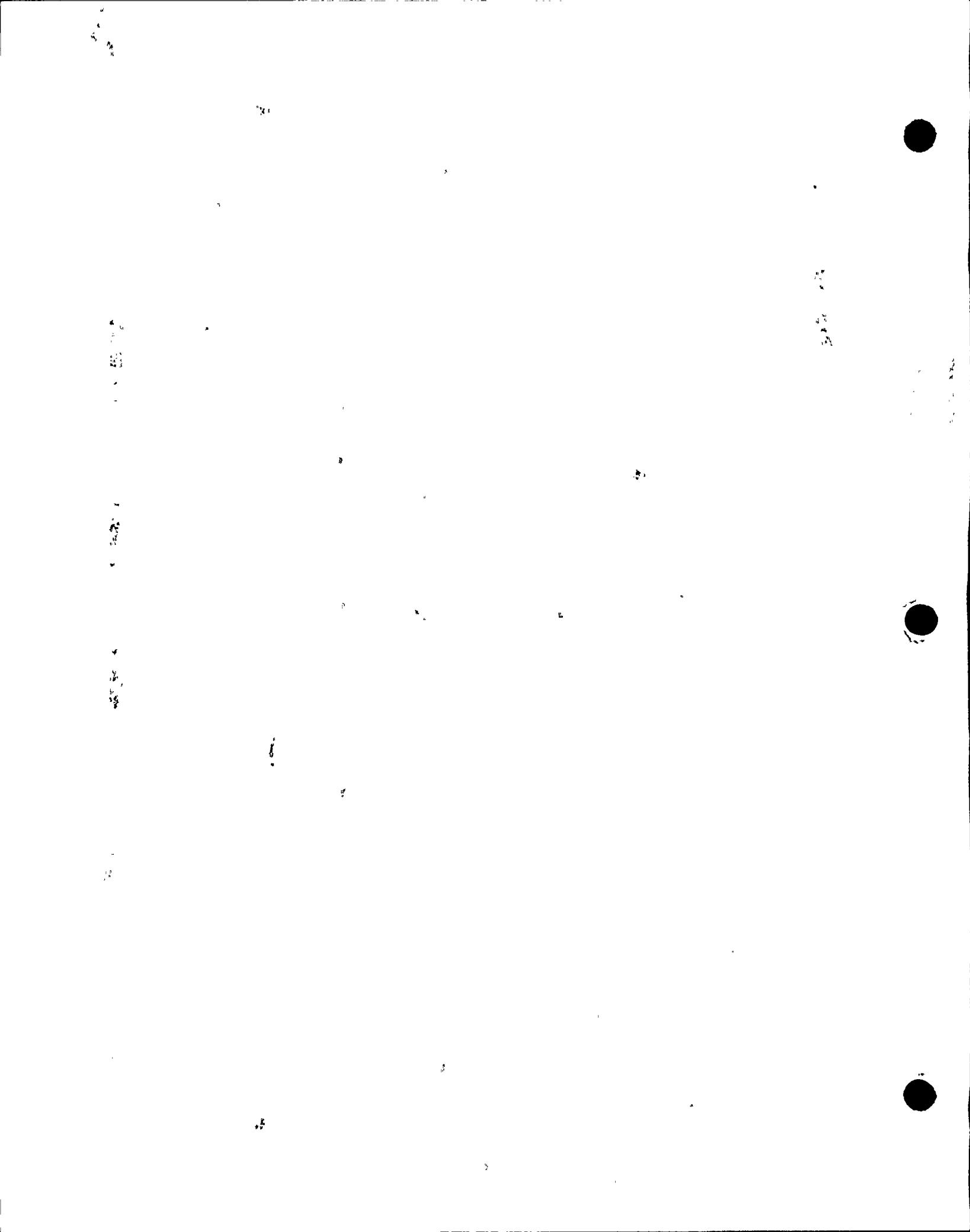
### **Justification for Granting of Relief**

The vessel design and access limitations make meaningful examination of the nozzle inside radius section impossible. Visual examination is conducted during pressure tests per Code Category B-P. This visual examination provides continued assurance of integrity.

### **Implementation Schedule**

This relief request will be implemented during the Units 1 and 2 second ISI intervals.

This request is essentially the same as a portion of NDE-012B from the first ISI interval and was approved in NRC letter dated December 14, 1988.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-10

### System/Component for Which Relief is Requested

Reactor vessel NPS 4 or larger nozzle-to-safe end butt welds.

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-F, Item B5.10, requires that the reactor vessel nozzle-to-safe end welds (four each 29 inch nominal diameter outlet nozzles, four each 27.5 inch nominal diameter inlet nozzles) be examined once during the interval. Essentially, 100 percent of the nozzle-to-safe end weld is required to be examined using volumetric and surface methods as shown in Figure IWB-2500-8(c), with acceptance criteria of IWB-3514.

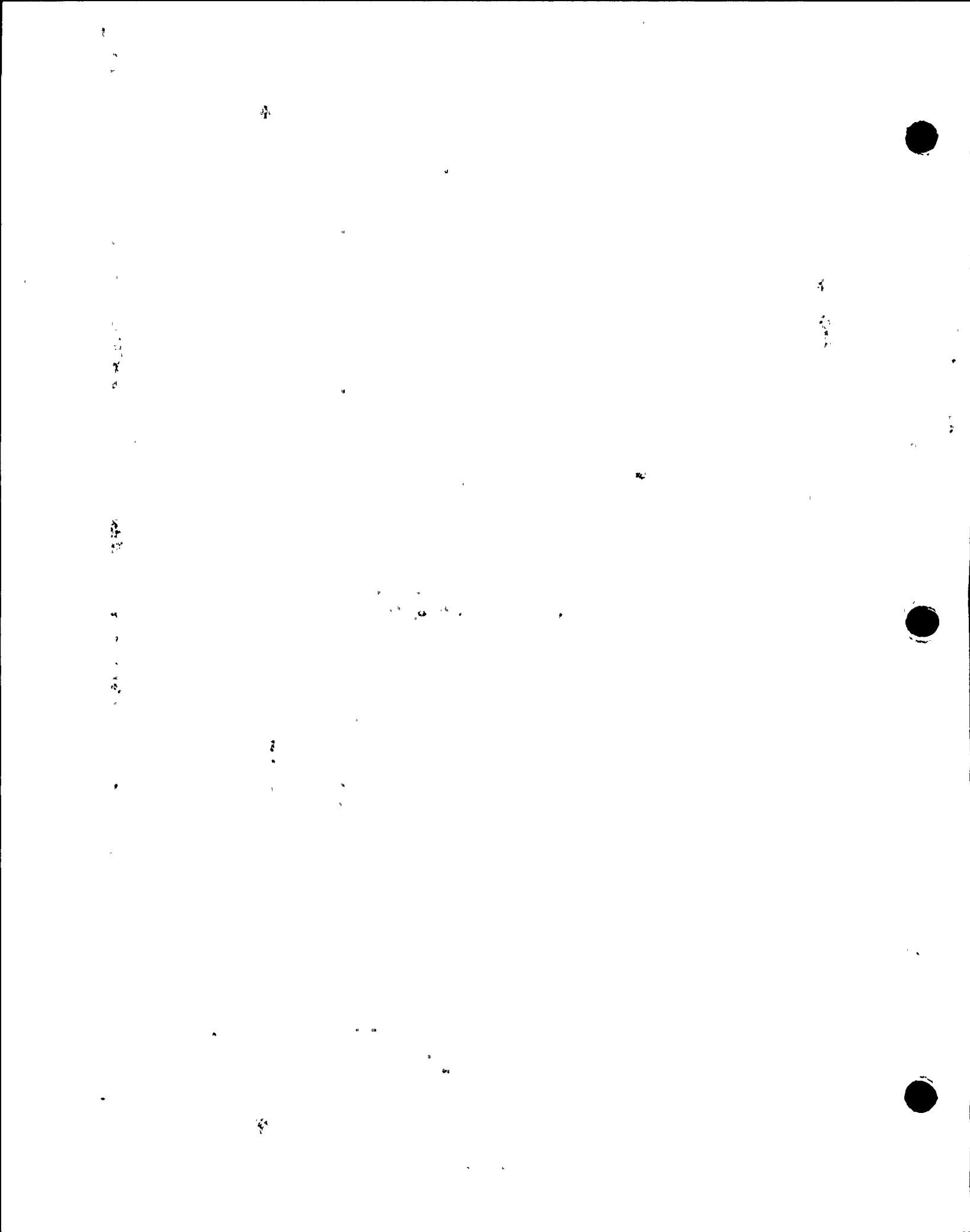
### Code Requirement from Which Relief is Requested

Relief is requested from performing a portion of the volumetric examination of the reactor vessel inlet nozzle-to-safe end welds where access is restricted due to non-removable reactor vessel insulation.

### Basis for Relief Request

Design of the reactor vessel insulation at the inlet nozzles limits access for ultrasonic examination of the nozzle to safe end weld (316 stainless steel nozzle end pup sections are welded directly to the nozzles) due to the proximity of the non-removable insulation to the weld which restricts scan lengths from the vessel side. Approximate accessible portions of each weld volume are described below:

<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-RC-1-18SE	9	27.5	RPV insulation	40
WIB-RC-2-20SE	10	27.5	RPV insulation	75
WIB-RC-3-18SE	11	27.5	RPV insulation	75
WIB-RC-4-18SE	12	27.5	RPV insulation	75



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-10**

<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-RC-1-16SE	9	27.5	RPV insulation	75
WIB-RC-2-16SE	10	27.5	RPV insulation	75
WIB-RC-3-16SE	11	27.5	RPV insulation	75
WIB-RC-4-16SE	12	27.5	RPV insulation	75

Proposed Alternative

All accessible areas of the nozzle-to-safe end welds will be completely examined as required, using refracted longitudinal beam and shear wave techniques with a combination of automated and manual scanning methods. In addition to the volumetric examination, the welds receive full surface examination. Visual examination conducted on the area underneath the nozzles during pressure tests per Code Category B-P provides additional assurance of weld integrity.

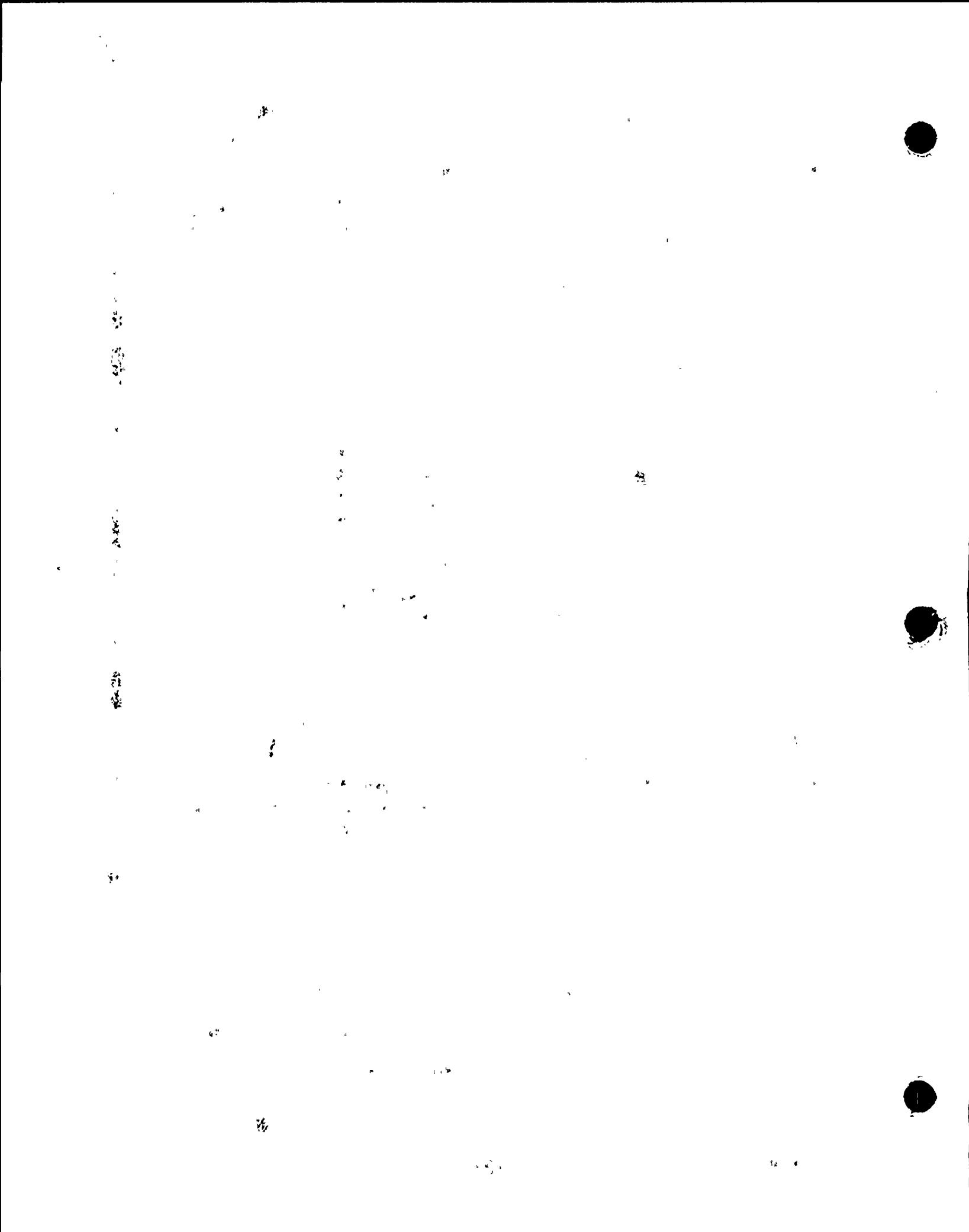
Justification for Granting of Relief

The reactor vessel insulation at the inlet nozzles is not designed to be removed and it limits full volumetric examination of the nozzle-to-safe end welds. Volumetric examination will be conducted as required for the accessible portion of the weld volume. Surface examination is performed as required and visual examination is conducted during pressure tests per Code Category B-P. This partial volumetric examination combined with the surface and visual examinations provides continued assurance of the welds integrity.

Implementation Schedule

This relief request will be implemented during the Units 1 and 2 second ISI intervals. The safe end examinations are apportioned evenly throughout the intervals.

This request is essentially the same as NDE-009 (U2) from the first ISI interval and was approved in NRC letter dated October 25, 1989. Differences in noted coverages may occur due to use of automated scanners which provide a higher quality examination, but may experience somewhat more limited coverage.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-11

### System/Component for Which Relief is Requested

Pressurizer NPS 4 or larger nozzle-to-safe end butt welds.

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-F, Item B5.40, requires that the pressurizer nozzle-to-safe end welds (4 inch nominal diameter spray nozzle, four 6 inch nominal diameter safety/relief nozzles, 14 inch nominal diameter surge nozzle) be volumetrically examined once during the interval. Essentially, 100 percent of the nozzle-to-safe end weld is required to be examined using volumetric and surface methods as shown in Figure IWB-2500-8(c), with acceptance criteria of IWB-3514.

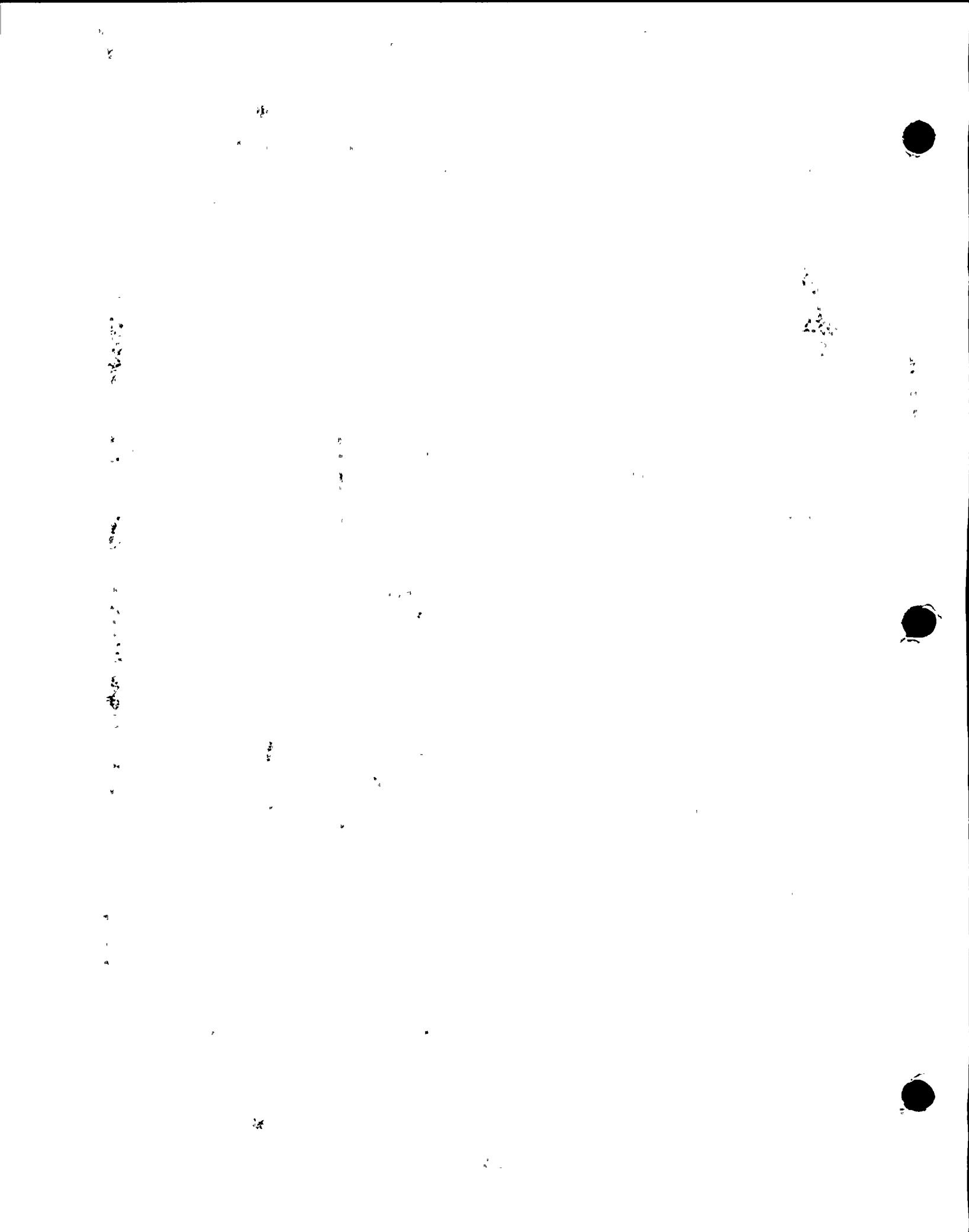
### Code Requirement from Which Relief is Requested

Relief is requested from performing a portion of the volumetric examination of all of the pressurizer nozzle-to-safe end welds.

### Basis for Relief Request

Design of the pressurizer nozzles and safe ends (316 stainless steel nozzle end reducing sections are welded directly to the nozzles) limits access for ultrasonic examination due to compound curvatures and abrupt contours of the short multi-step reducing sections and weld crown geometry. These conditions restrict scan lengths, change the refracted sound beam angle, and cause transducer liftoff. Approximate accessible portions of each weld volume are described below:

<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-374SE	15	4	OD surface contour	75
WIB-71SE	16	14	OD surface contour	70
WIB-331SE	727	6	OD surface contour	55



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-11**

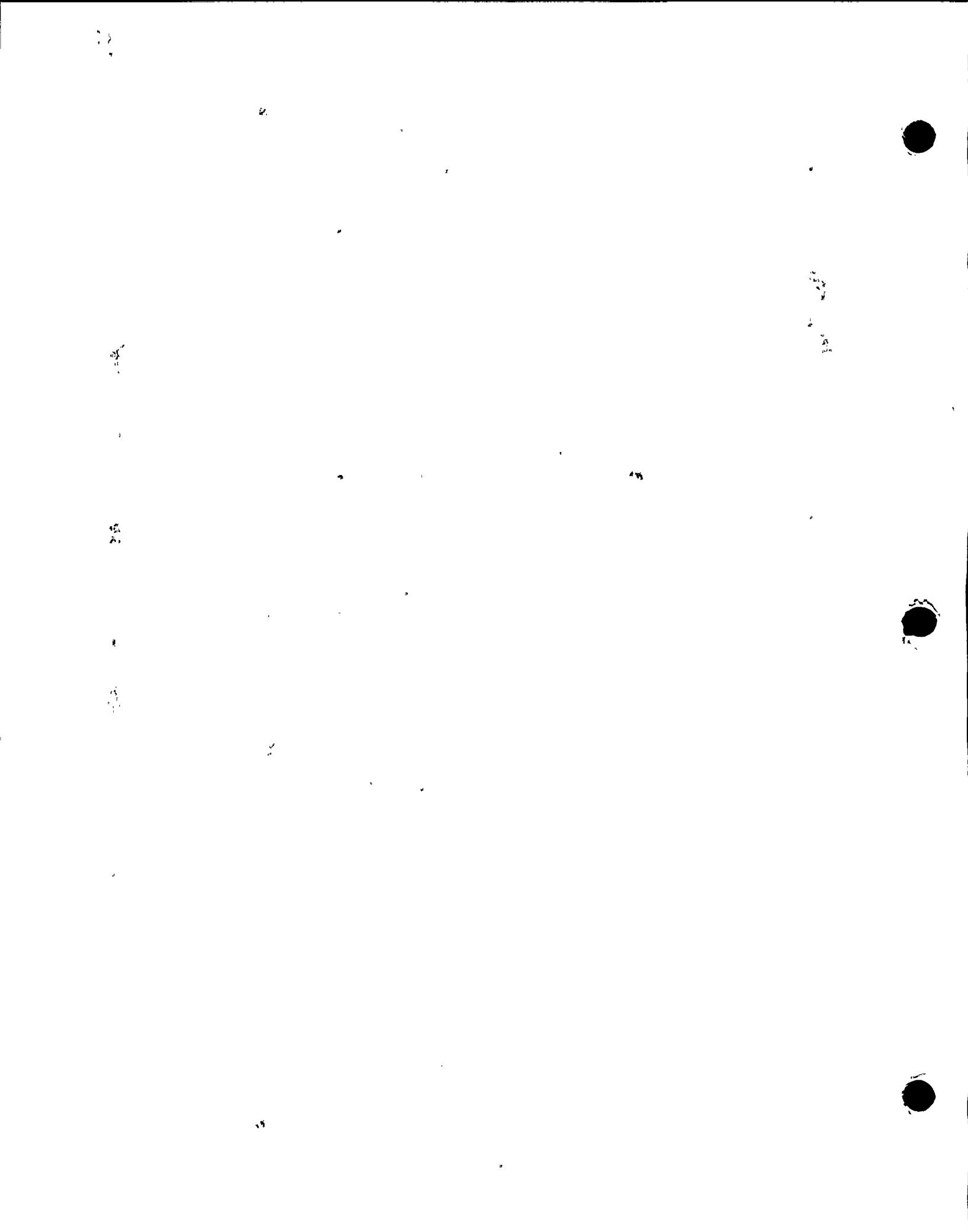
<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-322SE	728	6	OD surface contour	50
WIB-313SE	729	6	OD surface contour	60
WIB-340SE	730	6	OD surface contour	75
<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-345SE	15	4	OD surface contour	80
WIB-439SE	16	14	OD surface contour	70
WIB-359SE	727	6	OD surface contour	75
WIB-423SE	728	6	OD surface contour	70
WIB-369SE	729	6	OD surface contour	70
WIB-380SE	730	6	OD surface contour	70

Proposed Alternative

All accessible areas of the nozzle-to-safe end welds will be completely examined as required, using a combination of shear and refracted longitudinal beam techniques, with manual scanning methods supplemented by automated or partially automated scanning. In addition to the volumetric examination, the welds receive full surface examination and visual examination is conducted during pressure test per Code Category B-P.

Justification for Granting of Relief

The pressurizer nozzle and safe end designs limit full volumetric examination of the nozzle-to-safe end welds due to compound curvature, abrupt contours, weld crown geometry, and surface roughness. Volumetric examination will be conducted as required for the accessible portion of the weld volume. Surface examination is performed as required and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the surface and visual examinations provides continued assurance of the welds integrity.



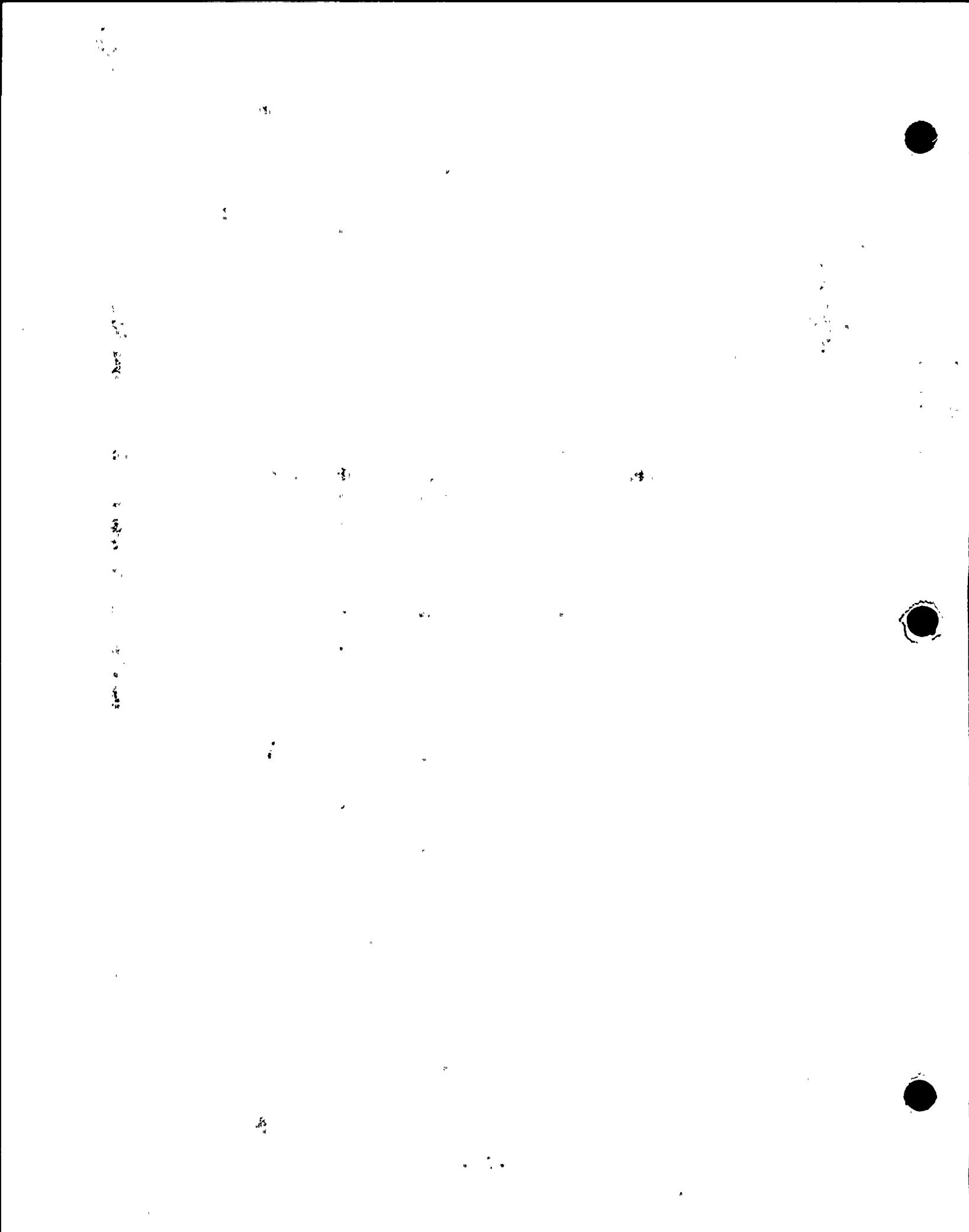
Enclosure  
PG&E Letter DCL-96-031

## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-11**

### **Implementation Schedule**

This relief request will be implemented during the Units 1 and 2 second ISI intervals. The nozzle-to-safe end weld examinations are apportioned evenly throughout the intervals.

This request is essentially the same as NDE-008A from the first ISI interval and was approved in NRC letter dated December 14, 1988. Differences in noted coverages may occur due to use of automated scanners which provide a higher quality examination, but may experience somewhat more limited coverage.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-12**

**System/Component for Which Relief is Requested**

Steam generator (SG) NPS 4 or larger nozzle-to-safe end butt welds.

**ASME Section XI Code Requirements**

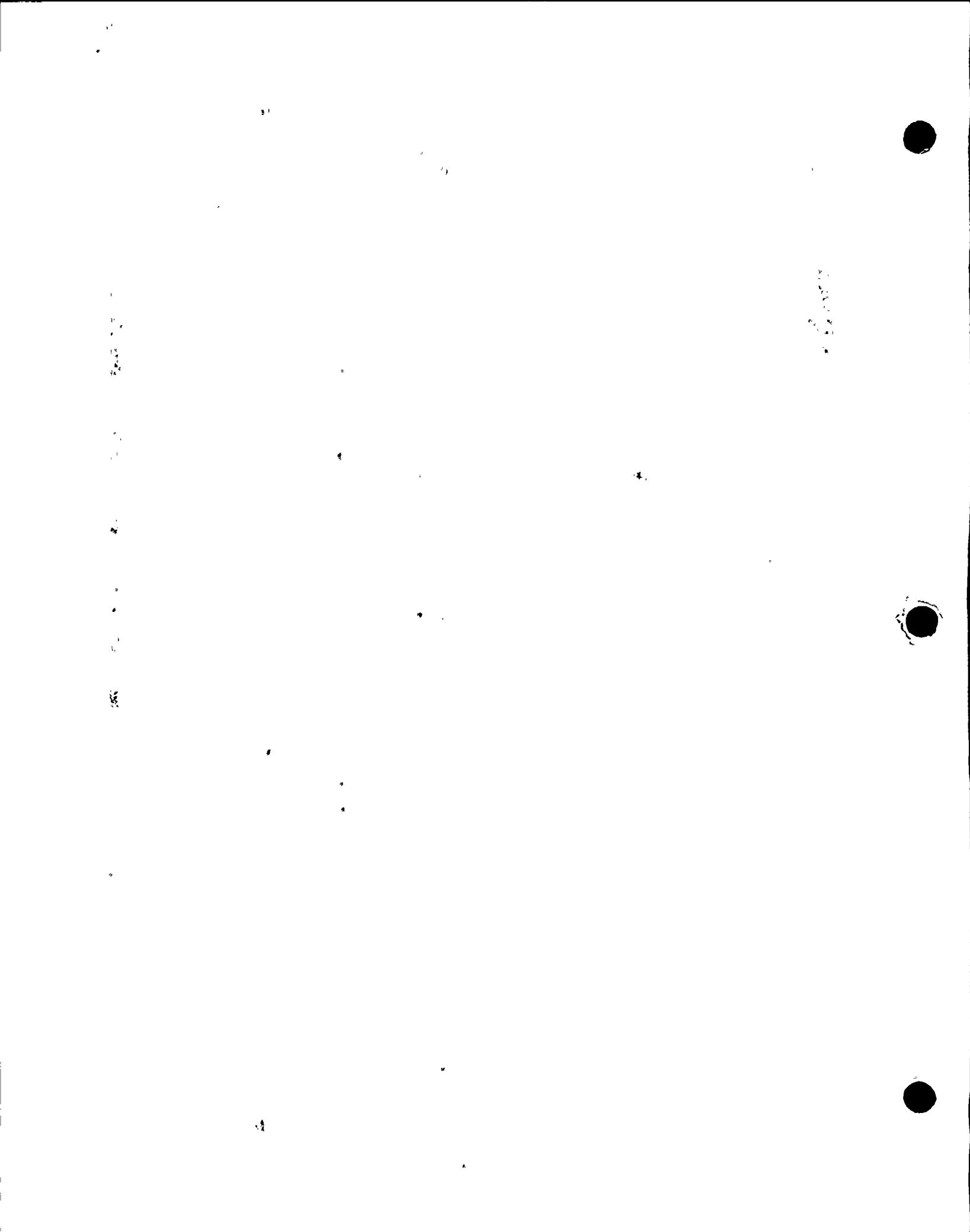
1989 Edition, Table IWB-2500-1, Category B-F, Item B5.70, requires that the SG nozzle-to-safe end welds (29 inch nominal diameter inlet nozzle, 31 inch nominal diameter outlet nozzle) be examined once during the interval. Essentially, 100 percent of the nozzle-to-safe end weld is required to be examined using volumetric and surface methods as shown in Figure IWB-2500-8, with acceptance standard IWB-3514.

**Code Requirement from Which Relief is Requested**

Relief is requested from performing a portion of the volumetric examination of the SG nozzle-to-safe end welds where access is limited by surface configuration.

**Basis for Relief Request**

Design of the SG nozzles and safe ends (stainless steel piping is welded directly to the nozzles) limits access for ultrasonic examination due to abrupt machined bevel geometry adjacent to the welds. These conditions restrict scan lengths and cause transducer liftoff. Approximate accessible portions of each weld volume are described below:



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-12**

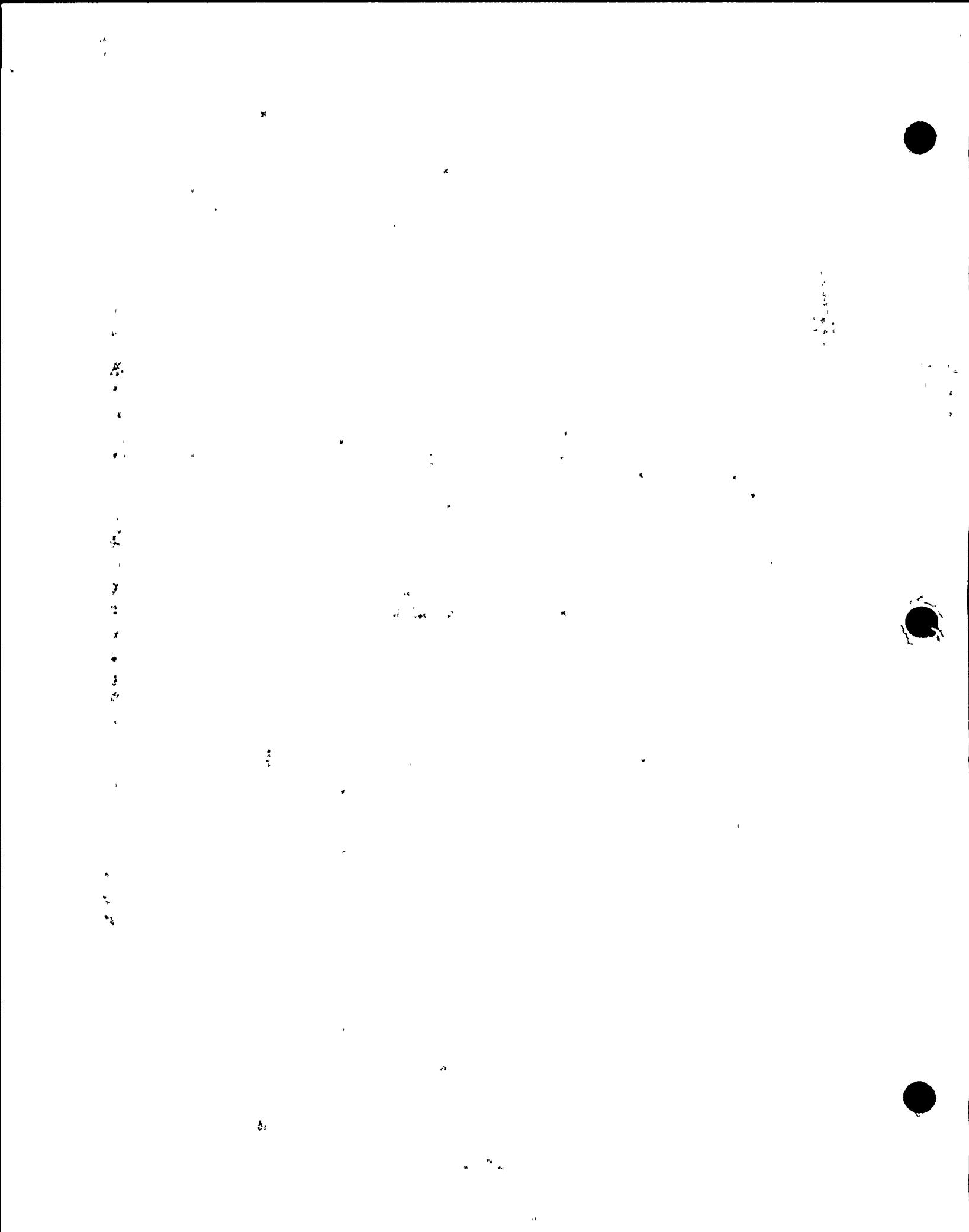
<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
--------------------	-------------	------------	-------------------	---------------------

WIB-RC-1-5SE	1	29	OD surface contour	60
WIB-RC-1-6SE	5	31	OD surface contour	75
WIB-RC-2-6SE	2	29	OD surface contour	65
WIB-RC-2-7SE	6	31	OD surface contour	50
WIB-RC-3-5SE	3	29	OD surface contour	70
WIB-RC-3-6SE	7	31	OD surface contour	40
WIB-RC-4-5SE	4	29	OD surface contour	70
WIB-RC-4-6SE	8	31	OD surface contour	70

<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
--------------------	-------------	------------	-------------------	---------------------

WIB-RC-1-5SE	1	29	OD surface contour	75
WIB-RC-1-6SE	5	31	OD surface contour	75
WIB-RC-2-5SE	2	29	OD surface contour	75
WIB-RC-2-6SE	6	31	OD surface contour	75
WIB-RC-3-5SE	3	29	OD surface contour	75
WIB-RC-3-6SE	7	31	OD surface contour	75
WIB-RC-4-5SE	4	29	OD surface contour	75
WIB-RC-4-6SE	8	31	OD surface contour	75

NOTE: Actual examination percentage may be less than the 75 percent credited on previous examinations and noted above. The early examinations were performed with water delay refracted longitudinal or shear wave techniques, which provided quality less than the current state of the art. Current technology uses contact refracted longitudinal methods which provide superior examination data; however, the large footprint of the transducers with the automated scanner reduces the actual coverage due to adverse surface contours. The net result is a high quality examination of a somewhat smaller portion of the required volume. In all cases, the maximum possible area will be covered.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-12**

### **Proposed Alternative**

All accessible areas of the nozzle-to-safe end welds will be completely examined as required, using refracted longitudinal wave techniques with automated scanning supplemented by manual scanning methods. In addition to the volumetric examination, the welds receive full surface examination and visual examination is conducted during pressure test per Code Category B-P.

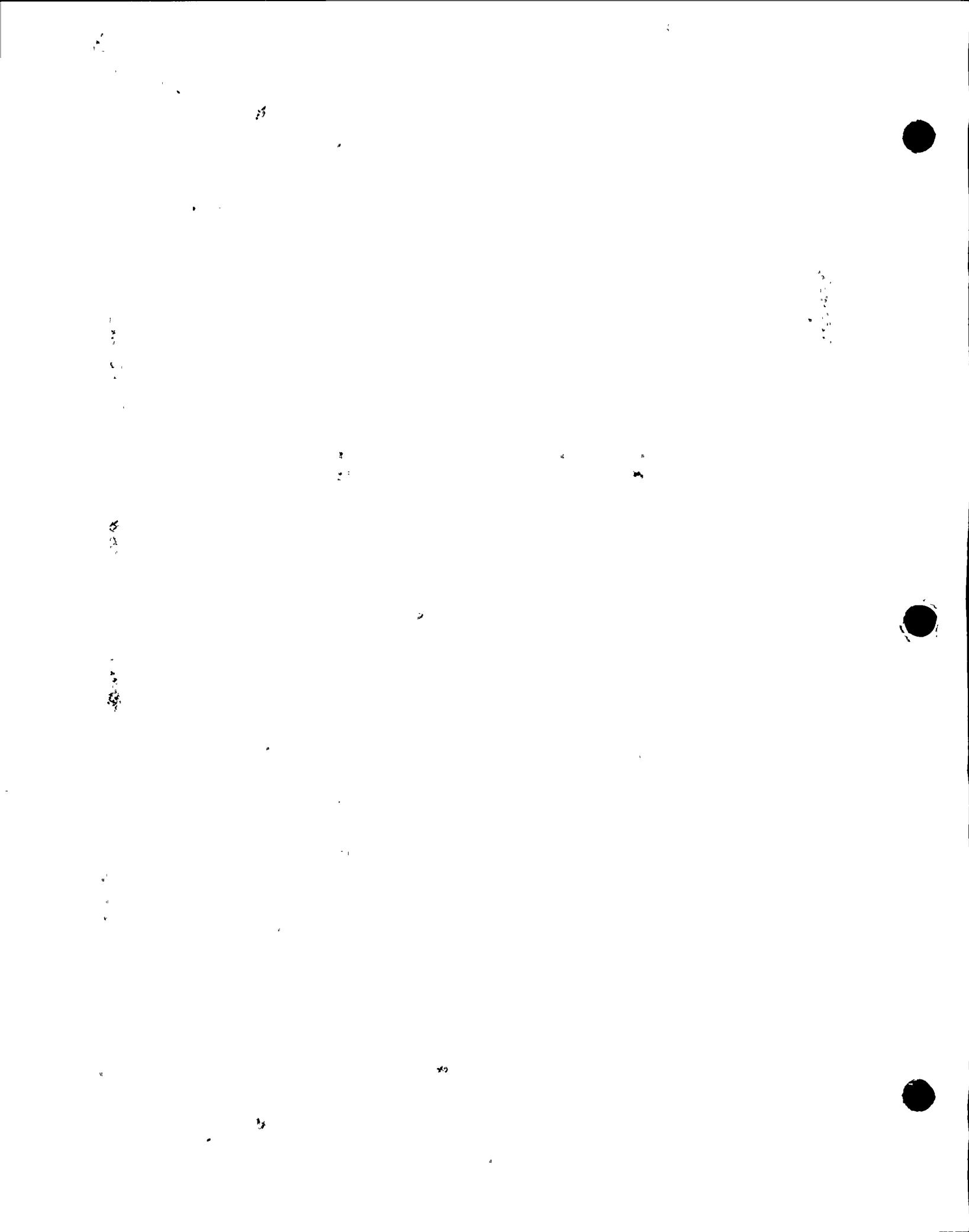
### **Justification for Granting of Relief**

The SG nozzle and safe end designs limit full volumetric examination of the nozzle-to-safe end welds due to the sharply angled machined surface bevels adjacent to the welds. Volumetric examination will be conducted as required for the accessible portion of the weld volume. Surface examination is performed as required and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the surface and visual examinations provides continued assurance of the welds integrity.

### **Implementation Schedule**

This relief request will be implemented during the Units 1 and 2 second ISI intervals. The nozzle-to-safe end weld examinations are apportioned equally throughout the intervals.

This request is essentially the same as NDE-008B from the first ISI interval and was approved in NRC letter dated December 14, 1988. Differences in noted coverages may occur due to use of automated scanners which provide a higher quality examination, but may experience somewhat more limited coverage.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-13

### System/Component for Which Relief is Requested

Class 1 pipe welds (NPS 4 or larger).

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-J, Items B9.11 and B9.12, require that circumferential and longitudinal pipe welds NPS 4 or larger be examined. Essentially, 100 percent of each scheduled circumferential weld and 12 inches of each adjoining longitudinal weld is required to be examined using volumetric and surface methods as shown in Figure IWB-2500-8, with acceptance standard IWB-3514.

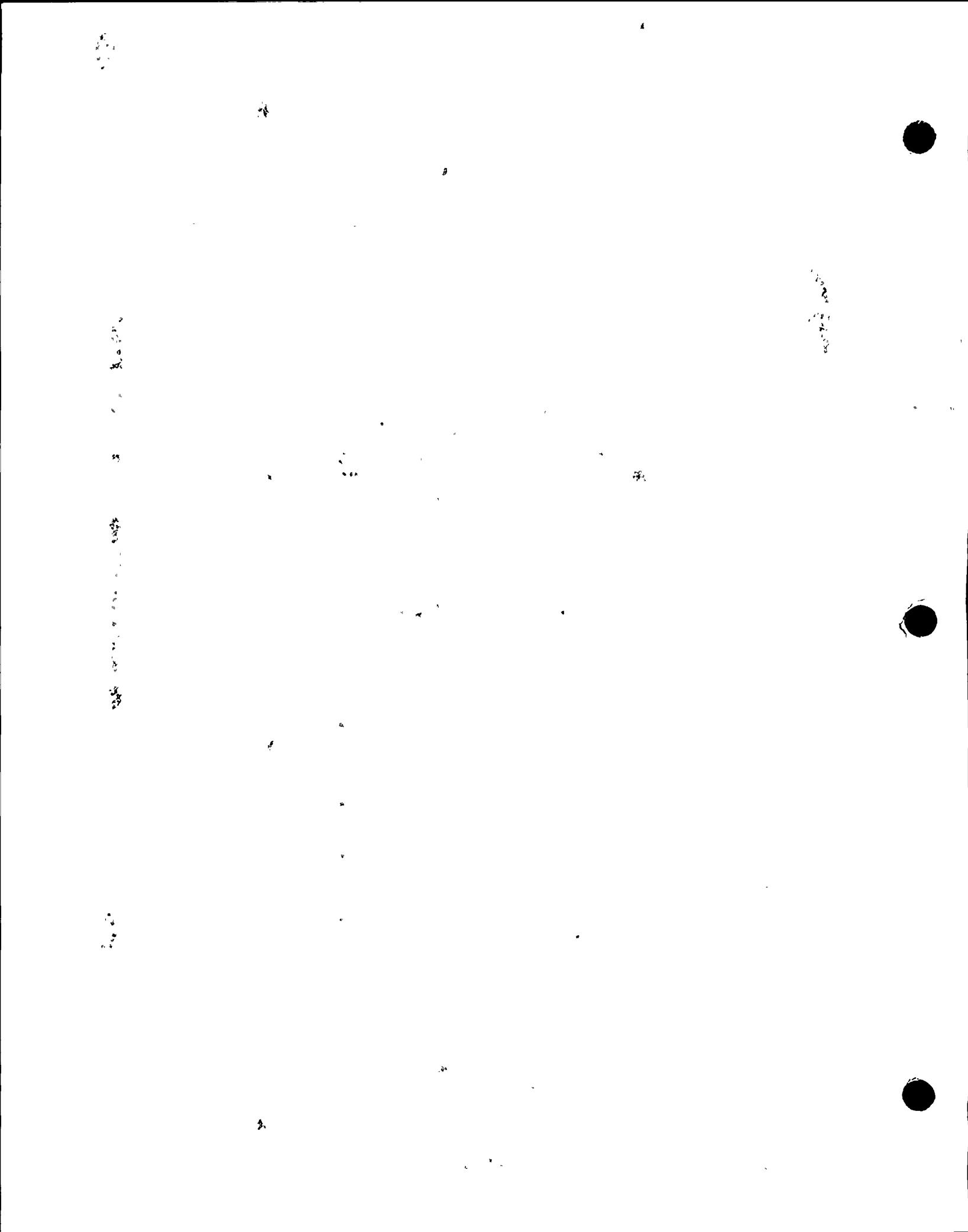
### Code Requirement from Which Relief is Requested

Relief is requested from performing a portion of the volumetric (and surface where noted) examination of certain pipe welds as detailed below where access is limited by surface configuration or adjacent structure.

### Basis for Relief Request

Design of certain pipe welds limits access for ultrasonic (and occasionally surface) examination due to various geometric conditions on or adjacent to the welds, or due to the presence of physical obstructions such as welded supports, Code nameplates, adjacent piping or structures, and penetrations. These conditions or combination of conditions may restrict scan lengths, cause transducer liftoff, or physically prevent access to portions of the required examination area. Approximate accessible portions of each weld volume and the specific limitations are described below:

<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-RC-1-12	5	31	Pump body contour	40
WIB-RC-1-13	9	27.5	Pump & surface contour	25
WIB-RC-2-15	10	27.5	Pump & surface contour	25
WIB-RC-2-20	10	27.5	Abrupt surface taper	75



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-13**

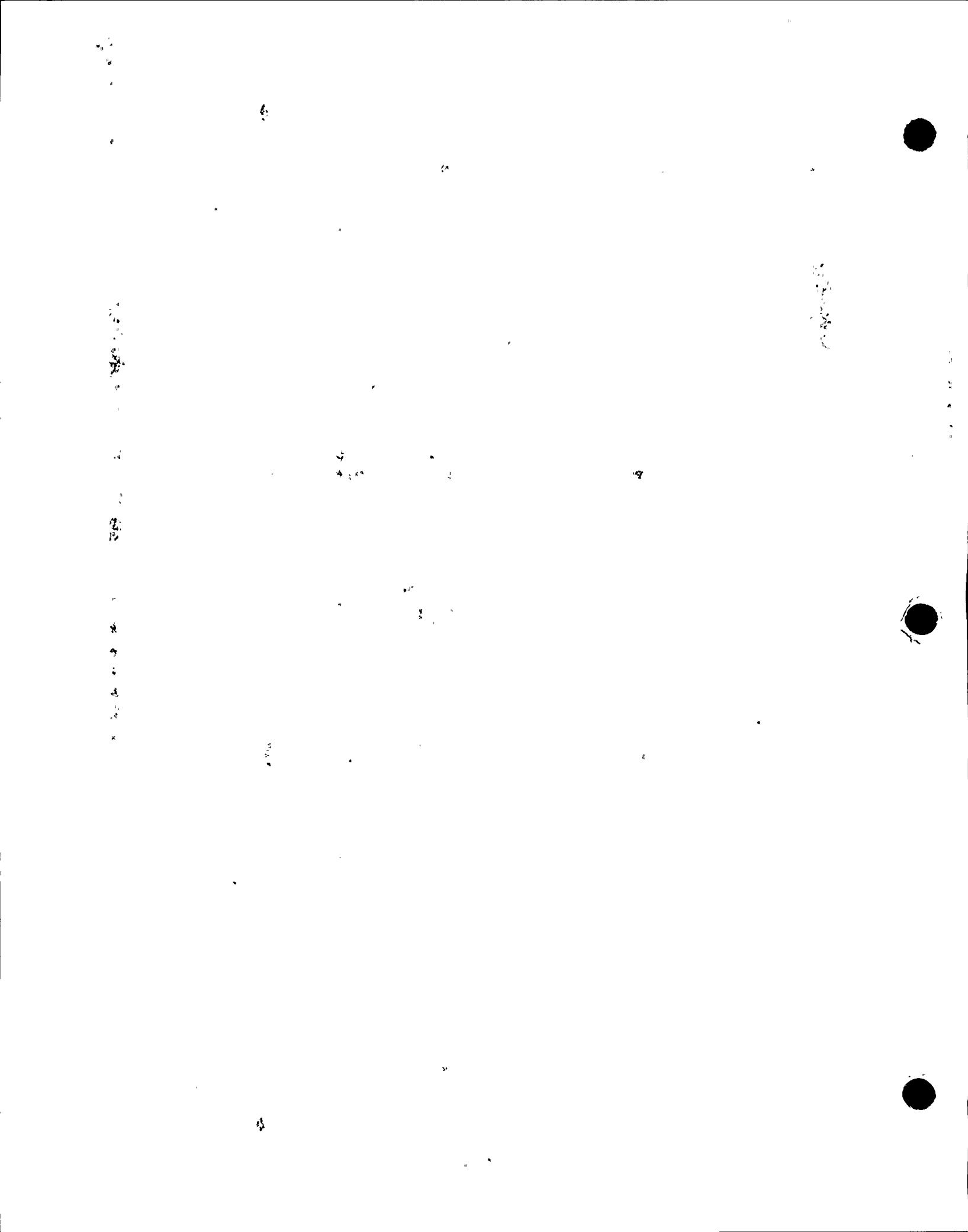
<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-RC-3-13	11	27.5	Pump & surface contour	25
WIB-RC-4-13	12	27.5	Pump & surface contour	25
WIB-400	15	4	Tee & elbow contour	75
WIB-67	16	14	Rupture restraint crush boxes	60
WIB-210	255	10	Valve body and tee contour	65
WIB-207	255	10	Welded restraint adjacent	60
WIB-271	256	10	Valve body contour	50
WIB-334	727	6	Code nameplate; contour	50/Surface65

<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-RC-1-11	5	31	Pump & surface contour	75
WIB-RC-2-11	6	31	Pump & surface contour	75
WIB-RC-3-11	7	31	Pump & surface contour	75
WIB-RC-4-11	8	31	Pump & surface contour	75
WIB-RC-1-12	9	27.5	Pump & surface contour	75
WIB-RC-2-12	10	27.5	Pump & surface contour	75
WIB-RC-2-15	10	27.5	Weld crown phonograph machined	75
WIB-RC-3-12	11	27.5	Pump & surface contour	75
WIB-RC-4-12	12	27.5	Pump & surface contour	75
WIB-362	727	6	Code nameplate adjacent	Surface80

Proposed Alternative

All accessible areas of each of the welds will be completely examined as required. In addition to the partial volumetric examination, the welds receive full surface examination (unless specifically noted) and visual examination is conducted during pressure test per Code Category B-P.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-13

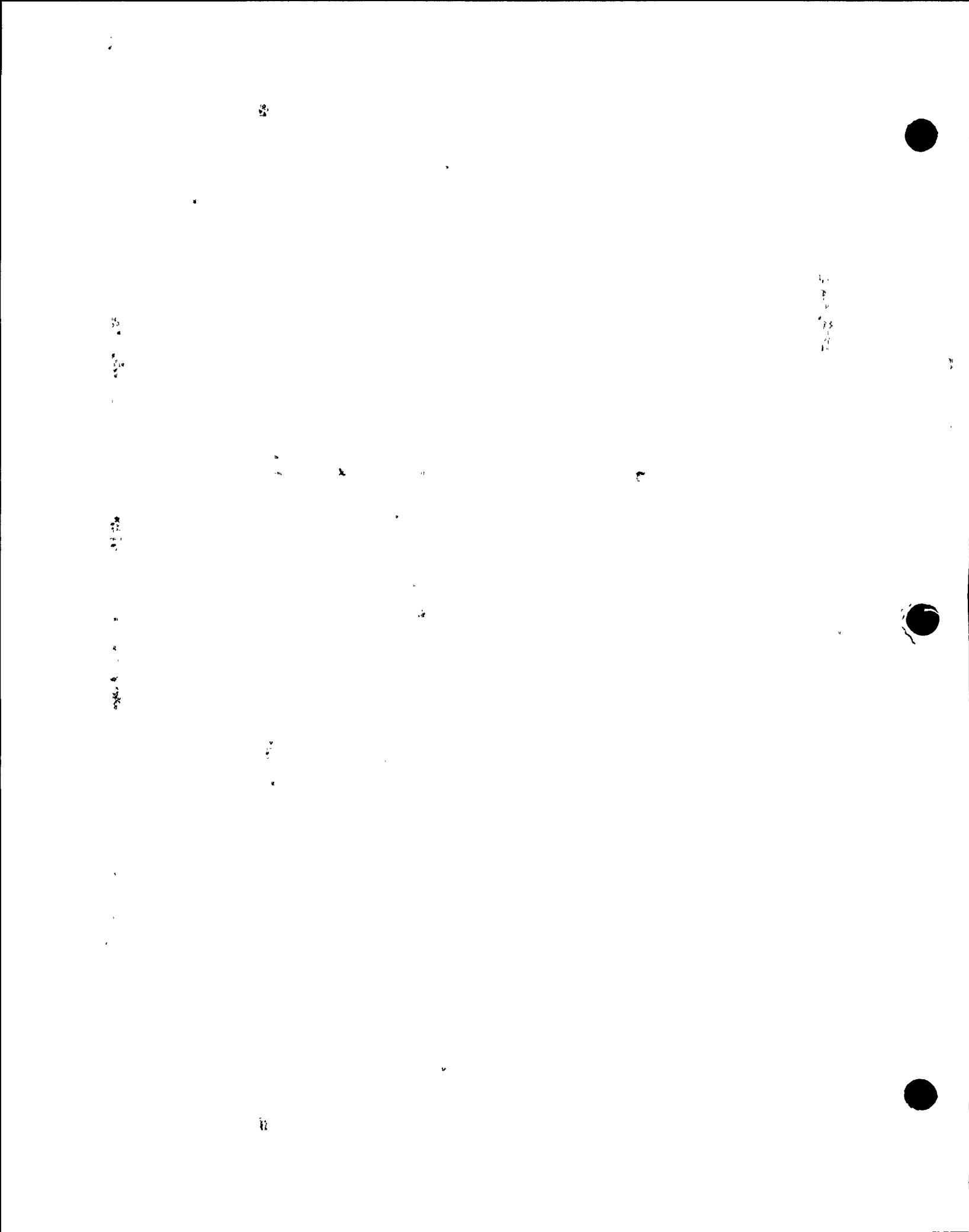
### Justification for Granting of Relief

The design of the surface configuration or access provisions for the welds listed above limit full volumetric examination (and surface examination where specifically noted) of the welds. Volumetric examination will be conducted as required for the accessible portion of the weld volume. Surface examination is performed as required (unless limited as specifically noted) and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the surface examination (or partial surface examination) and visual examinations provides continued assurance of weld integrity.

### Implementation Schedule

This relief request will be implemented during the Units 1 and 2 second ISI intervals. The pipe weld examinations are apportioned equally throughout the intervals.

This request is essentially the same as a portion of NDE-008 (with supplements) from the first ISI interval and was approved in NRC letter dated October 25, 1989 (typical). Differences in noted coverages may occur due to use of automated scanners which provide a higher quality examination, but may experience somewhat more limited coverage.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-14

### System/Component for Which Relief is Requested

Class 1 branch pipe connection welds

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1; Category B-J, Item B9.31, requires that branch pipe connection welds NPS 4 or larger be examined once during the interval. Essentially, 100 percent of each scheduled branch pipe connection weld is required to be examined using volumetric and surface methods as shown in Figure IWB-2500-11 (Unit 1) and IWB-2500-10 (Unit 2), with acceptance standard IWB-3514.

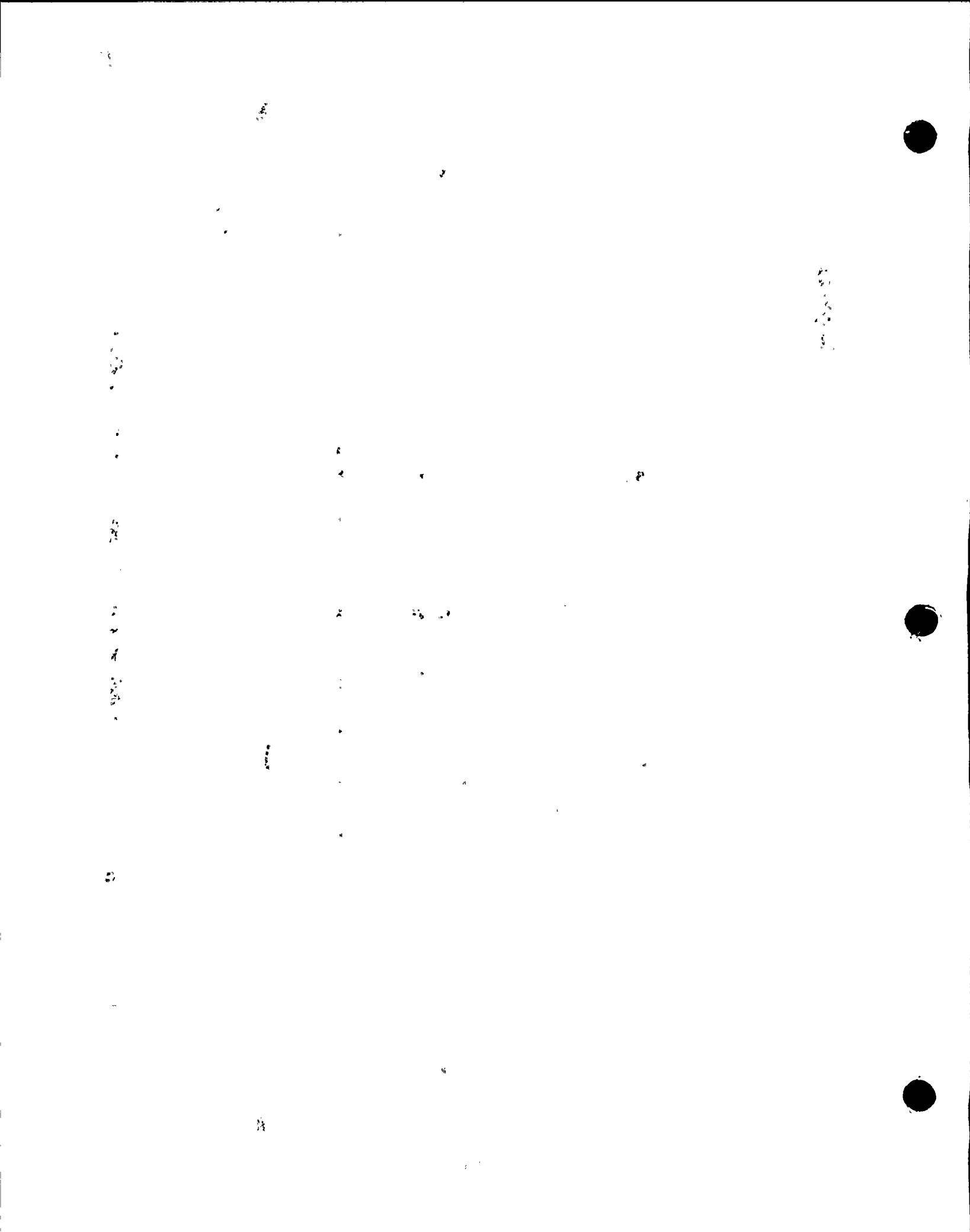
### Code Requirement from Which Relief is Requested

Relief is requested from performing a portion of the volumetric examination of certain branch pipe connection welds as detailed below where access is limited by surface configuration.

### Basis for Relief Request

Design of certain branch pipe connection welds limits access for ultrasonic examination due to various geometric conditions on or adjacent to the welds such as compound curvature or weld crowns; or due to the presence of physical obstructions such as welded supports, Code nameplates, adjacent piping or structures. These conditions or combination of conditions may restrict scan lengths, cause transducer liftoff or soundbeam redirection, or physically prevent access to portions of the required examination area. Approximate accessible portions of each weld volume, and the specific limitations are described below:

<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-RC-2-16	254	10	Branch connection contour	70
WIB-RC-2-3	16	14	Branch connection contour	25



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-14**

<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-55	13	4	Branch connection	65
WIB-56	13	4	Branch connection	70
WIB-243	109	14	Branch connection	65
WIB-1	235	6	Branch connection	65
WIB-106	236	6	Branch connection	60
WIB-265	238	6	Branch connection	60
WIB-37	253	10	Branch connection	25
WIB-192	255	10	Branch connection	60

Proposed Alternative

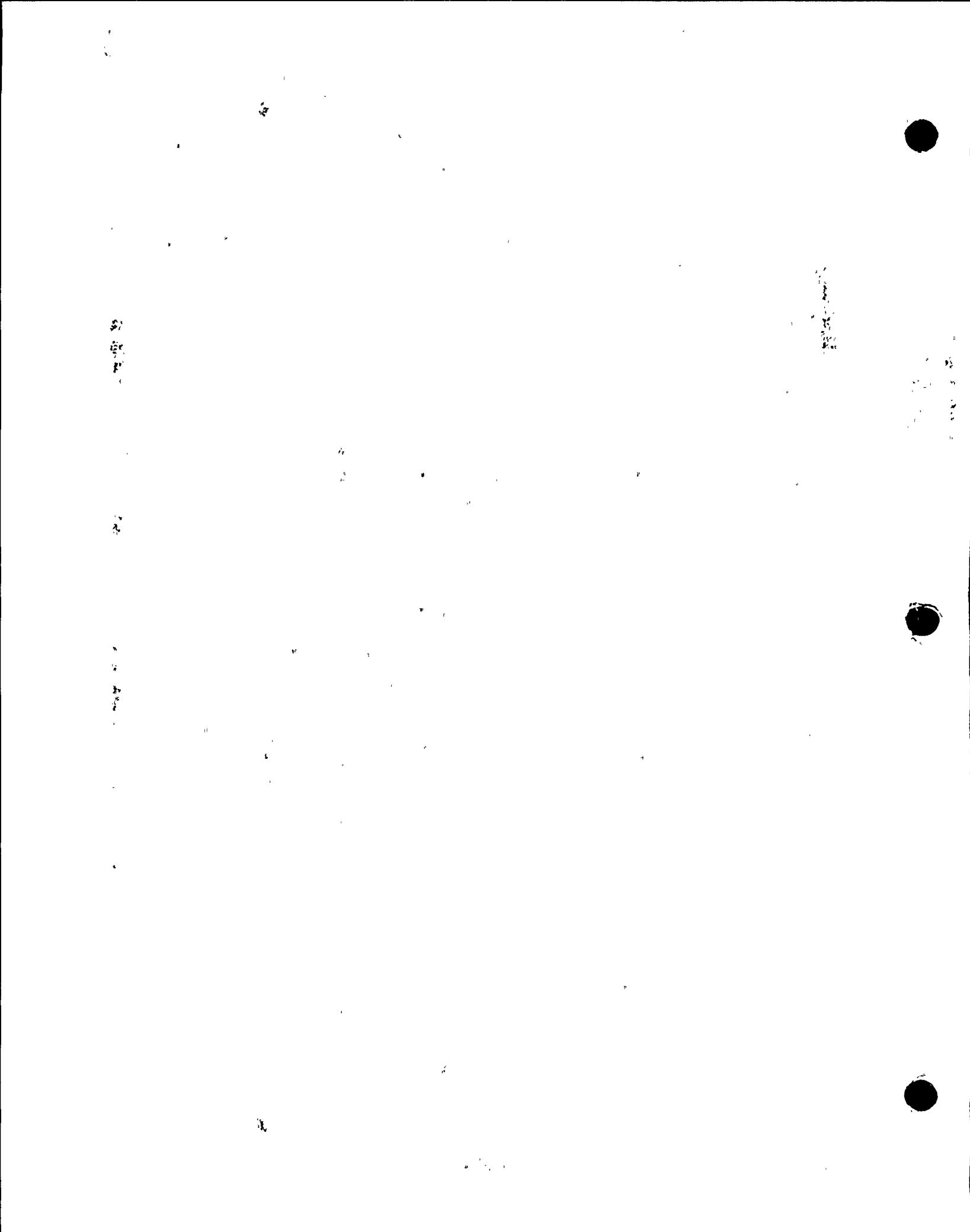
All accessible areas of each of the welds will be completely examined as required. In addition to the partial volumetric examination, the welds receive full surface examination and visual examination is conducted during pressure test per Code Category B-P.

Justification for Granting of Relief

The design of the surface configuration or access provisions for the welds listed above limit full volumetric examination of the welds. Volumetric examination will be conducted as required for the accessible portion of the weld volume. Surface examination is performed as required and visual examination is conducted during pressure test per Code Category B-P. This partial volumetric examination combined with the surface examination and visual examinations provides continued assurance of the welds integrity.

Implementation Schedule

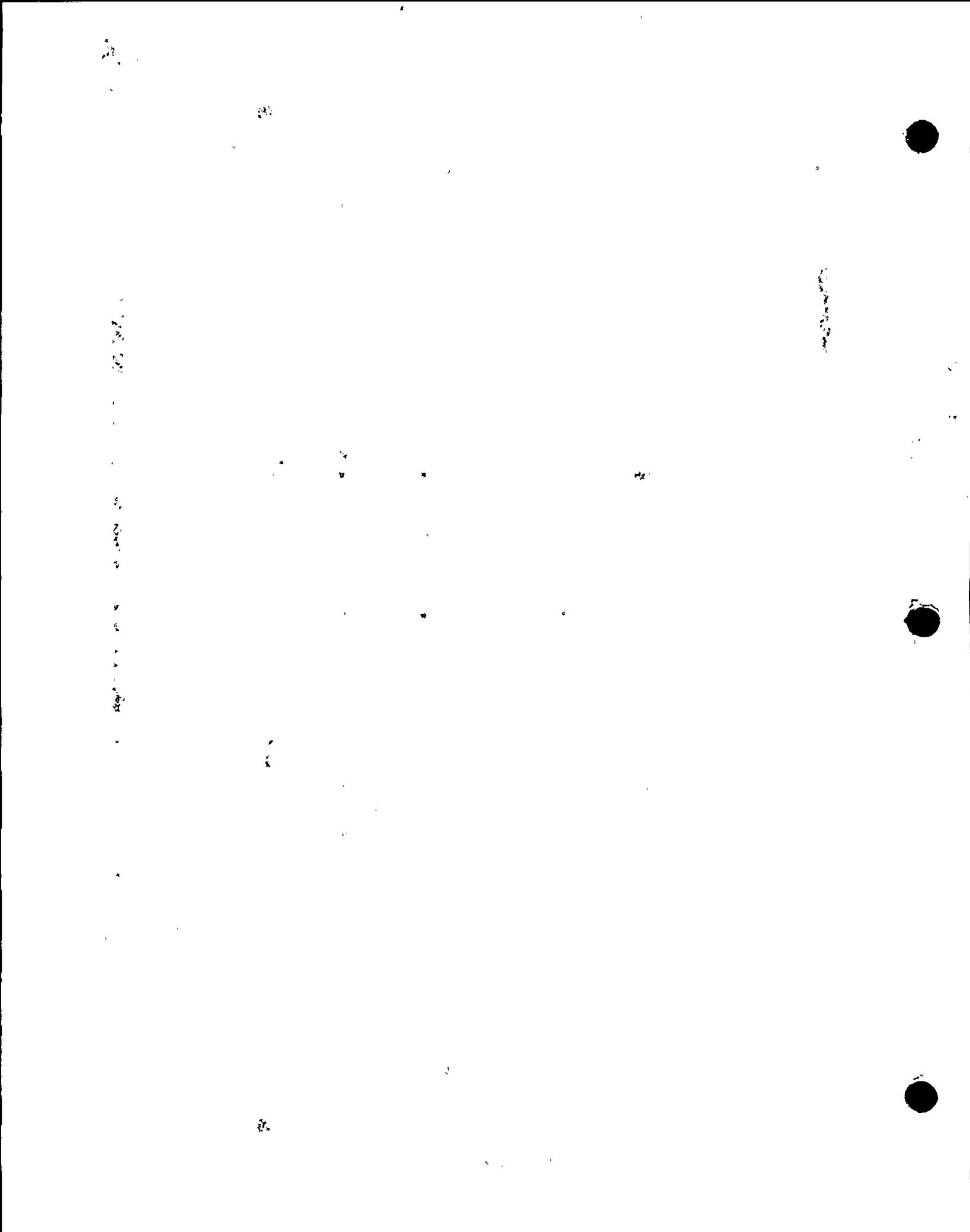
This relief request will be implemented during the Units 1 and 2 second ISI intervals. The branch pipe connection weld examinations are apportioned equally throughout the intervals.



Enclosure  
PG&E Letter DCL-96-031

**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-14**

This request is essentially the same as a portion of NDE-008 (with supplements) from the first ISI interval and was approved in NRC letter dated October 25, 1989 (typical). Differences in noted coverages may occur due to use of automated scanners which provide a higher quality examination, but may experience somewhat more limited coverage.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-15

### System/Component for Which Relief is Requested

Class 1 pipe socket welds

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-J, Item B9.40, requires that socket welds (larger than NPS 1) be examined. Essentially, 100 percent of each scheduled socket weld is required to be examined using surface methods as shown in Figure IWB-2500-8, with acceptance standard IWB-3514.

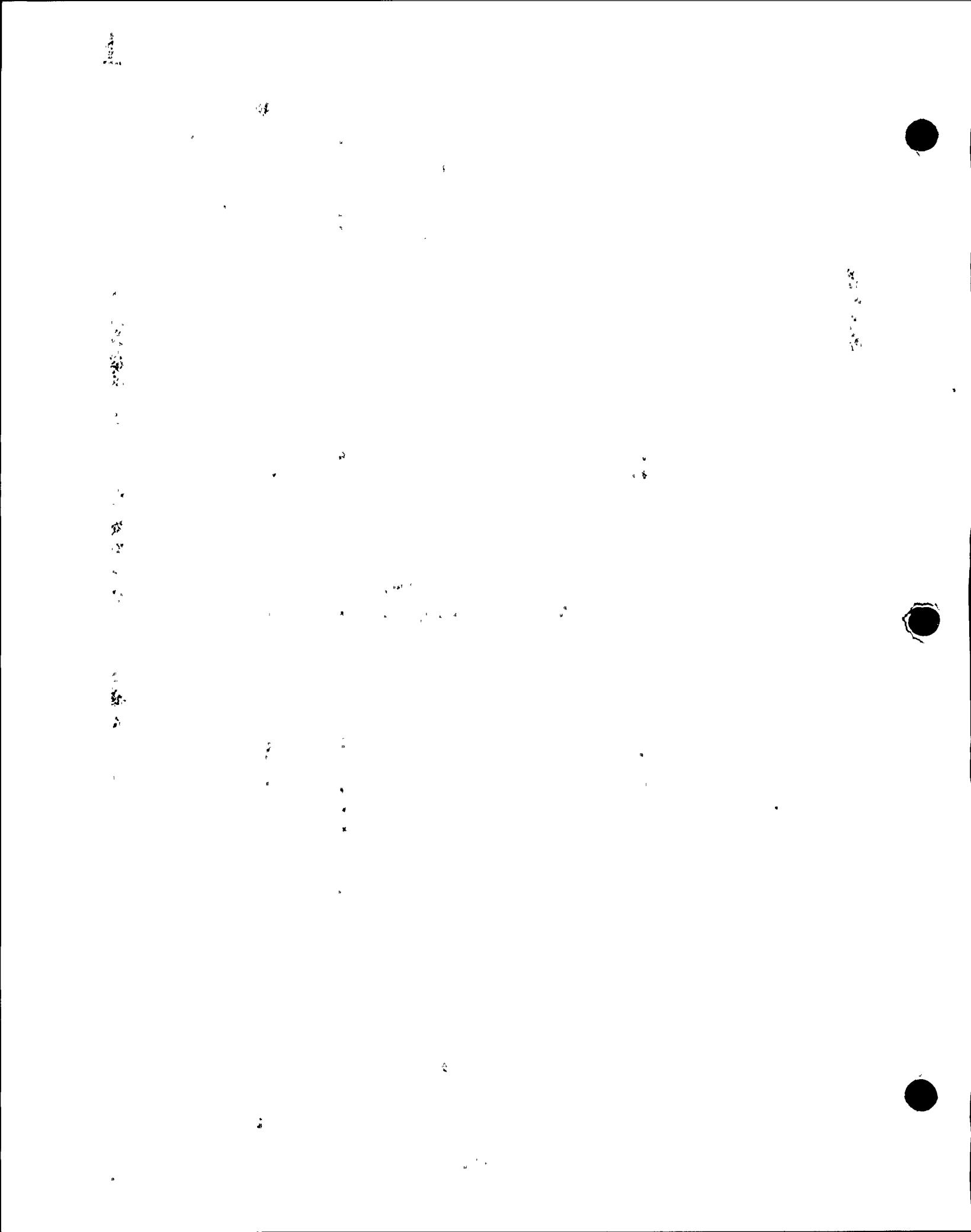
### Code Requirement from Which Relief is Requested

Relief is requested from performing a portion of the surface examination of certain socket welds as detailed below where access is limited by adjacent structure.

### Basis for Relief Request

Design of certain socket welds limits access for surface examination due to the presence of physical obstructions such as welded supports, Code nameplates, adjacent piping, or structures. These conditions or combination of conditions may physically prevent access to portions of the required examination area. Approximate accessible portions of each weld surface, and the specific limitations are described below:

<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIB-302D	1993	1.5	Welded support adjacent	75
<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
None				



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-15**

**Proposed Alternative**

All accessible areas of each of the welds will be completely examined as required. In addition to the partial surface examination, the welds receive visual examination conducted during pressure test per Code Category B-P.

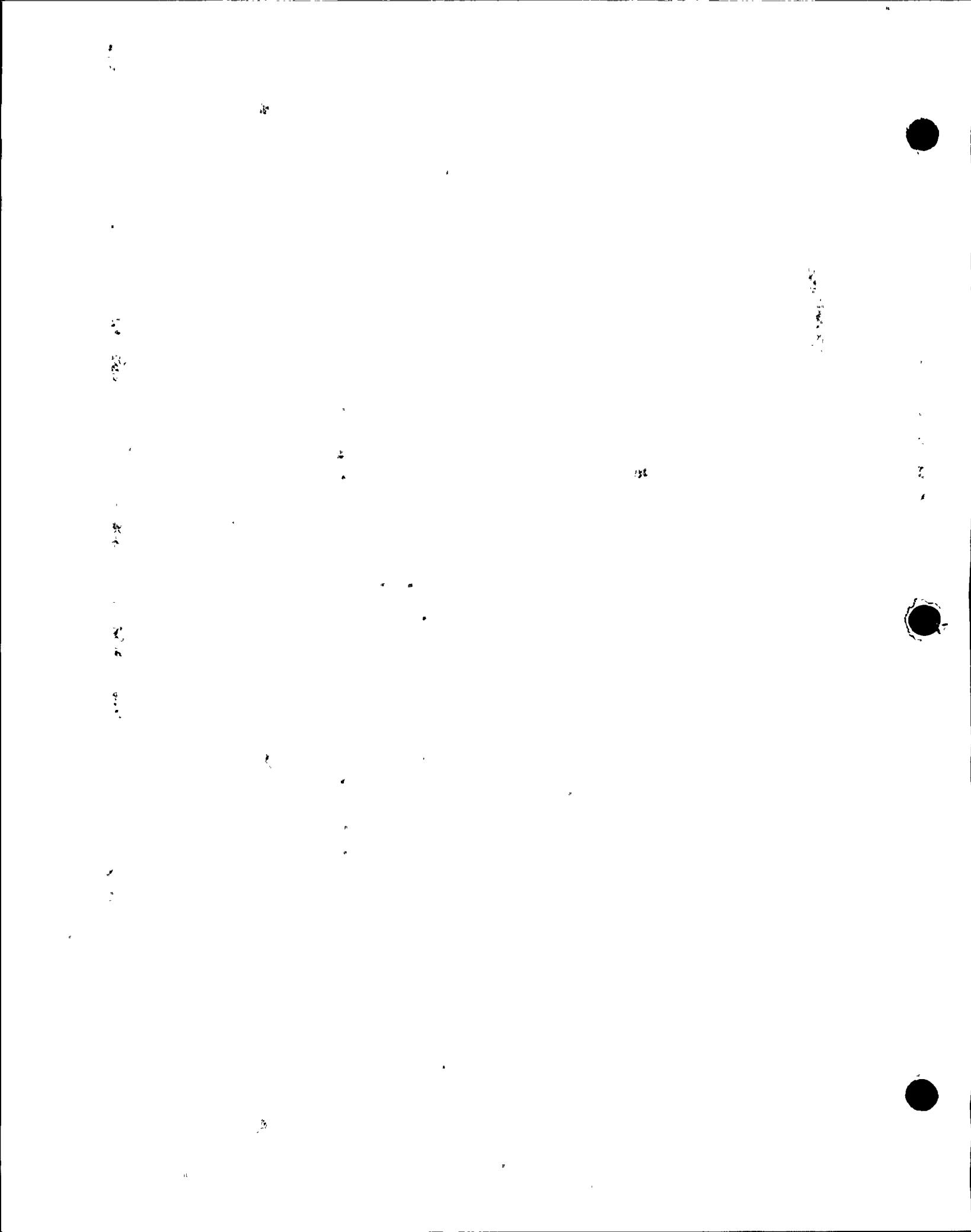
**Justification for Granting of Relief**

The design of the access provisions for the welds listed above limit full surface examination of the welds. Surface examination will be conducted as required for the accessible portion of the weld. Additionally, visual examination is conducted during pressure test per Code Category B-P. This partial surface examination combined with the visual examinations provides continued assurance of the welds integrity.

**Implementation Schedule**

This relief request will be implemented during the Units 1 and 2 second ISI intervals. The socket weld examinations are apportioned equally throughout the intervals.

This request is essentially the same as a portion of NDE-008 (with supplements) from the first ISI interval and was approved in NRC letter dated October 25, 1989 (typical). Differences in noted coverages may occur due to use of automated scanners which provide a higher quality examination, but may experience somewhat more limited coverage.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-16

### System/Component for Which Relief is Requested

Pumps integrally welded attachments (reactor coolant pumps)

### ASME Section XI Code Requirements

1989 Edition, Table IWB-2500-1, Category B-K-1, Item B10.20, requires that pumps integrally welded attachments be examined once during the interval. Essentially, 100 percent of each scheduled attachment weld (three each on one pump) is required to be examined using surface methods as shown in Figure IWB-2500-15, with acceptance standard IWB-3516.

### Code Requirement from Which Relief is Requested

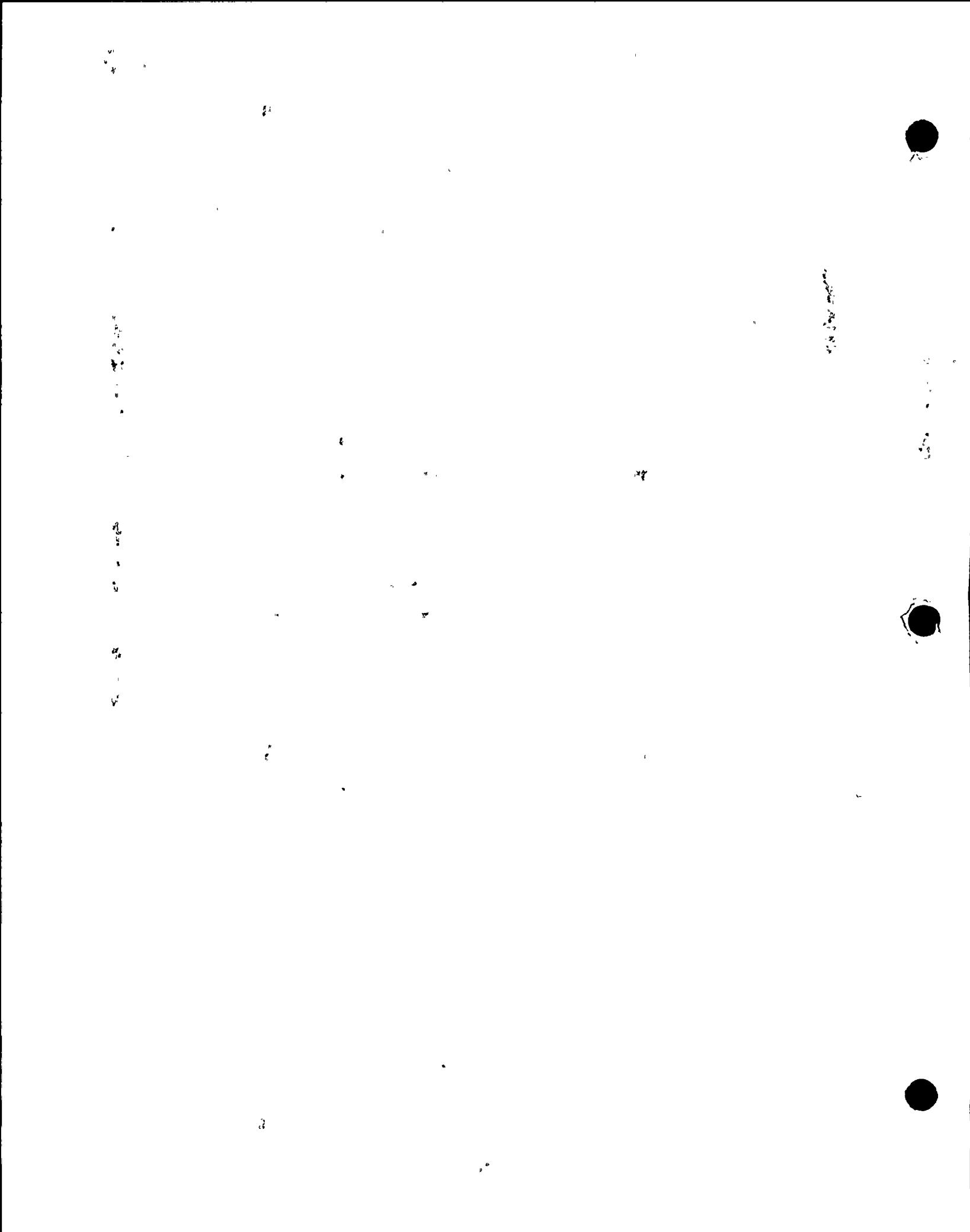
Relief is requested from performing a portion of the surface examination of the reactor coolant pump (RCP) integrally welded attachments where access is limited by adjacent structure.

### Basis for Relief Request

Design of the RCP integrally welded attachments limits access for surface examination due to the support base directly under the integrally welded attachment and the pump anchorage design. The attachments are U shape members welded around their perimeter that sit directly on the supporting structure. Inside the U, the anchorage is installed immediately adjacent to the weld. The supporting structure and anchorages together limit access to approximately 70 percent of the required examination area.

### Proposed Alternative

All accessible areas of each of the welds will be completely examined as required. In addition to the partial surface examination, the welds and support structure receive visual examination per Code Category F-A.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-16**

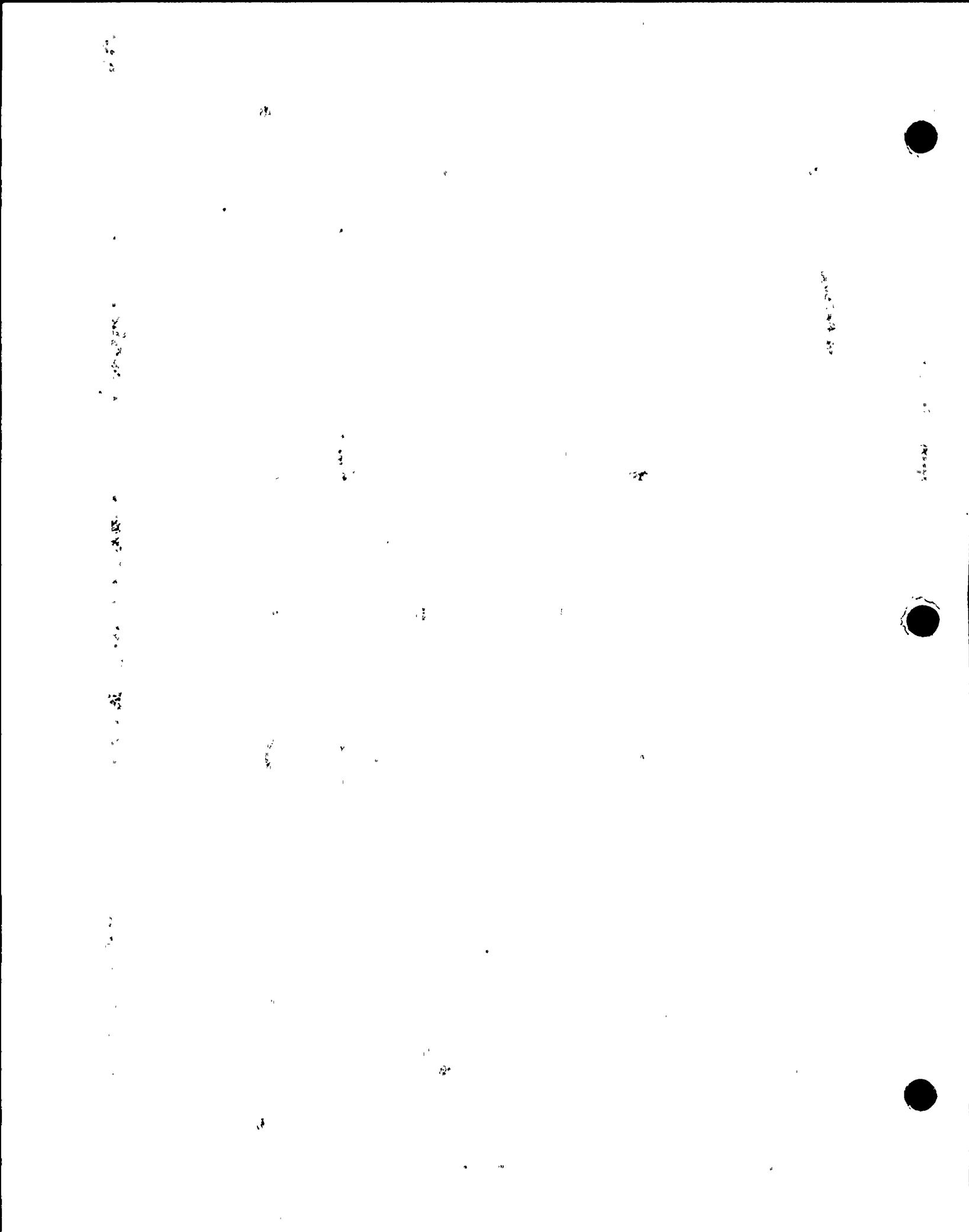
**Justification for Granting of Relief**

The design of the RCP integrally welded attachments limit full surface examination of the welds. Surface examination will be conducted as required for the accessible portion of the welds. Additionally, visual examination of the support structure is conducted per Code Category F-A. This partial surface examination combined with the visual examinations provides continued assurance of the welds integrity.

**Implementation Schedule**

This relief request will be implemented during the Units 1 and 2 second ISI intervals. The RCP integrally welded attachments examinations are apportioned equally throughout the intervals.

RCP "feet" were previously examined "100 percent as accessible," which is as stated above.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-17**

### **System/Component for Which Relief is Requested**

Class 2 vessel shell circumferential welds.

### **ASME Section XI Code Requirements**

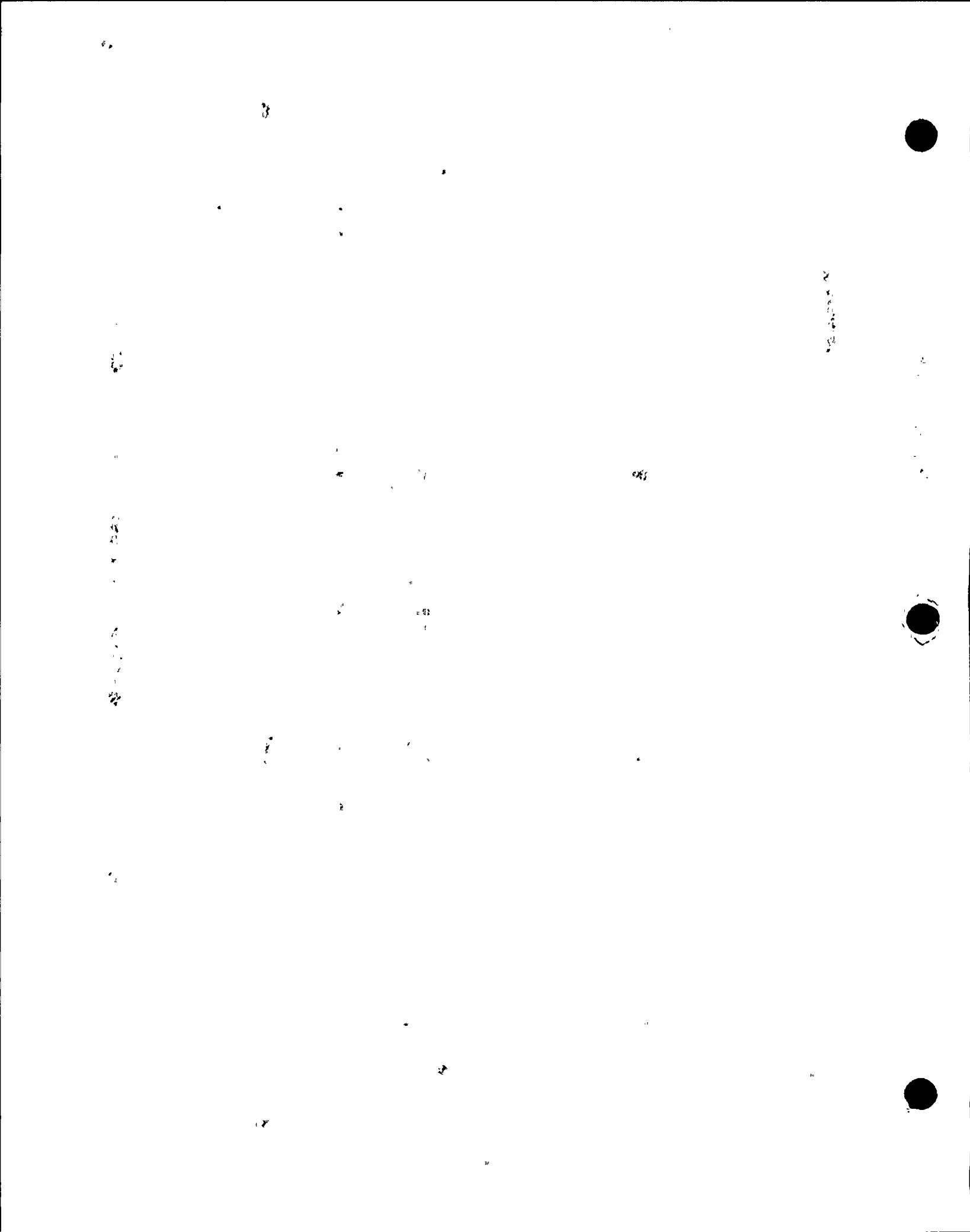
1989 Edition, Table IWC-2500-1, Category C-A, Item C1.10, C1.20, and C1.30, require that vessel shell circumferential welds at structural discontinuities on the steam generators (SG), seal injection filters, excess letdown heat exchanger, regenerative heat exchanger and residual heat removal heat (RHR) exchangers be volumetrically examined once during the interval. Essentially, 100 percent of the weld volume is required to be examined by shear and longitudinal beams from both sides and along the weld axis as shown in Figure IWC-2500-1, with acceptance standard of IWC-3510. For multiple similar vessels, the requirement may be applied to one vessel among the group or distributed among the vessels.

### **Code Requirement from Which Relief is Requested**

Relief is requested from performing the volumetric examination on the seal injection filters, excess letdown heat exchanger, regenerative heat exchanger and RHR heat exchanger; and from performing a portion of the volumetric examination on the Unit 1 SGs where access is restricted as discussed below for each individual case.

### **Basis for Relief Request**

SGs (applies to Unit 1 only): Design of the vessel insulation conformed to the 1974 ASME Code with Summer 1975 Addenda, which required that only 20 percent of each subject weld be examined. As a result, removable insulation windows are only provided to access 20 percent of each weld. The windows are spaced approximately evenly ( $120^\circ$ ) around the vessel circumference, except for the top head to shell weld on which windows are spaced adjacent to the personnel access platform which extends around one side of the shell. Provision of additional access would impose a significant burden with no



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-17**

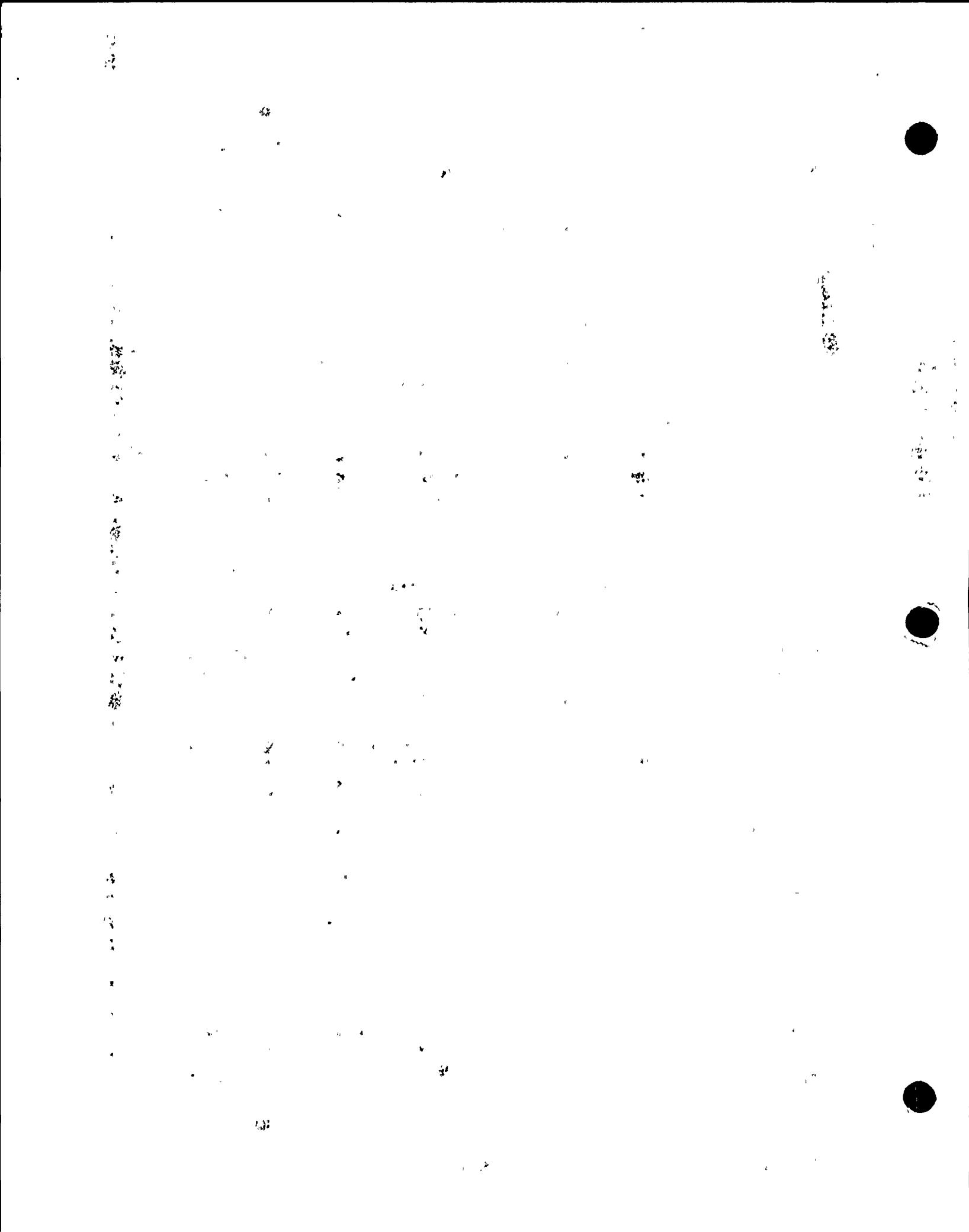
**Basis for Relief Request (continued)**

compensating gain in plant or public safety. Note: For Unit 2, all welds are accessible as required.

Seal injection filters: The filters are located in a filter bank with interconnected vaults for shielding. The filters are 61 inches long with 22 inch maximum diameter and the vaults are 63 inches tall by 36 inches on each side. Access to each filter is through a 21-1/2 inch diameter removable hatch on the top of the vault which exposes the filter for cartridge replacement. However, access to the welds from this side is restricted by the filter flange and cover plate assembly and cover plate lifting fixtures. Alternate access is provided by an unshielded crawl space behind the filter bank. This space is obstructed by remote valve operators and instrument cables. Radiation levels are expected to exceed 10 rads per hour in this area. A liquid penetrant examination takes 45 minutes, not counting the time to negotiate the obstructed crawl space. The combination of limited access, high radiation levels, and small size (2" diameter) of the lines to/from the filters poses an unjustified hazard to the examination personnel.

Excess letdown heat exchanger: This is a vertical vessel supported by steel feet and braces welded directly to the shell. The feet sit on concrete piers immediately adjacent to the vessel. On the vessel shell, at 90 degrees to each support foot, the nozzle penetrations further limit access to the shell welds. The shell-to-flange weld cannot be scanned from the flange side due to the flange configuration. The head-to-shell weld is limited from the head side due to curvature of the head. Approximately 15 percent of the shell-to-flange weld and 10 percent of the head-to-shell weld is accessible from the shell side. The vessel is also in a high radiation area (regenerative heat exchanger room). The lack of access for volumetric examination makes it impractical for use in this application. The welds are generally accessible for an alternative surface examination.

Regenerative heat exchanger: Volumetric examination by ultrasonics would be of limited value due to the materials of construction which are ASTM A351 Grade CF8 centrifugally cast stainless steel. This material has a large grain structure which disperses the ultrasonic beam, requiring large low frequency



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-17

### Basis for Relief Request (continued)

transducers which are not sensitive to small flaws. This poor sensitivity combined with the access restrictions described below render the ultrasonic method ineffective for this application. This conclusion is supported by EPRI report NP-5173 (April 1987).

The head-to-shell welds are partly accessible from the shell side (approximately 60 percent at the tube sheet end and 80 percent at the shell end) due to the nozzles. The welds are not accessible from the from the head side due to curvature of the heads.

Regenerative heat exchanger: The tubesheet-to-shell welds are partly accessible from the shell sides (approximately 30 percent from the tube inlet side and 45 percent from the shell side) due to nozzle and vessel support obstructions. The welds are not accessible from the tubesheet side due to welded support structure. Even if the welds were accessible, examination is not practical due to the complex tubesheet geometry. Volumetric examination by radiography is not practicable due to the high background radiation levels, complex tubesheet geometry, including the tubes themselves and the fact that the vessel is filled with water. Due to the support and nozzle configuration, the tubesheet-to-shell welds are each approximately 50 percent accessible for an alternative surface examination. The similar welds on the other heat exchanger shells will be examined to provide a composite examination equivalent to 100 percent of the welds on one shell.

RHR heat exchanger: These are vertical vessels supported by legs welded to pads which are in turn welded to the vessel shell. The legs sit on concrete piers immediately adjacent to the vessel. On the vessel shell, at 90 degrees to each support foot, the nozzle penetrations further limit access to the shell welds. The shell-to-flange weld cannot be scanned from the flange side due to the flange configuration, and the head-to-shell weld is limited from the head side due to curvature of the head. Approximately 10 percent of the shell-to-flange weld and 15 percent of the head-to-shell weld is accessible from the shell side. The accessible portion is insufficient for any meaningful examination to be performed. Both welds are approximately 80 percent accessible for an alternative surface examination due to the supports.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-17

### Proposed Alternative

SG (applies to Unit 1 only): The accessible 20 percent of each weld will be fully examined as required. Note: Unit 2 welds are fully accessible.

Seal injection filters: None.

Excess letdown heat exchanger: Surface examination of the accessible 80 percent of each weld.

Regenerative heat exchanger: Surface examination of the head-to-shell welds; surface examination of accessible portions of each tubesheet-to-shell weld on the three shells to equal 100 percent of each weld in composite.

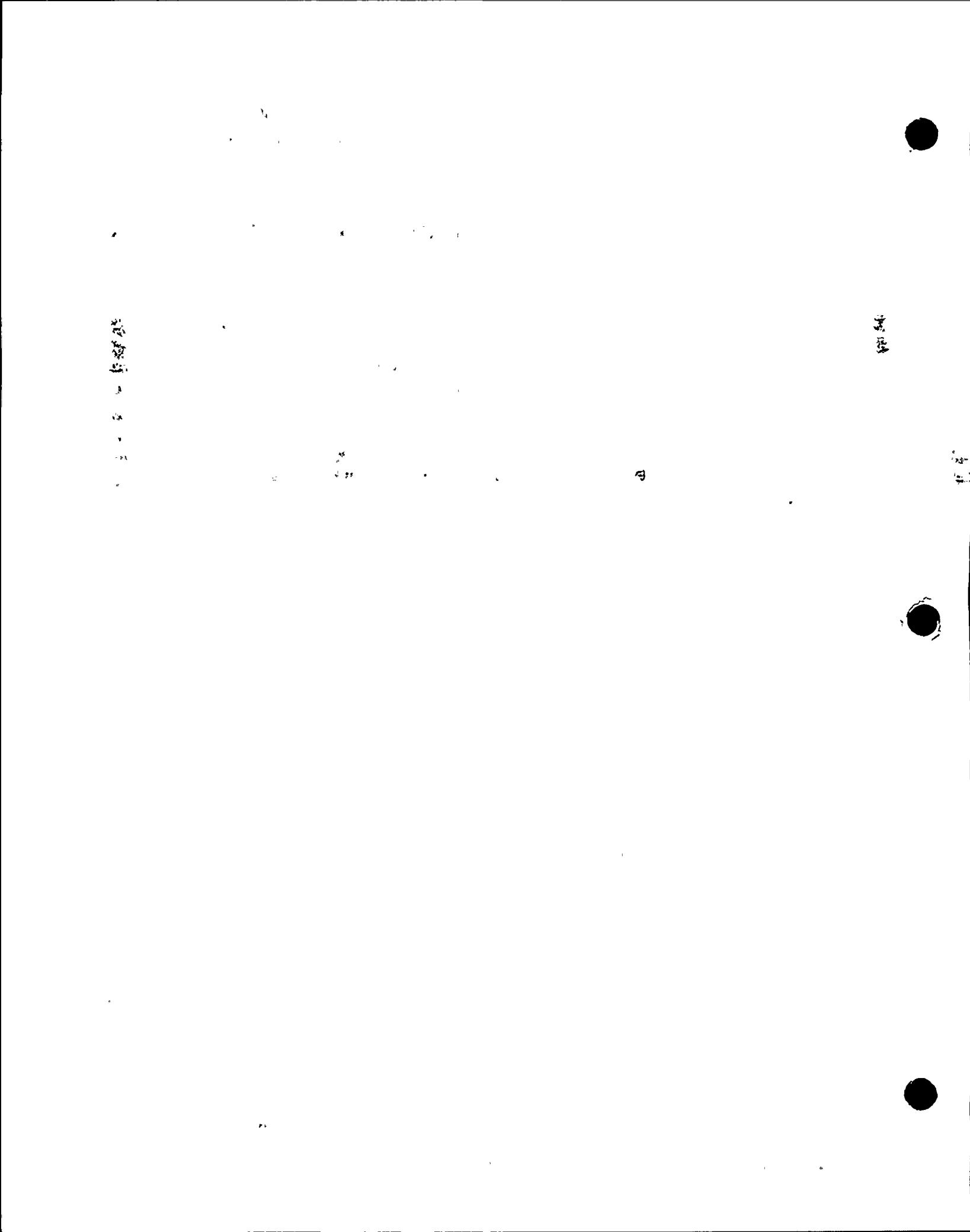
RHR heat exchangers: Surface examination of the accessible portion of each weld (Approximately 80 percent each, limited by the vessel supports).

### Justification for Granting of Relief

Access to portions (or all, in the case of the seal injection filters) of these welds is physically limited. For the regenerative heat exchanger, the cast stainless steel material poses an additional restriction. In addition to the proposed alternative examinations detailed above, visual examination is conducted during pressure test per Code Category C-H. On the SGs, additional visual examinations are performed from inside the vessel at the upper transition cone weld and the head-to-shell weld as part of the secondary side inspections. The proposed alternative examinations combined with the visual examinations provide continued assurance of weld integrity.

### Implementation Schedule

This relief request will be implemented during Units 1 and 2 second ISI intervals. The alternative examinations of the vessels welds are distributed evenly throughout the intervals.



Enclosure  
PG&E Letter DCL-96-031

**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-17**

This request is essentially the same as a portion of NDE-006 (with supplements) from the first ISI interval and was approved in NRC letter dated October 25, 1989. At that time, PG&E committed to volumetrically examine the small portions (less than 15 percent overall) of the RHR and excess letdown heat exchanger shell welds that are accessible for volumetric examination.

Those examinations were indeed performed; however, PG&E has found the severely limited data obtained to be of no practical value. Therefore, relief is again requested.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-18**

### **System/Component for Which Relief is Requested**

Class 2 vessel nozzle welds (without reinforcing plate in vessels >1/2 inch nominal thickness).

### **ASME Section XI Code Requirements**

1989 Edition, Table IWC-2500-1, Category C-B, Item C2.21, requires that vessel nozzle welds on the steam generators (SG) and residual heat removal (RHR) heat exchangers be surface and volumetrically examined once during the interval. Essentially, 100 percent of the weld volume is required to be examined by shear and longitudinal beams from both sides and along the weld axis as shown in Figure IWC-2500-4(a) and (b), with acceptance standard of IWC-3511. For multiple similar vessels, the requirement may be applied to one vessel among the group, or distributed among the vessels.

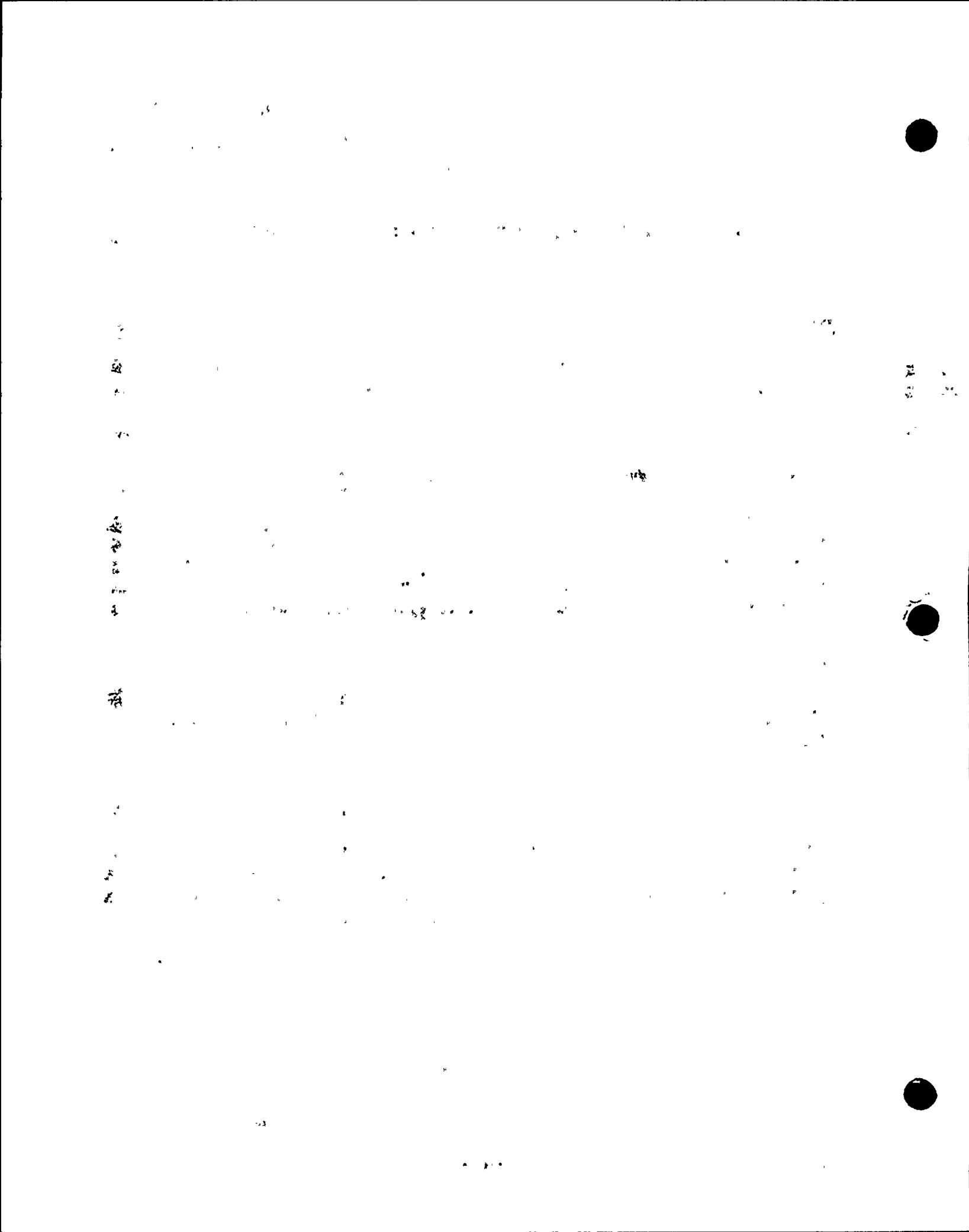
### **Code Requirement from Which Relief is Requested**

Relief is requested from performing a portion of the volumetric examination on the SG feedwater nozzle weld and RHR heat exchanger nozzle welds where access is restricted as discussed below.

### **Basis for Relief Request**

SG: The feedwater nozzle configuration limits access for scanning from the nozzle side. Approximately 70 percent of the required volume is accessible. The nozzle weld is not accessible from the nozzle bore due to a welded thermal sleeve (feeding connection) and support structure inside the vessel. The weld is accessible for surface examination.

RHR Heat Exchanger: The nozzle weld configuration limits scans from the nozzle side. From the shell side, the vessel support pads, vessel flange and head-to-shell weld obstruct scans. Approximately 10 percent of each weld is accessible for volumetric examination; however, this amount is insufficient to provide any meaningful examination result. The welds are accessible for surface examination.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-18

### Proposed Alternative

SG: The accessible portion (approximately 70 percent) of the weld will be volumetrically examined as required. Full surface examination.

RHR heat exchanger: Surface examination only, as required.

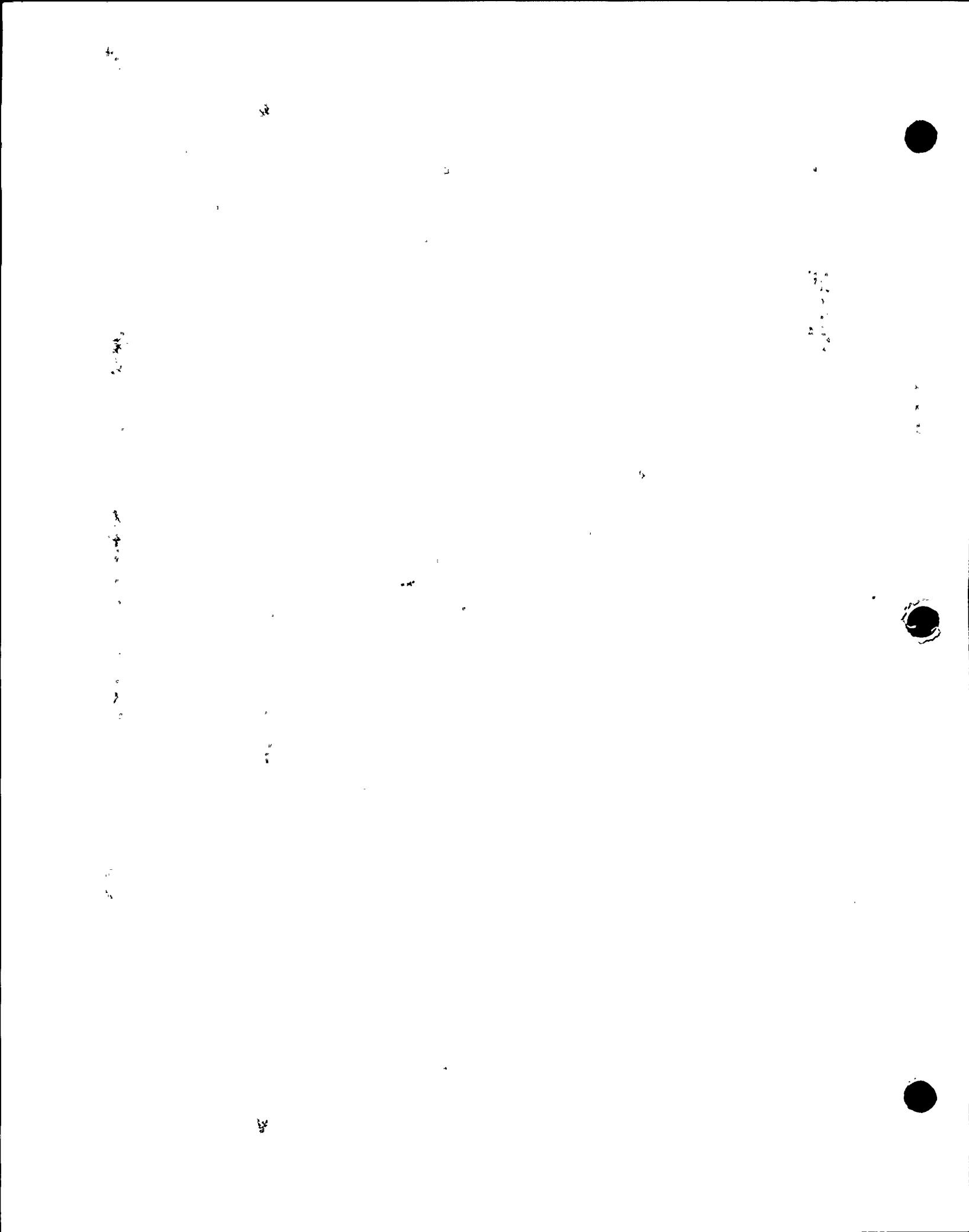
### Justification for Granting of Relief

Access to portions of these welds is physically limited. In addition to the partial volumetric examination of the feedwater nozzle, all nozzle welds receive surface examination as required, and visual examination is conducted during pressure test per Code Category C-H. The proposed alternative examinations combined with the visual examinations provide continued assurance of weld integrity.

### Implementation Schedule

This relief request will be implemented during Units 1 and 2 second ISI intervals. The examinations of the vessels nozzle welds are distributed evenly throughout the intervals.

This request is essentially the same as a portion of NDE-006 (with supplements) from the first ISI interval and was approved in NRC letter dated October 25, 1989. At that time, PG&E committed to volumetrically examine the small portions (less than 10 percent overall) of the RHR heat exchanger nozzle welds that are accessible for volumetric examination. Those examinations were indeed performed; however, PG&E has found the severely limited data obtained to be of no practical value. Therefore, relief is again requested.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-19

### System/Component for Which Relief is Requested

Class 2 vessel nozzle (without reinforcing plate in vessels >1/2 inch nominal thickness) inside radius section.

### ASME Section XI Code Requirements

1989 Edition, Table IWC-2500-1, Category C-B, Item C2.22, requires that vessel nozzle inside radius sections on the residual heat removal (RHR) heat exchangers be volumetrically examined once during the interval. Essentially, 100 percent of the nozzle inside radius section is required to be examined as shown in Figure IWC-2500-4(b), with acceptance standard of IWC-3511. For multiple similar vessels, the requirement may be applied to one vessel among the group, or distributed among the vessels.

### Code Requirement from Which Relief is Requested

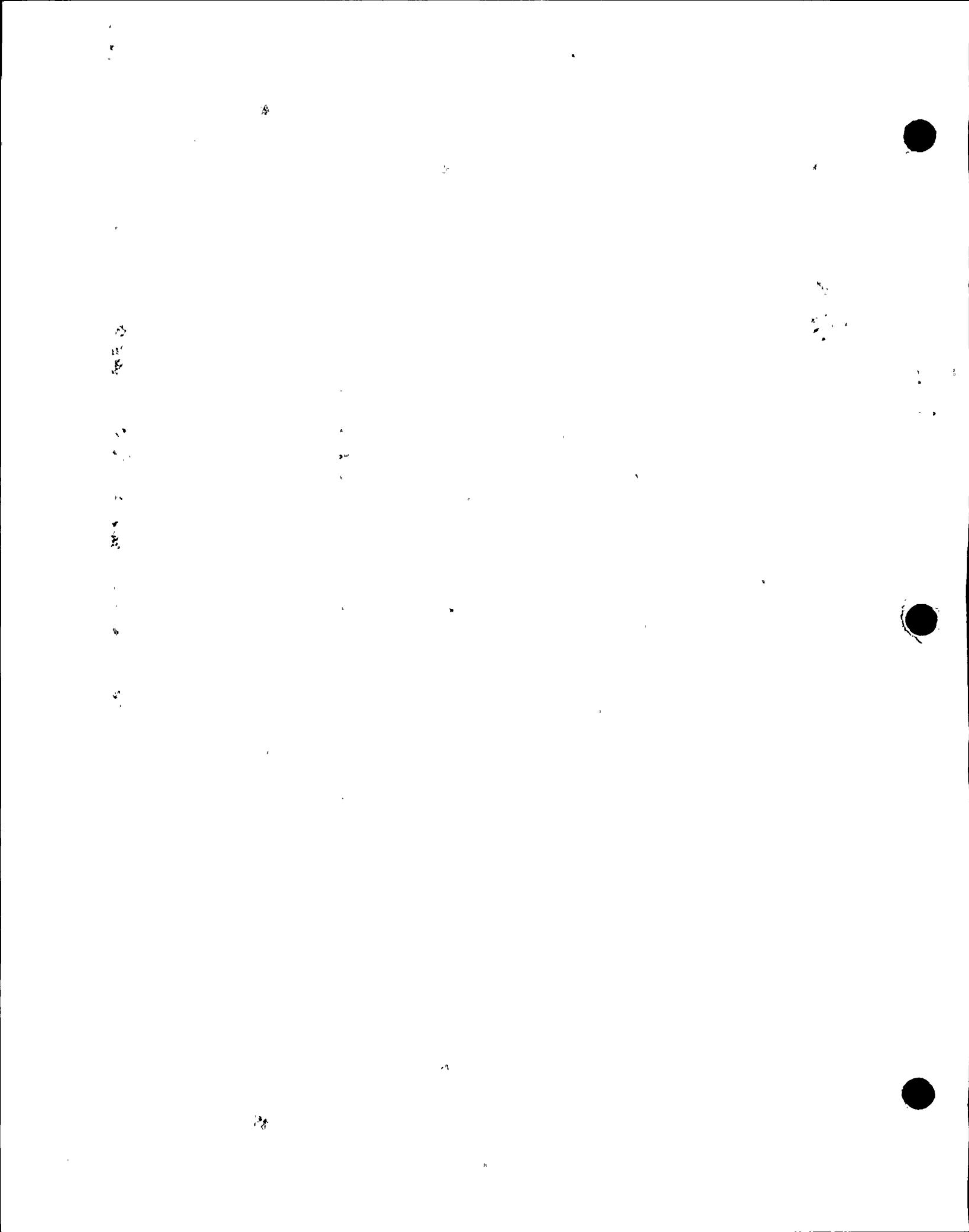
Relief is requested from performing the volumetric examination on RHR heat exchanger nozzle inside radius section due to inaccessibility.

### Basis for Relief Request

The nozzle configuration limits scans from the nozzle side and the radial orientation of a postulated flaw is parallel to this scan direction. From the shell side the vessel support pads, vessel flange, head-to-shell weld, and short nozzle weld reinforcement make access for meaningful nozzle inside radius scans impossible.

### Proposed Alternative

None.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-19**

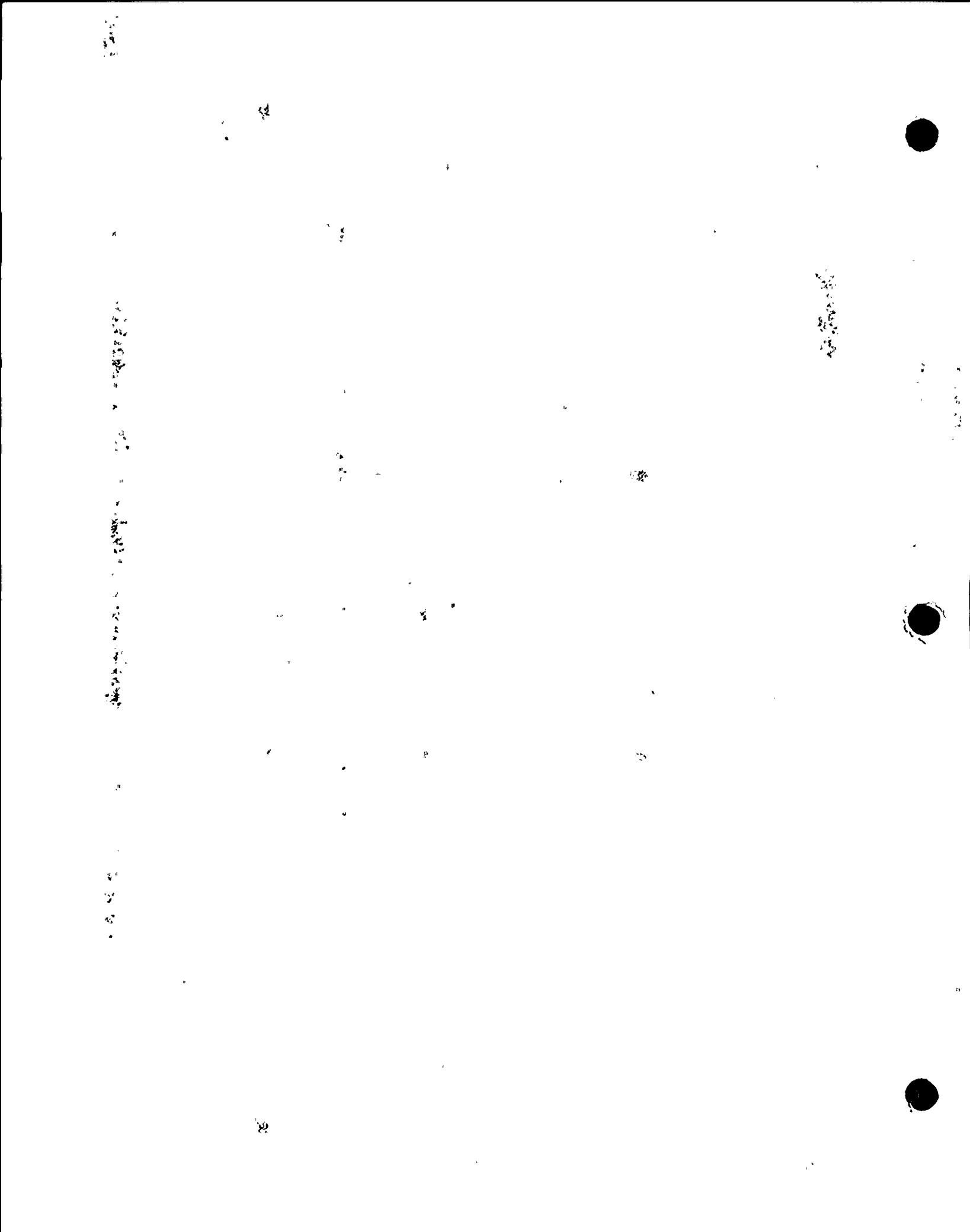
### **Justification for Granting of Relief**

Access for scanning the nozzle inside radius sections is physically limited. The adjacent nozzle welds receive a surface examination and visual examination is conducted during pressure test per Code Category C-H. The examinations of the adjacent nozzle areas combined with the visual examinations provide continued assurance of the nozzle inside radius sections integrity.

### **Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals. The examinations of the adjacent vessel nozzle welds are distributed evenly throughout the intervals.

This is a new request, based on the 1989 Code requirement.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-20**

**System/Component for Which Relief is Requested**

Class 2 pressure vessels, piping, and pumps integrally welded attachments

**ASME Section XI Code Requirements**

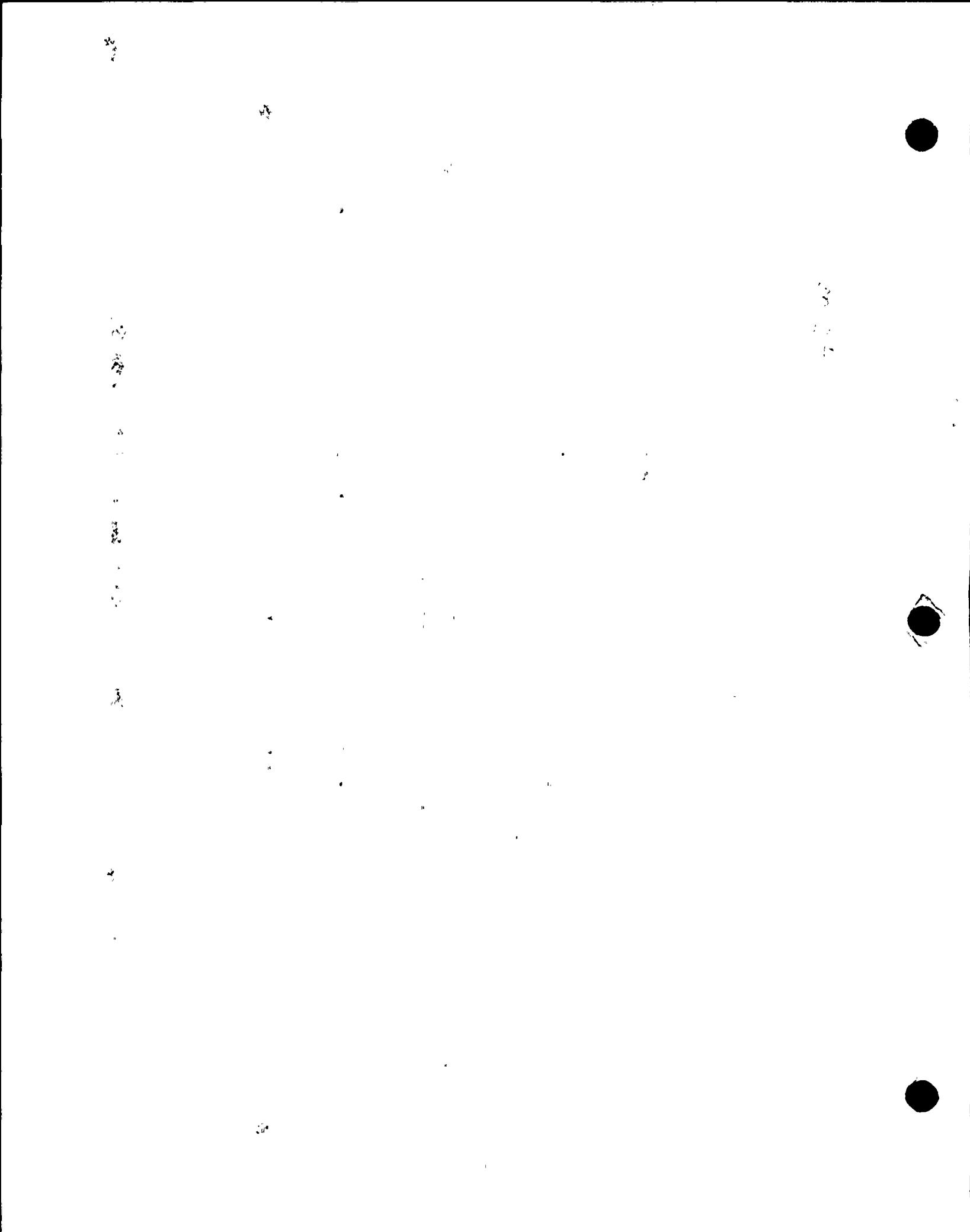
1989 Edition, Table IWC-2500-1, Category C-C, Items C3.10, C3.20, and C3.30, require that integrally welded support attachments to pressure vessels, piping systems, and pumps be examined once during the interval. Essentially, 100 percent of each subject attachment weld is required to be examined using surface methods as shown in Figure IWC-2500-5, with acceptance standard IWC-3512.

**Code Requirement from Which Relief is Requested**

Relief is requested from performing a portion of the surface examination of certain pressure vessel, piping, or pump support integrally welded attachments as detailed below, where access is limited by surface configuration or adjacent structure.

**Basis for Relief Request**

Design of certain pressure vessel, piping or pump supports limits access for surface examination due to various geometric conditions on or adjacent to the welds, or due to the presence of physical obstructions such as the welded support, Code nameplates, adjacent piping, or structures. These conditions or combination of conditions may physically prevent access to portions of the required examination area. Approximate accessible portions of each weld area and the specific limitations are described below:



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-20**

<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
74-29A	1661	8	Support structure & adjacent wall	75
Cent'l Charging Pp Legs			Support structure under legs	77
RHR Heat Exchr Supports			Support structure adjacent	75
<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
Cent'l Charging Pp Legs			Support structure under legs	77
RHR Heat Exchr Supports			Support structure adjacent	75

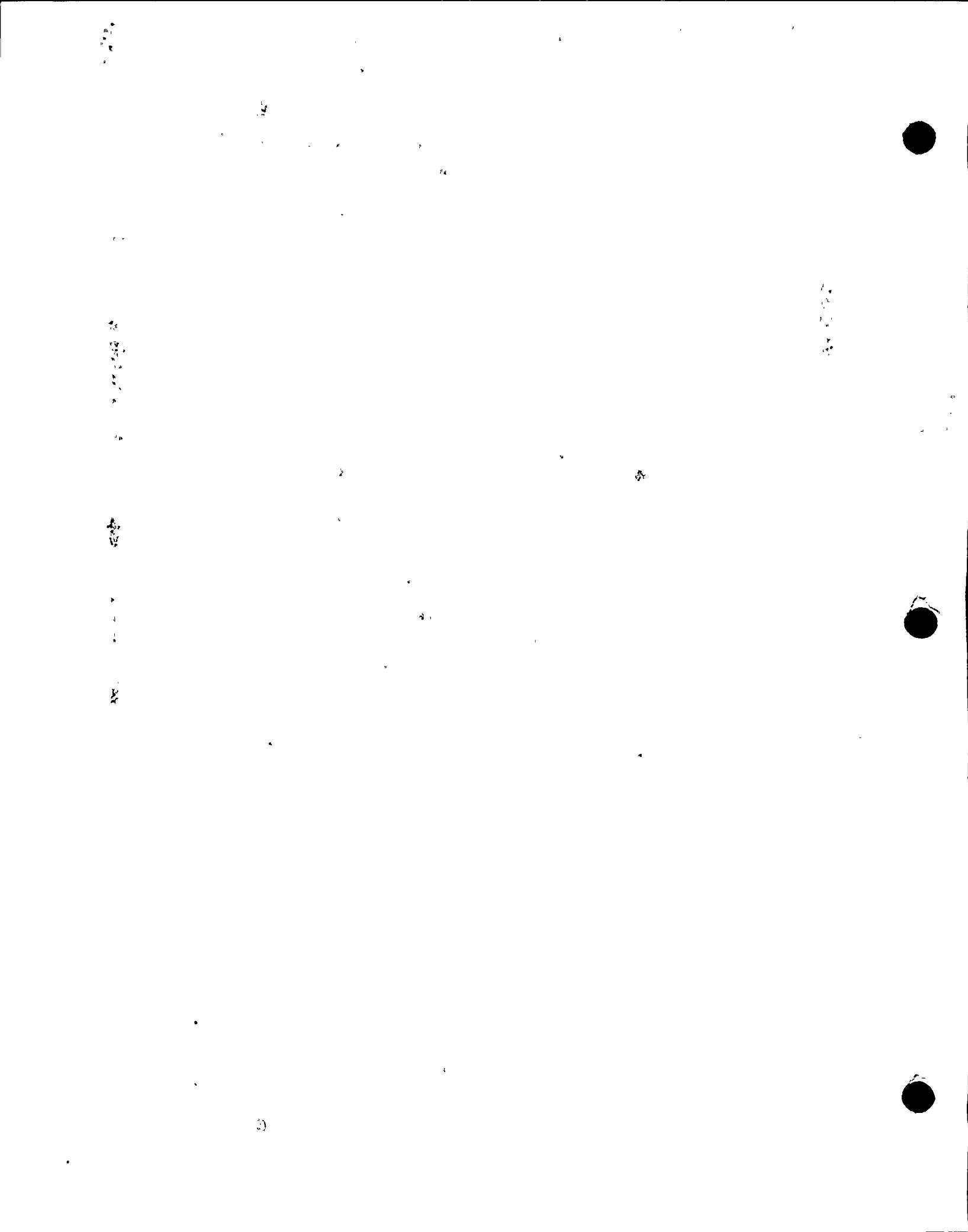
Additional examples may be found during 2R7.

Proposed Alternative

All accessible areas of each of the integrally welded attachments will be completely examined as required. In addition to the partial surface examination, the welds receive visual examination conducted per Code Subsection IWF.

Justification for Granting of Relief

The design of the surface configuration or access provisions for the integrally welded attachments listed above, limit full surface examination of the welds. Examination will be conducted as required for the accessible portion of the weld area. Additionally, visual examination is conducted per Code Subsection IWF.



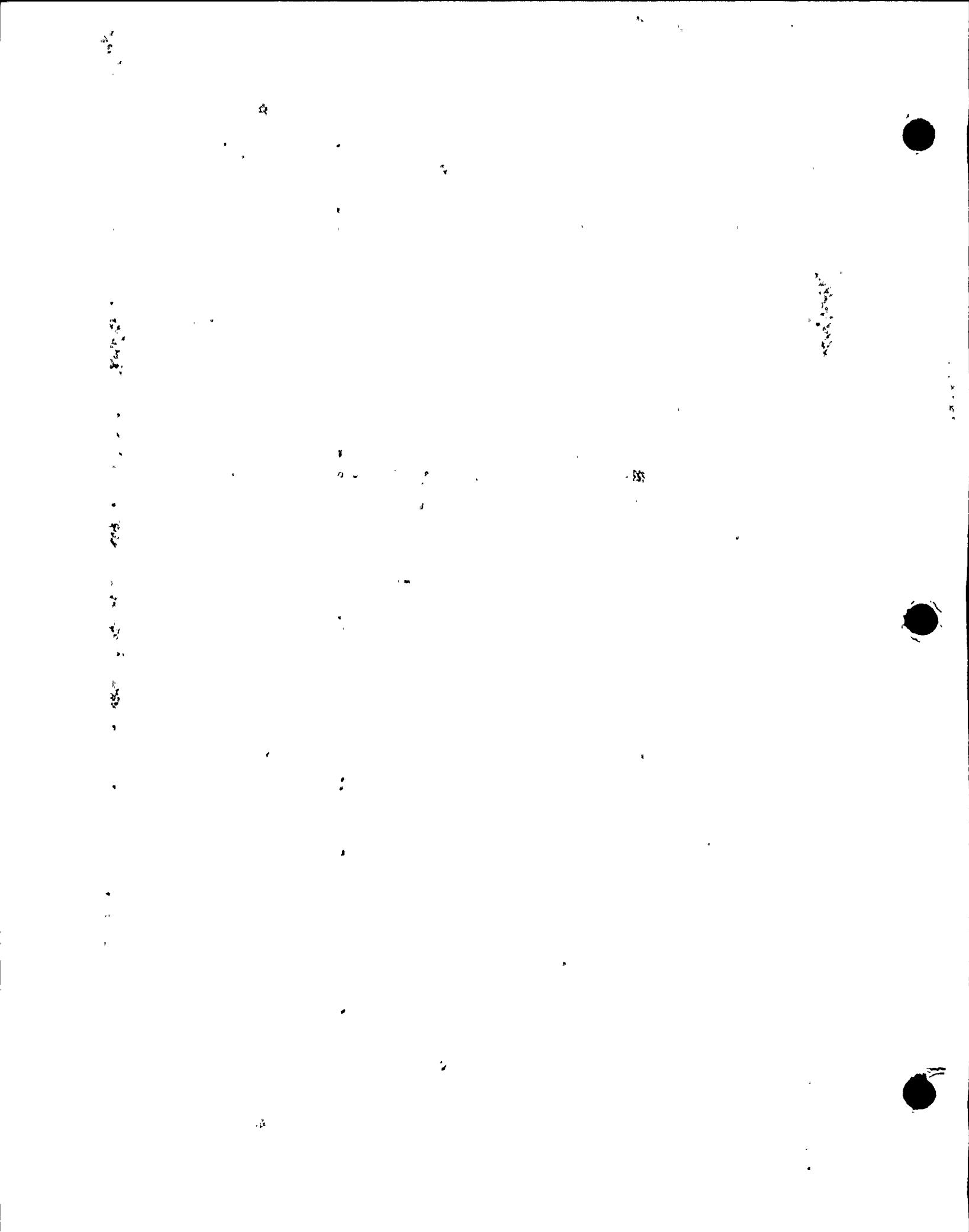
**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-20**

This partial surface examination combined with the visual examination provides continued assurance of the welds integrity.

**Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals. The integrally welded attachment examinations are apportioned equally throughout the intervals.

The pump and heat exchangers supports were previously examined "100 percent as accessible," which is as stated above.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-21

### System/Component for Which Relief is Requested

Class 2 pipe welds in austenitic steel or high alloy piping.

### ASME Section XI Code Requirements

1989 Edition, Table IWC-2500-1, Category C-F-1, Item C5.11 and C5.21, requires that selected welds in piping systems be examined once during the interval. Essentially, 100 percent of each scheduled weld is required to be examined using surface and volumetric methods as shown in Figure IWC-2500-7, with acceptance standard IWC-3514.

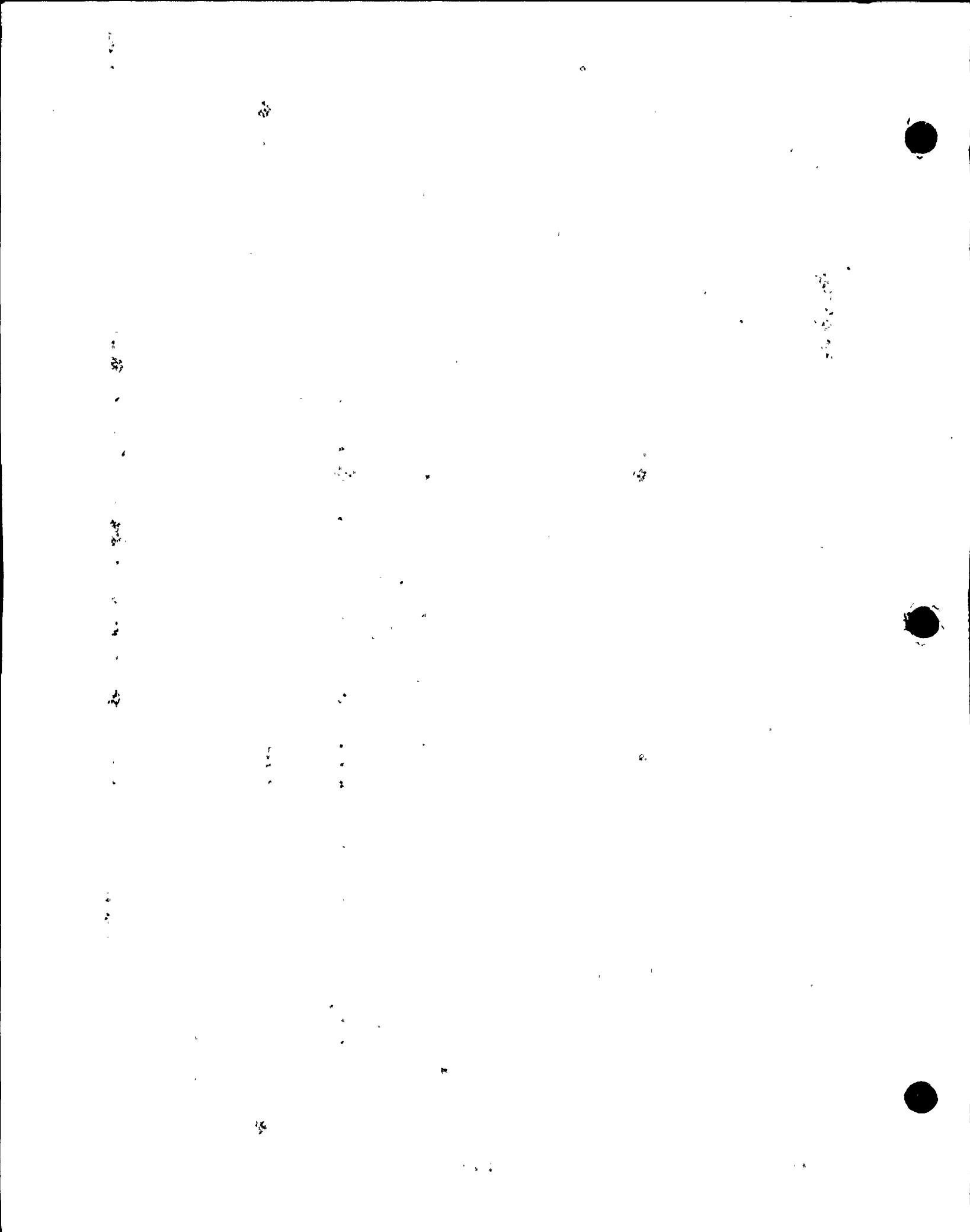
### Code Requirement from Which Relief is Requested

Relief is requested from performing volumetric examination on socket welds in the charging injection system and a portion of the volumetric examination of certain pipe welds as detailed below, where access is limited by surface configuration or adjacent structure.

### Basis for Relief Request

Most of the NPS 2 and certain portions of NPS 3 lines in the charging injection ("high pressure safety injection") system were built using socket welds. These welds cannot be effectively volumetrically examined. The required welds are accessible for surface examination.

In systems other than charging injection, design of certain pipe welds limits access for volumetric examination due to various geometric conditions on or adjacent to the welds, or due to the presence of physical obstructions such as welded supports, Code nameplates, adjacent piping, structures, or penetrations. These conditions or combination of conditions may physically prevent access to portions of the required examination volume. Approximate accessible portions of each weld volume and the specific limitations are described below:



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-21**

<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
--------------------	-------------	------------	-------------------	---------------------

None known at present. Examples may be found in the Charging Injection system during the second interval.

<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
--------------------	-------------	------------	-------------------	---------------------

WIC-325	1973	6	Tee configuration & pipe restraint	50
---------	------	---	------------------------------------	----

Additional examples may be found during the Unit 2 seventh refueling outage and in the charging injection system during the second interval.

**Proposed Alternative**

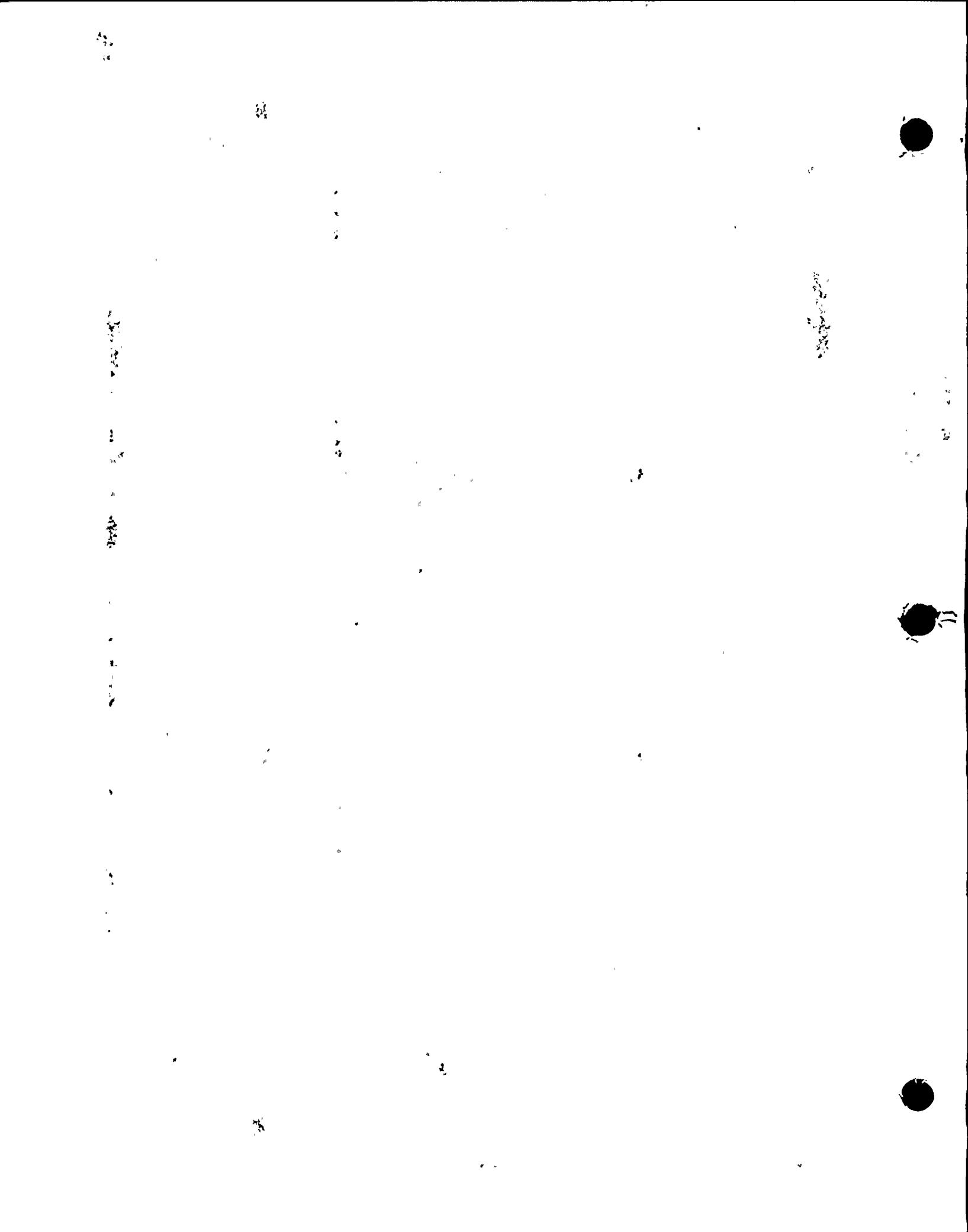
Required socket welds in the charging injection system, surface examination: In addition to the surface examination, the welds receive visual examination per Code Category C-H. Note: all scheduled butt welds in the charging injection system will be examined with both volumetric and surface methods as required.

In other systems, all accessible areas of each scheduled weld will be completely examined as required. In addition to the partial volumetric examination, the welds receive full surface examination and visual examination is conducted per Code Category C-H.

**Justification for Granting of Relief**

For socket welds in the charging injection system, no reliable volumetric method exists to examine the welds, and a surface exam together with visual exam during pressure tests provides reasonable assurance of the weld integrity.

In other systems, the design of the surface configuration or access provisions for the welds listed above, limit full volumetric examination. Examination will be conducted as required for the accessible portion of the weld area. Additionally, surface examination is conducted and visual examination is performed during pressure tests per Code Category C-H. This partial volumetric examination



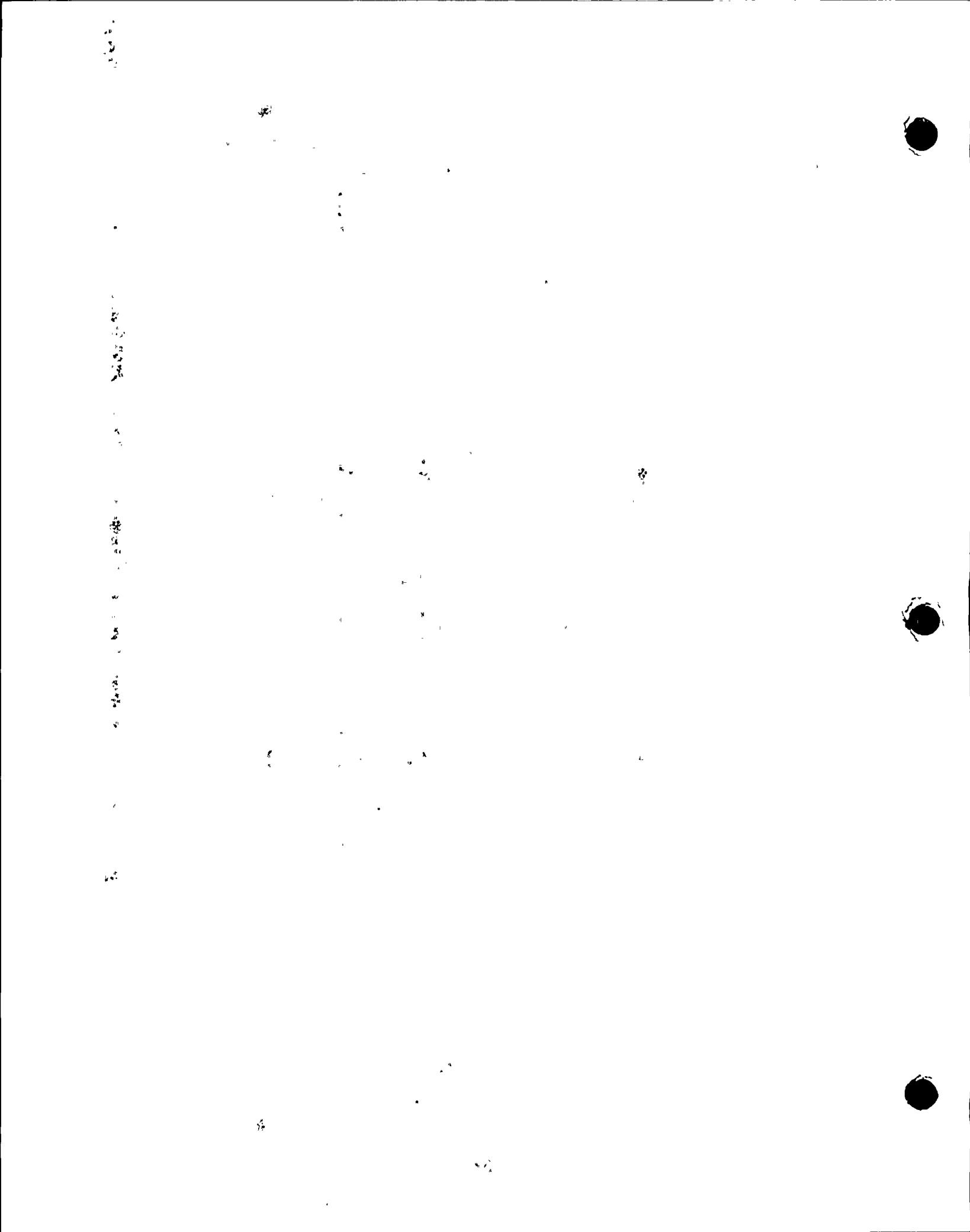
**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-21**

combined with the surface and visual examination provides continued assurance of weld integrity.

**Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals. The pipe weld examinations are apportioned equally throughout the intervals.

This request is essentially the same as a portion of NDE-008 (with supplements) from the first ISI interval and was approved in NRC letter dated October 25, 1989 (typical). The defacto requirement for volumetric examination of socket welds is new in the 1989 Edition.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-22**

**System/Component for Which Relief is Requested**

Class 2 pipe welds in carbon or low alloy steel piping

**ASME Section XI Code Requirements**

1989 Edition, Table IWC-2500-1, Category C-F-2, Item C5.51, requires that welds in piping systems be examined. Essentially, 100 percent of each scheduled weld is required to be examined once during the interval using surface and volumetric methods as shown in Figure IWC-2500-7, with acceptance standard IWC-3514.

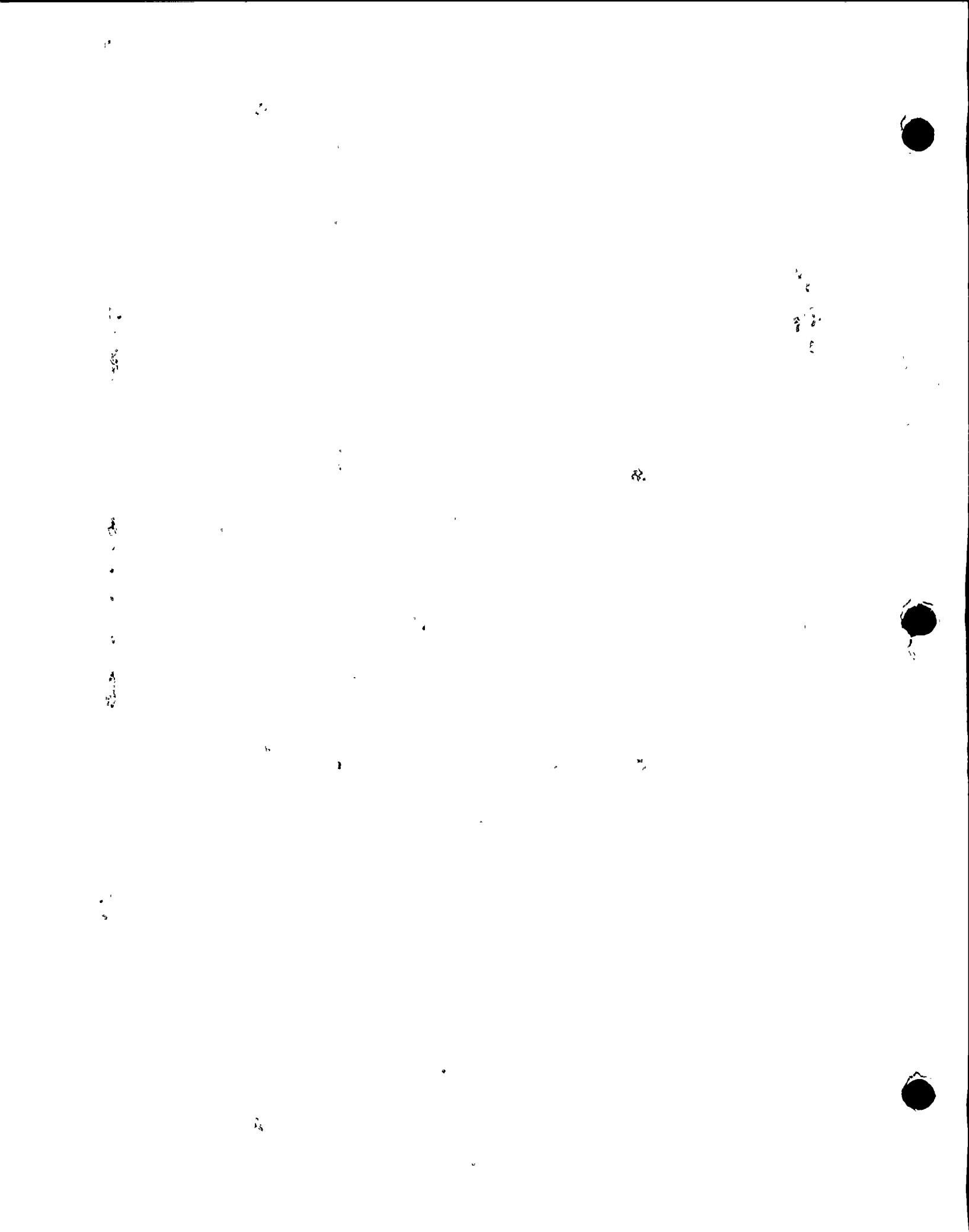
**Code Requirement from Which Relief is Requested**

Relief is requested from performing a portion of the volumetric examination of certain pipe welds as detailed below where access is limited by surface configuration or adjacent structure.

**Basis for Relief Request**

Design of certain pipe welds limits access for volumetric examination due to various geometric conditions on or adjacent to the welds, or due to the presence of physical obstructions such as welded supports, Code nameplates, adjacent piping, structures, or penetrations. These conditions or combination of conditions may physically prevent access to portions of the required examination volume. Approximate accessible portions of each weld volume and the specific limitations are described below:

<u>Unit 1 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
None				



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-22**

<u>Unit 2 Weld</u>	<u>Line</u>	<u>NPS</u>	<u>Limitation</u>	<u>% Accessible</u>
WIC-1357B	1357	6	Ventilation duct across pipe	75
WIC-1357C	1357	6	Ventilation duct across pipe	80

Additional examples may be found during 2R7.

Proposed Alternative

All accessible areas of each weld will be completely examined as required. In addition to the partial volumetric examination, the welds receive >90 percent surface examination and visual examination is conducted per Code Category C-H.

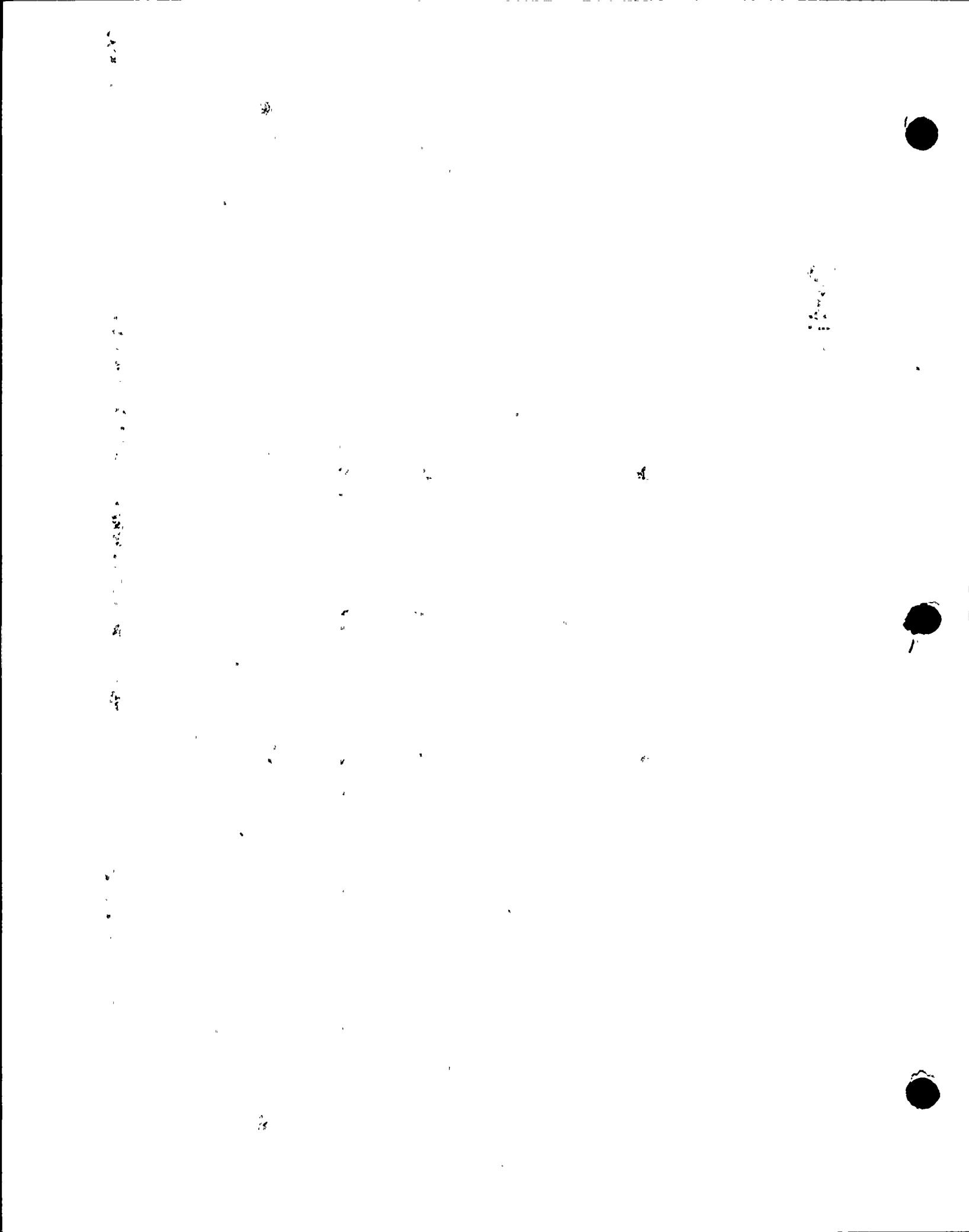
Justification for Granting of Relief

The design of the surface configuration or access provisions for the welds listed above, limit full volumetric examination. Examination will be conducted as required for the accessible portion of the weld area. Additionally, surface examination is conducted and visual examination is performed during pressure test per Code Category C-H. This partial volumetric examination combined with the surface and visual examination provides continued assurance of weld integrity.

Implementation Schedule

This relief request will be implemented during Units 1 and 2 second ISI intervals. The pipe weld examinations are apportioned equally throughout the intervals.

This request is essentially the same as a portion of NDE-008 (with supplements) from the first ISI interval and was approved in NRC letter dated October 25, 1989 (typical).



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-23

### System/Component for Which Relief is Requested

All systems and components, general requirements.

### ASME Section XI Code Requirements

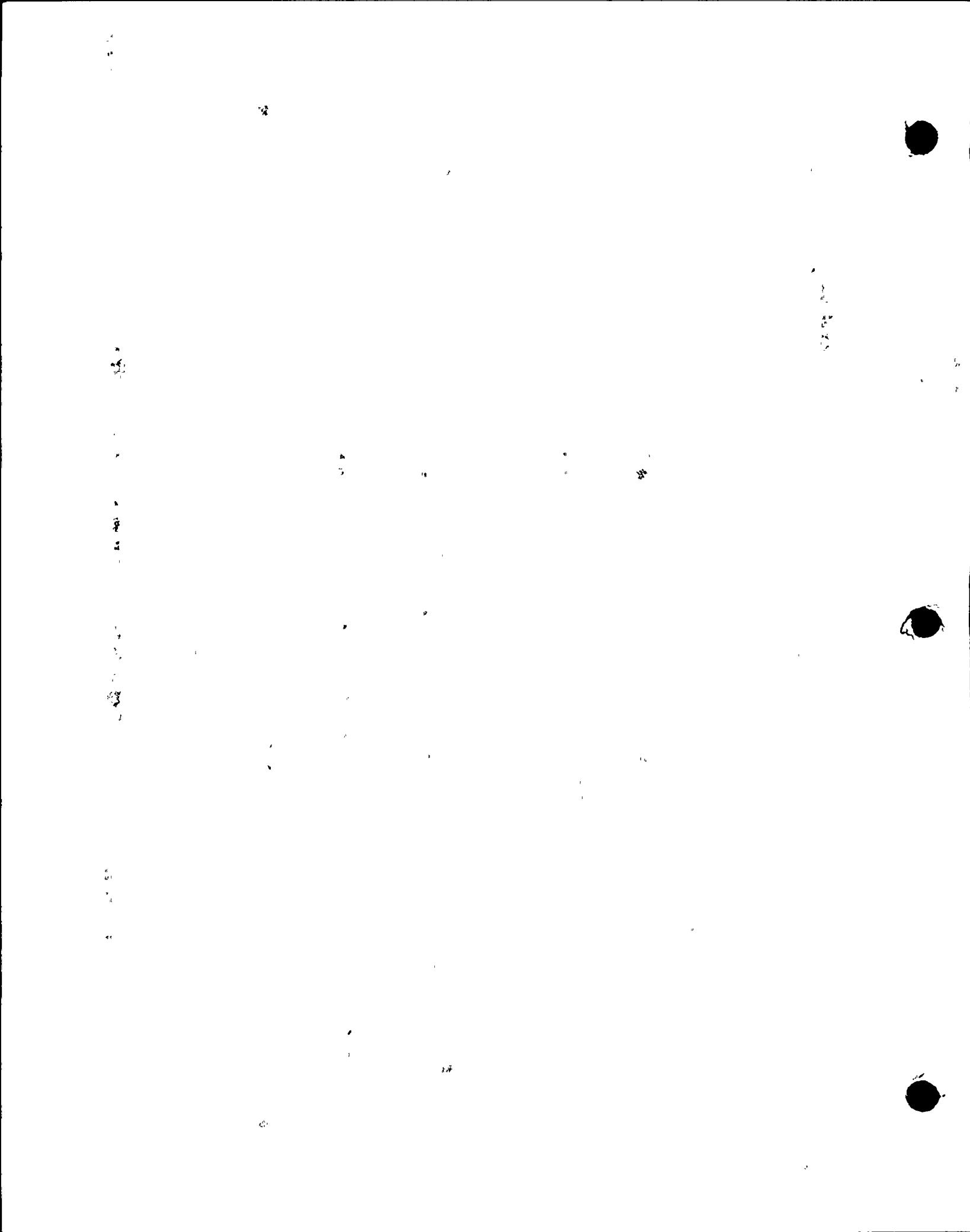
1989 Edition, Paragraph IWA-2430(d), requires that for components inspected under Program B (this includes all Diablo Canyon Power Plant examinations), each of the inspection intervals may be extended or decreased by as much as one year. Adjustments shall not cause successive intervals to be altered by more than one year from the original pattern of intervals. Paragraph IWB-2412(b) requires that the inspection period may be decreased or extended by as much as one year to enable an inspection to coincide with a plant outage, within the limitations of IWA-2430(d). Table IWB-2412-1 requires that the maximum examinations credited in the first period be 34 percent and in the second period be 67 percent of the requirement for the interval.

### Code Requirements from Which Relief is Requested

Relief is requested from performing the required examinations within an interval or period extended or decreased by up to one year from the original pattern of intervals, and from the percentage limits in IWB-2412-1.

### Basis for Relief Request

The Code requirement to permit extending or decreasing an inspection interval or period from a rigid ten year calendar schedule has had the stated purpose of enabling examinations to be performed during scheduled refueling outages (Ref. IS-111 in Section XI, 1970 Edition). This Code requirement has never materially changed, having appeared in nearly its current form since the 1974 Edition (Ref. IWA-2400(a) in Section XI, 1974 Edition), and it was adequate at that time when twelve month refueling cycles were the industry standard. Improvements in quality of operations in the industry since 1974 have resulted in longer refueling cycles and made this provision obsolete.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-23

### Basis for Relief Request (continued)

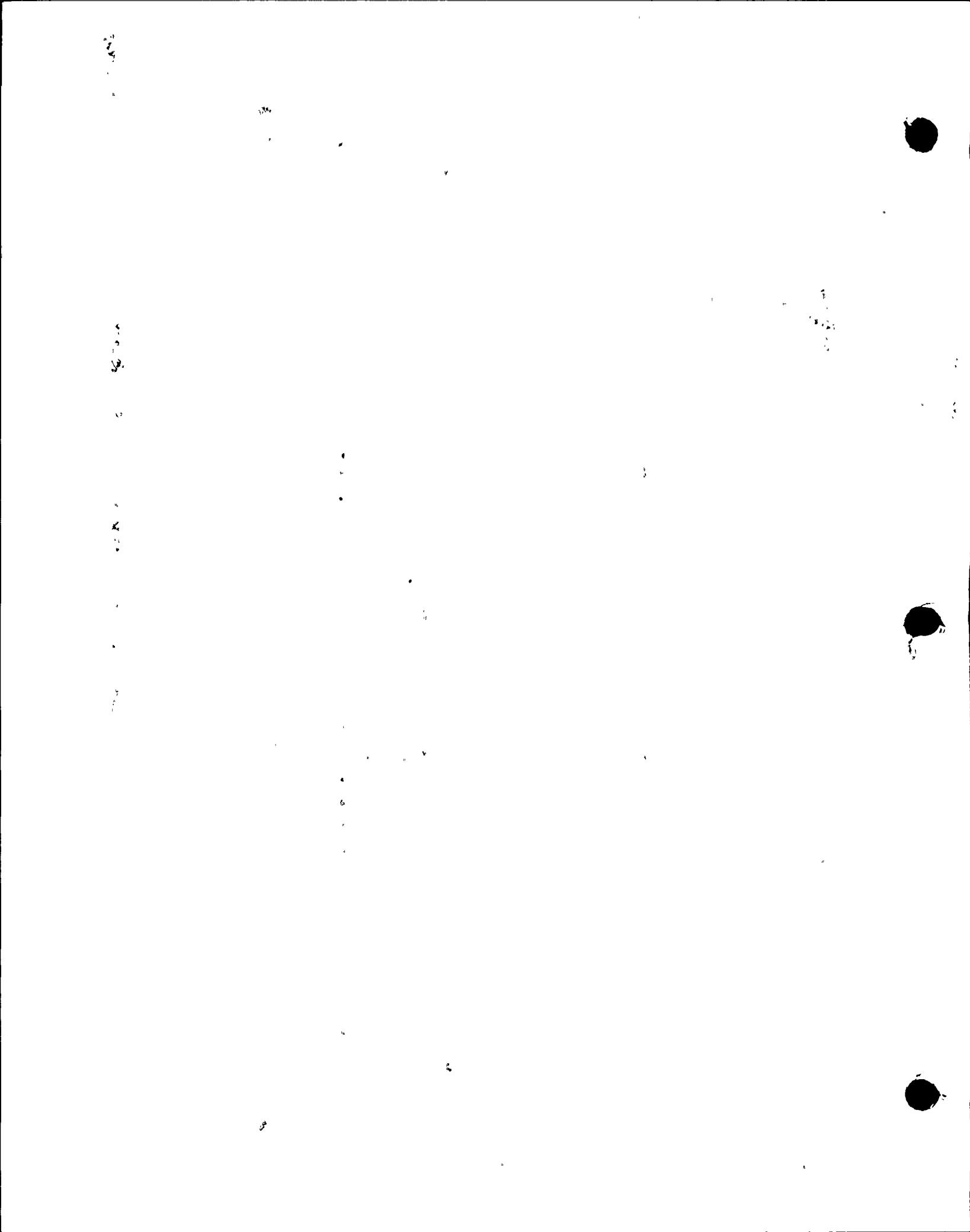
For several years, refueling cycles have routinely averaged 18 months, and DCPP units are expected to extend this to 24 month cycles during this inspection interval. The one year allowance is no longer adequate to enable examinations to be performed during scheduled refueling outages and still comply with the ten calendar year basis of the inspection interval. Similarly, the required percentages, originally intended to distribute examinations equally across an interval, are insufficient to evenly distribute the examinations when one-fifth of the interval requirement is completed each outage. This results from 24 month cycles with five outages in ten years.

### Proposed Alternative

The second and subsequent ISI intervals may be extended or decreased by as much as two years. Adjustments shall not cause successive intervals to be altered by more than two years from the original pattern of intervals. The specified inspection period may be decreased or extended by as much as two years to enable an inspection to coincide with a plant outage, within these limits. The percentage of examinations completed in the first period may be up to 40 percent, and in the second period up to 80 percent of the examinations required for the interval.

### Justification for Granting of Relief

The one year schedule adjustment allowed by Section XI dates prior to 1974 and was intended to accommodate the one year refueling cycles then standard in the industry. Improved plant performance in the interim has resulted in refueling cycles of 18 to 24 months duration. These longer cycles have made the existing one year allowance obsolete. Similarly the required percentages, for an interval having 24 month cycles with two outages in the first period, two in the second period and one in the third period, would force the examinations to be unequally distributed, or be technically in violation of the requirement. This request enables examinations to be performed during the currently established refueling outage schedule, consistent with the ten calendar year interval basis and equal apportionment of examinations, as intended by Section XI.



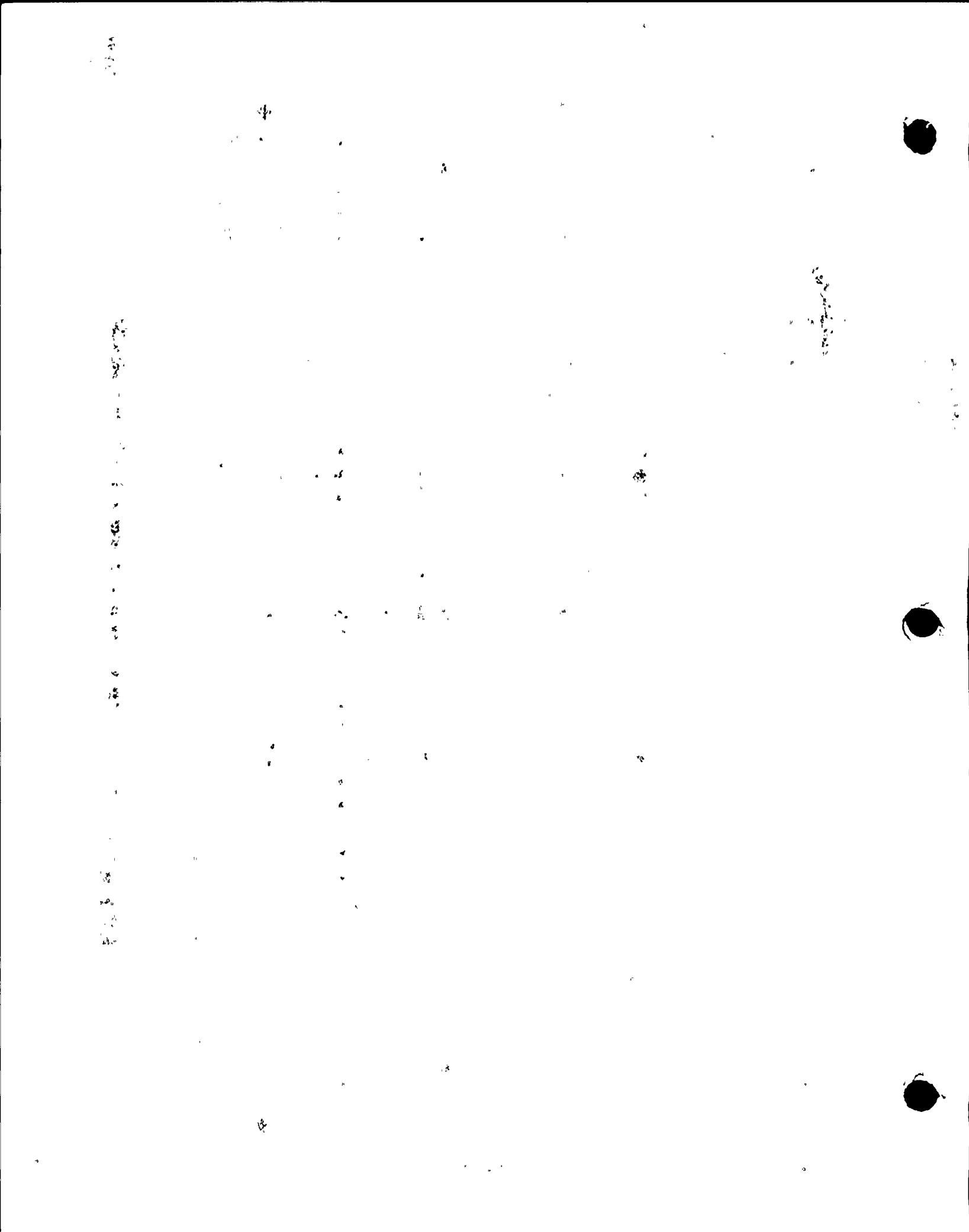
Enclosure  
PG&E Letter DCL-96-031

**INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-23**

**Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals.

This is a new request that was not required in the first interval.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-24**

### **System/Component for Which Relief is Requested**

All systems and components, general requirements

### **ASME Section XI Code Requirements**

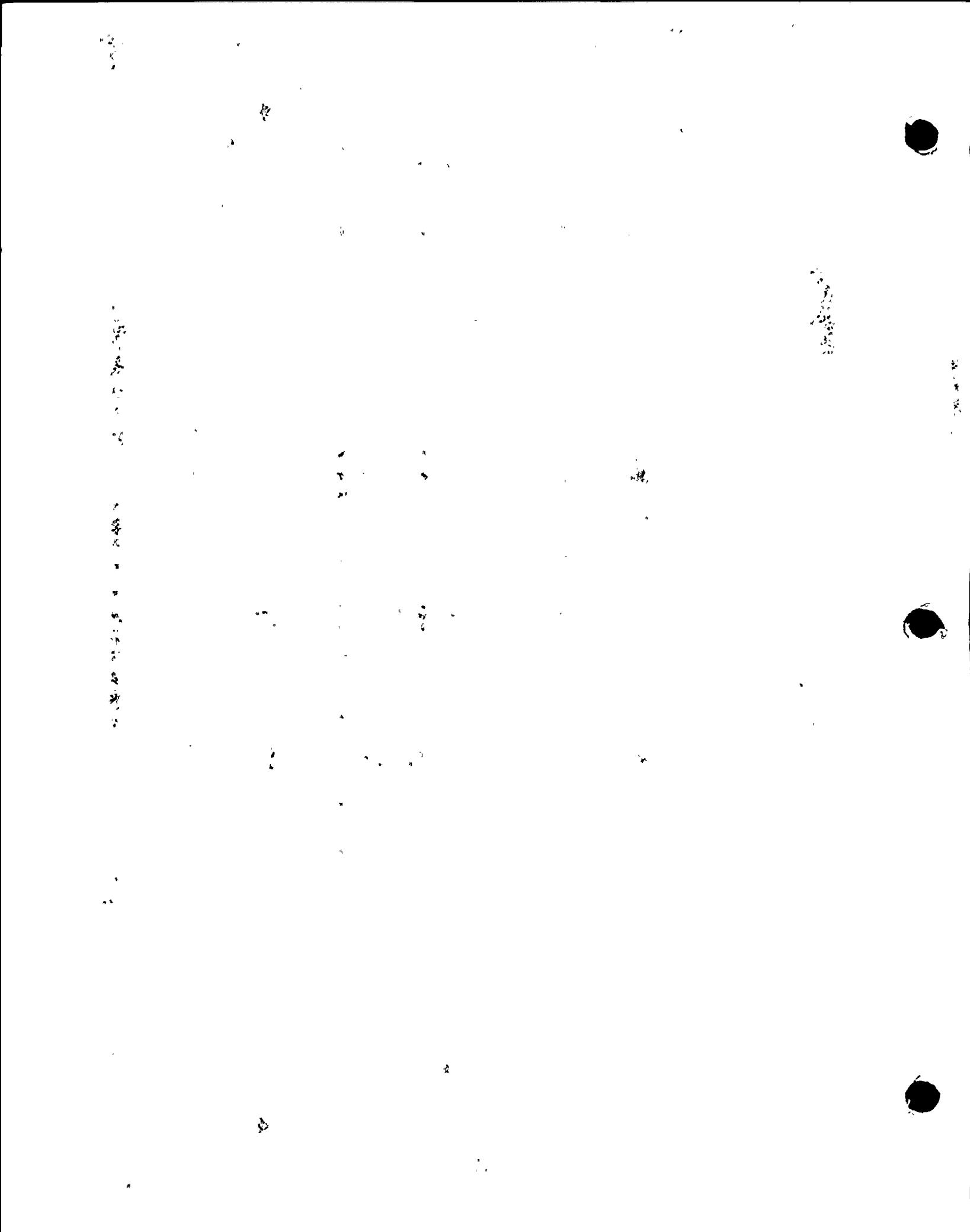
1989 Edition, Paragraphs IWB-2420(a), IWC-2420(a), and IWF-2420(a), requires that the sequence of component inspections established during the first inspection interval shall be repeated during each successive inspection interval, to the extent practical.

### **Code Requirements from Which Relief is Requested**

Relief is requested from repeating the sequence of component inspections established during the first inspection interval during the second interval.

### **Basis for Relief Request**

The Code requirement to repeat the sequence of examinations established during the first inspection interval to the extent practical appears to allow for differences in the scheduling basis between the 1977 Edition with Summer 1978 Addenda and the current 1989 Edition. For example, Class 2 pipe weld examinations were formerly based on a once in 40 year schedule, while the 1989 Edition uses a recurring 10 year schedule for a smaller selection of welds. Other conditions may also require deviation from the originally established sequence. For example, from time to time the plant maintenance requirements may be such that localized radiation levels, access provisions, or other similar conditions for a given examination make it inadvisable to perform the particular examination during that outage; even though the area is normally accessible during other refueling outages.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #NDE-24**

### **Proposed Alternative**

Reasonable effort shall be made to repeat the sequence of examinations established in the first inspection interval. Exceptions shall be permitted for differences in schedule requirements between the 1977 Edition with Summer 1978 Addenda and the 1989 Edition. Exceptions shall also be permitted when plant conditions or maintenance requirements limit availability of the subject component during a given outage, however another similar component shall be substituted for the original component whenever practical, or the original component shall be examined during the next refueling outage.

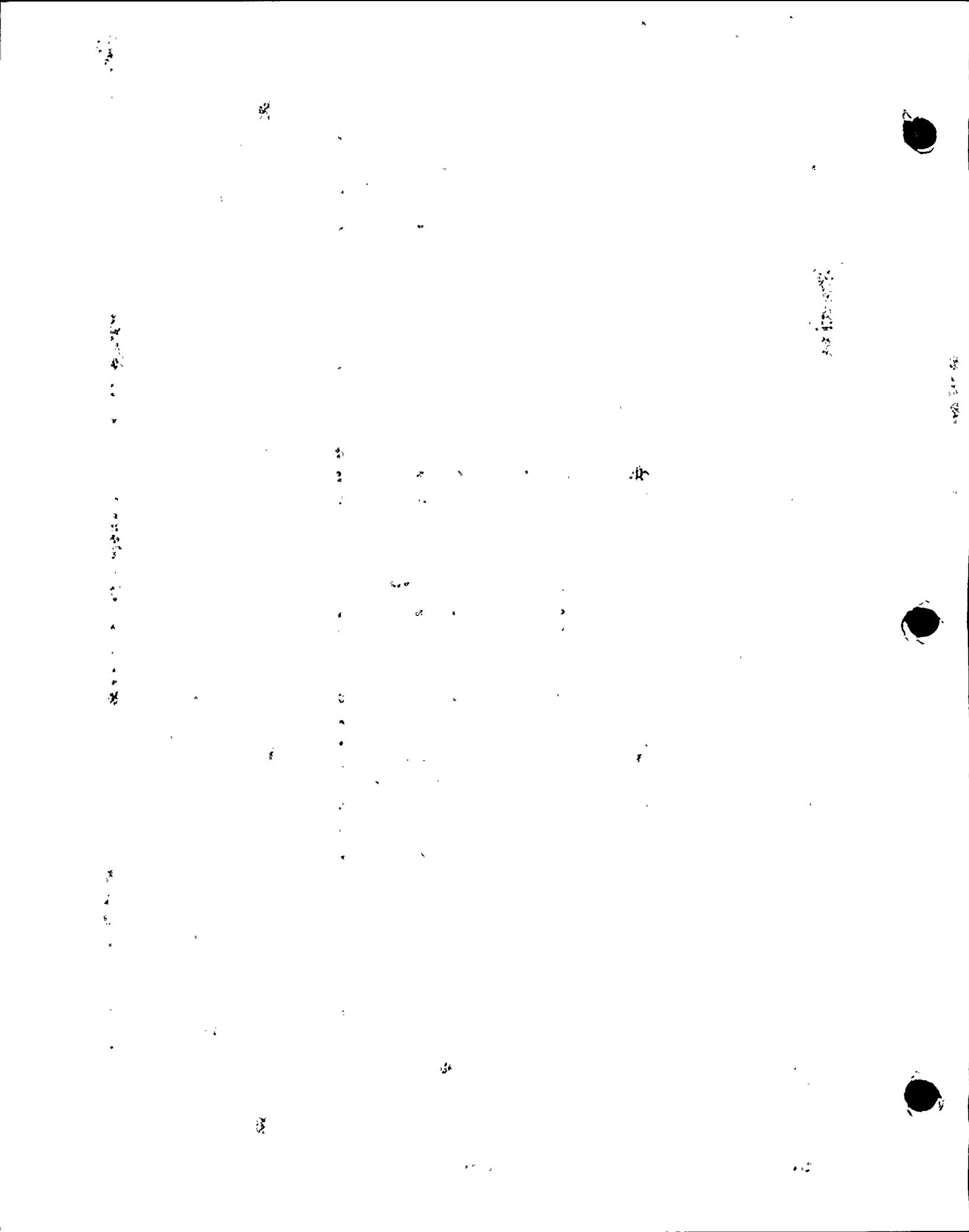
### **Justification for Granting of Relief**

The intent of the Code is that reasonable effort be made to repeat the sequence of examinations established during the first interval within the limits of differences between the various Editions. This request assures that the intent is met while maximizing ALARA and accommodating occasional schedule changes due to unforeseen plant conditions or maintenance needs. The request requires that the examination be performed on a substitute component during the current outage, or the original component be examined during the next outage whenever practical, as required by the Code.

### **Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals.

This is a new request that was not applicable in the first interval.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-1

### Pressure Test Requirement for Which Relief is Requested

Removal of insulation at bolted connections.

### ASME Section XI Code Requirements

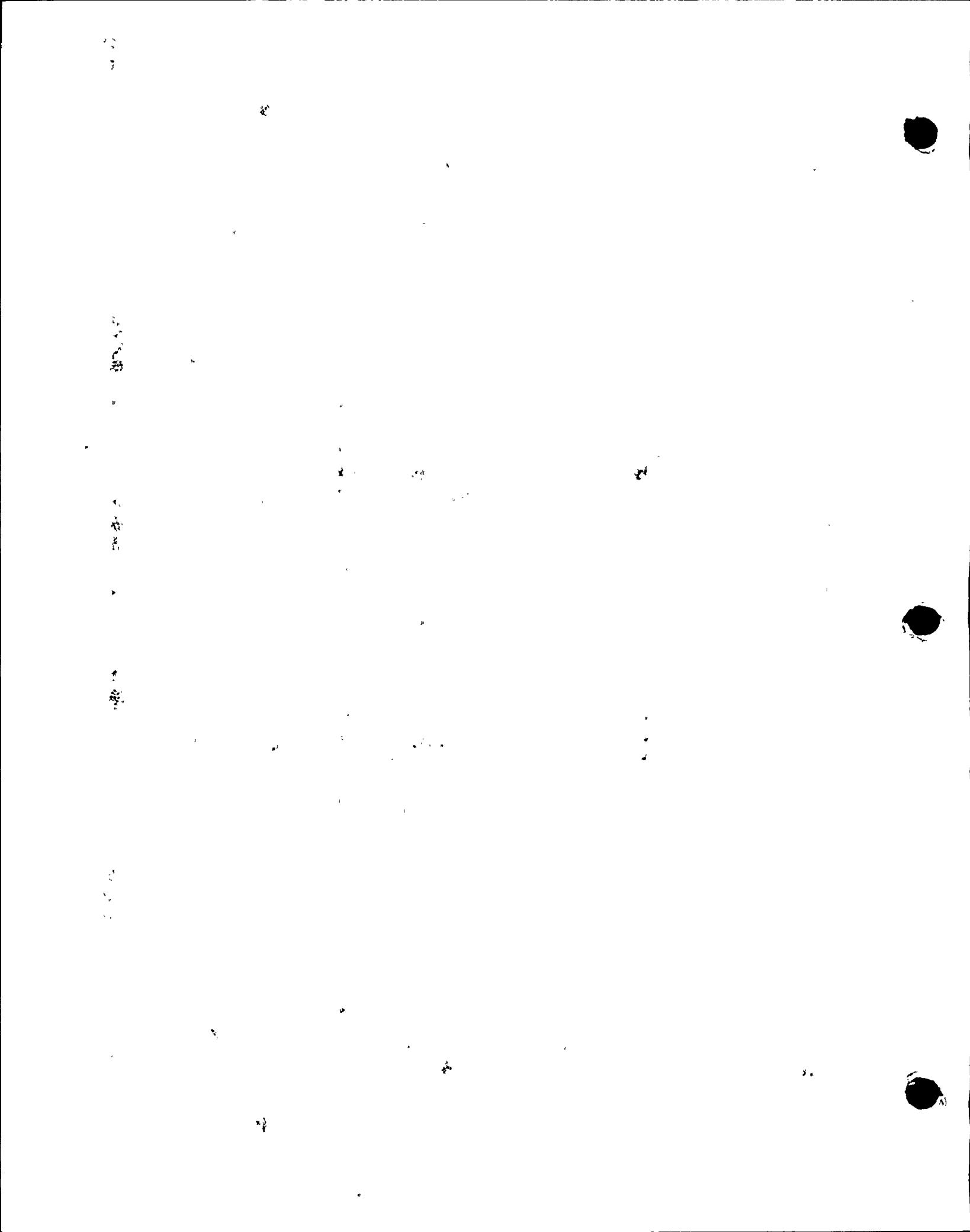
1989 Edition, Article IWA-5000, Paragraph IWA-5242, requires that for insulated systems borated for the purpose of controlling reactivity the insulation shall be removed from pressure retaining bolted connections for visual examination VT-2.

### Code Requirement from Which Relief is Requested

Relief is requested from removal of insulation at bolted connections for visual examination VT-2.

### Basis for Relief Request

The Code requirement to remove insulation is based on the presumption that damage to carbon steel components could occur and not be noticed unless the insulation were removed. At Diablo Canyon Power Plant (DCPP), all piping in systems borated for the purpose of controlling reactivity is constructed of stainless steel, and nearly all the carbon steel bolting originally in joints in these systems has been replaced with stainless steel. These stainless steel materials are impervious to damage from boric acid and minor leakage from mechanical joints cannot cause degradation even if such leakage was not detected during the examination. Certain insulated component joints, notably the reactor head; steam generator and pressurizer manways; and valves 8701, 8702, and 8703 (RHR suction and discharge valves to the reactor coolant system); still contain carbon steel bolting. Except for valve 8703, these are all Class 1 components which are examined every refueling outage. Valve 8703 is examined every 40 months. In each case, these joints have been historically leak free, and the pressure tests involve maintaining full system pressure for a minimum of four hours prior to the VT-2 examination to allow leakage to become visible outside the insulation. All Class 1 systems are insulated with reflective mirror insulation which does not tend to trap hot borated coolant at the joint as other insulation types might.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-1

### Basis for Relief Request (continued)

Also, the concentration of boric acid in the systems has been reduced from 12 percent to a maximum of 4 percent in any system, which reduces the possibility of damage from leakage, should it contact carbon steel parts and not be detected.

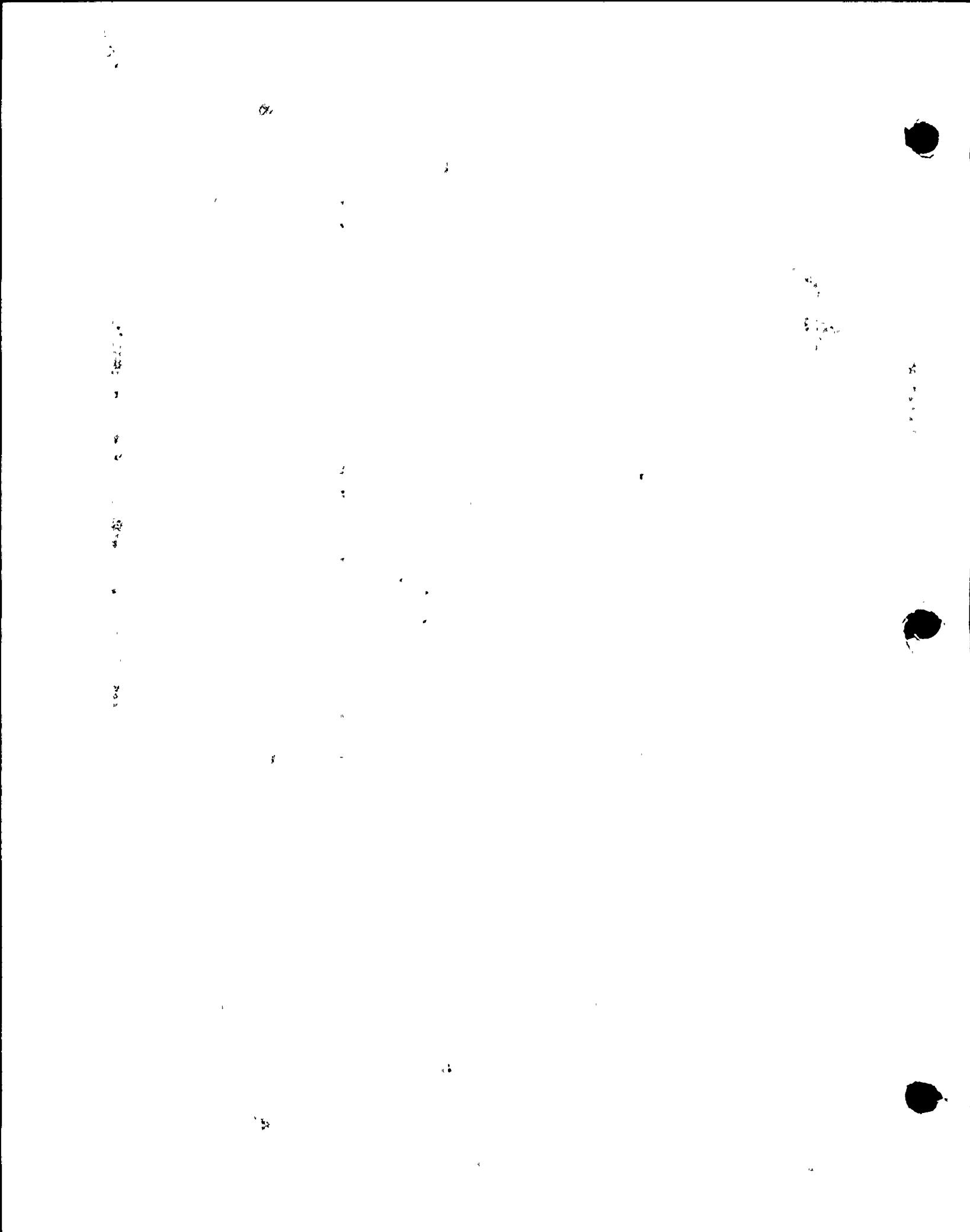
Another consideration is that the reactor coolant pump main flange joints, which have been occasionally subject to leakage at other facilities, are not covered by insulation at DCPP, but remain fully exposed for visual examination. Also, the reactor head joint is equipped with a built-in leakage detection system which assures that any leakage that might occur during operation would be readily detected.

### Proposed Alternative

All connections containing carbon steel bolting in systems borated for the purpose of controlling reactivity shall be subject to a 4 hour hold time at the test pressure prior to the visual examination in order to assure that leakage from the mechanical connections is detectable. Insulation will not be removed for the examination.

### Justification for Granting of Relief

The 4 hour hold time at the test pressure is adequate to assure leakage from mechanical connections would be detectable without removal of the insulation, and the vast majority of such joints have stainless steel bolting which is not subject to corrosion from boric acid. Additionally, since pressure tests are conducted at normal system pressure in accordance with Code Cases N-498-1 and N-416-1, the mechanical joints in systems are not subjected to excessively high pressures formerly associated with hydrostatic tests, and thus are not susceptible to leakage initiated from stress to the joint caused by the abnormally high hydrostatic test pressures. Another consideration is the reduction in concentration of boric acid in systems from 12 percent to 4 percent since the Code rules for insulation removal became effective, thus reducing the potential for corrosion damage from the formerly more highly concentrated boric acid.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-1**

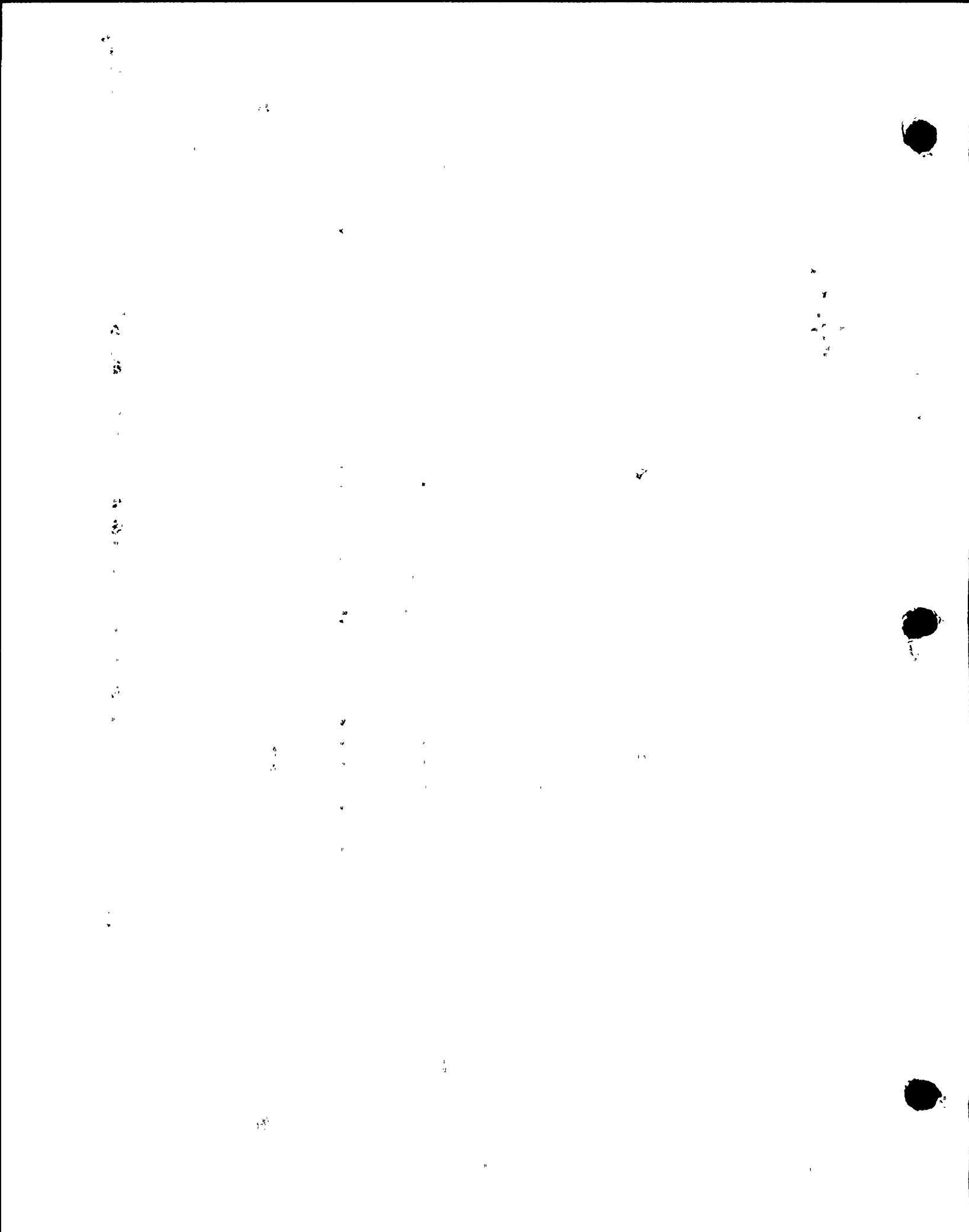
**Justification for Granting of Relief (continued)**

With these considerations, the burden of insulation removal with the associated critical path time to replace the insulation after the test and increased personnel radiation exposure, far exceeds any marginal benefit from the removal.

**Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals. The pressure tests of systems borated for purposes of controlling reactivity are apportioned throughout the intervals.

This is a new request based on the 1989 Code requirement.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-2

### Pressure Test Requirement for Which Relief is Requested

Class 2 containment penetrations for non-safety related lines.

### ASME Section XI Code Requirements

1989 Edition, Table IWC-2500-1, Category C-H, Items C7.30 and C7.40 and Code Case N-498-1, requires that piping systems be subject to IWC-5221 and IWC-5222 tests at normal operating pressure once each inspection period, during which visual examination VT-2 is conducted.

### Code Requirement from Which Relief is Requested

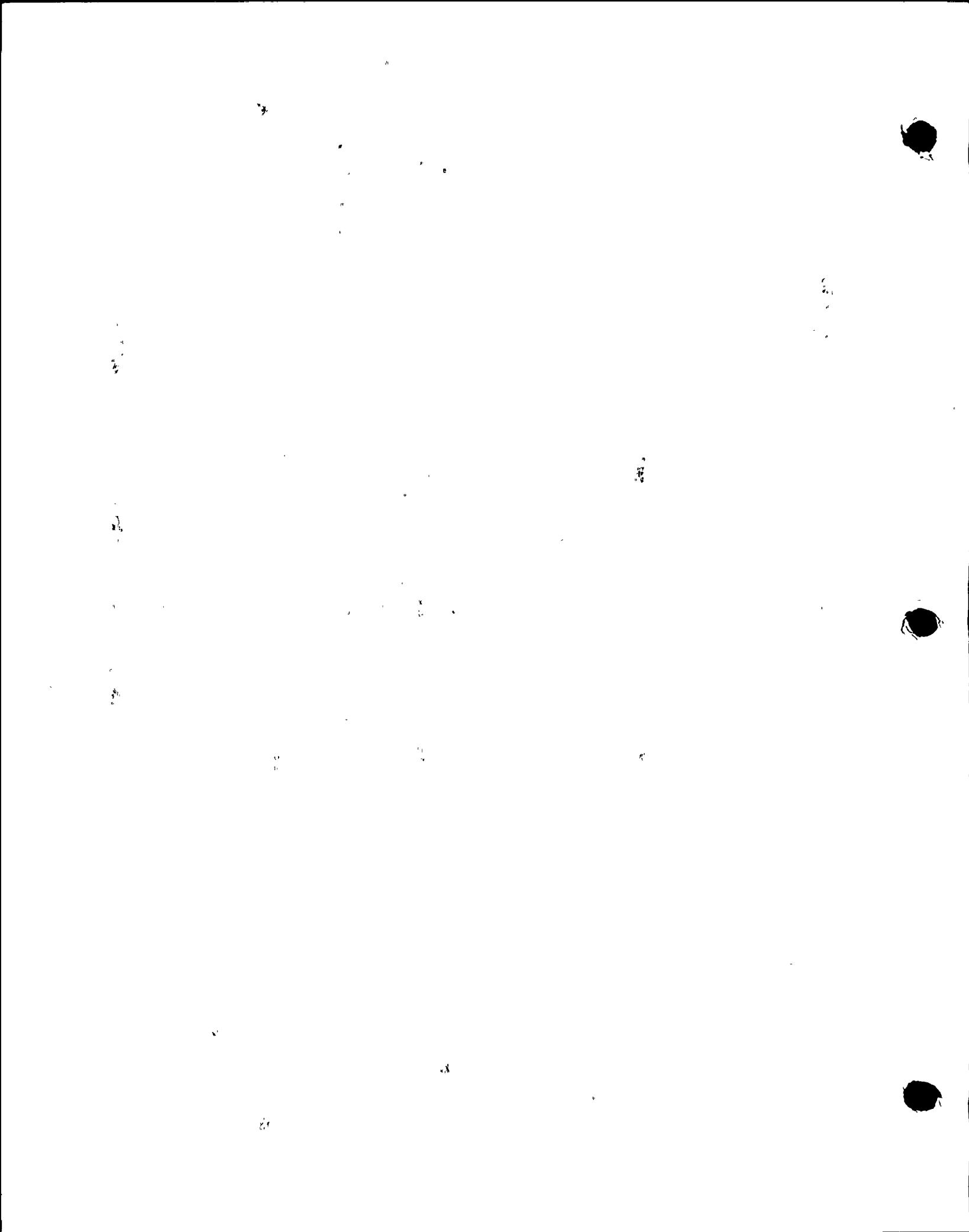
Relief is requested from performing the IWC-5221 and IWC-5222 tests and associated visual examination VT-2 for certain lines as described below.

### Basis for Relief Request

For non-safety related lines that are classified as Class 2 solely because of the containment isolation function, and that normally operate at a pressure of less than 50 psi, the local leak rate test (LLRT) that is performed at 50 psi to meet 10 CFR 50 Appendix J, containment integrity requirements serves to demonstrate the pressure retaining integrity of the line at a higher pressure than Section XI would otherwise require.

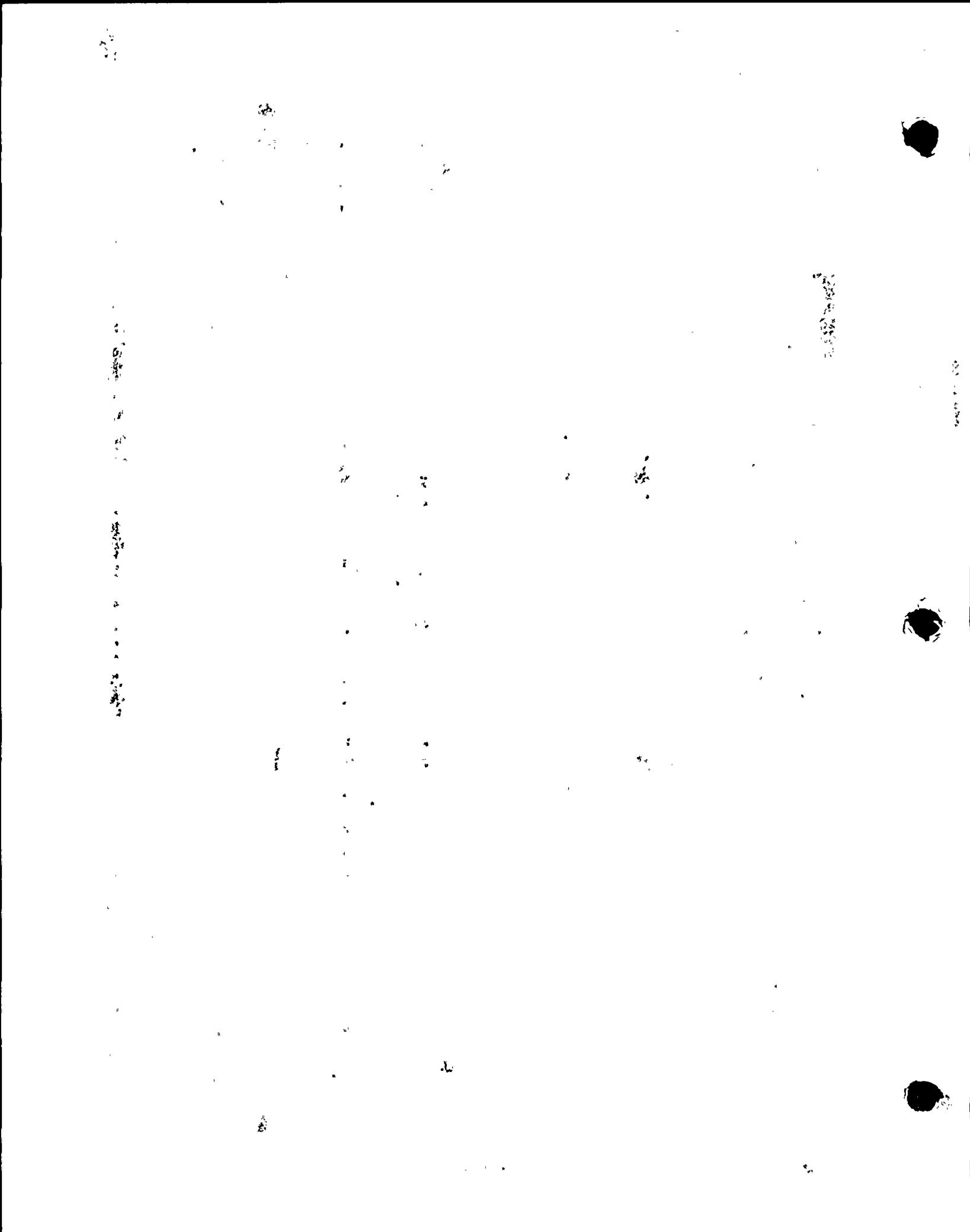
### Proposed Alternative

The non-safety related lines detailed below are classified as Class 2 solely for the containment integrity function. The lines all operate at a pressure of less than 50 psi, which is imposed during the LLRT. These lines will be tested under the conditions, acceptance criteria, and at the frequency required for the LLRT.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-2**

<u>Line</u>	<u>Description</u>	<u>Size</u>	<u>Normal Pressure</u>
1163	Pzr Quench Tk Gas Analyzer	3/8	20
2572	SI Pp 1-2 Disch Line RV	1	0
2518	Cnt Spray Pps Disch RV Out PRT	1	3
1459	Chg Pps Suct RV Disch	1	0
2999	SIS RV Outlet Hdr to PRT	4	3
2998	SIS RV Outlet Hdr to PRT	4	3
2061	SI Pps Suct RV Out	1	0
2004	RHR Ht Exchr 2 Out RV	3	0
2003	RHR Ht Exchr 1 Out RV	3	0
3851	SIS Pp 1-1 Disch Line RV	1	0
3852	SIS Pps Recirc Disch Line RV	1	0
525	React Cool Drn Tk Vent	3/4	1.5
526	React Cool Drn Tk Gas Anal	1/2	1.5
4382	CHPS Air Sup Fans 1&2 Disch Pene 83 In	4	3
4386	CHPS Air Sup Fans 1&2 Disch Pene 83 In	4	3
4388	CHPS Air Sup Fans 1&2 Disch Pene 83 In	4	3
4389	CHPS Air Sup Fans 1&2 Disch Pene 83 In	4	3
4387	CHPS Air Sup Fans 1&2 Disch Pene 83 In	4	3
4390	CHPS Exh Air Filt 2 Inlet	4	5
4395	CHPS Exh Air Filt 2 Inlet	4	5
647	Containment Vacuum Relief	12	0
K2-	Containment Purge Out	48	<50
K2-	Containment Purge In	48	<50
3936	Incore Chiller Water Rtn	2	25
3937	Incore Chiller Water Supply	2	25
3837	Containment Air Sample Inlet	1	3
3838	Containment Air Sample Return	1	0
5190	Post-LOCA Samp Cnt Air Rtn	3/8	<50
S-	Post LOCA Samp Cnt Air Sup	3/8	<50
4633	Hyd Mon Cel 82 Cnt Air Sup	3/8	<50
4634	Hyd Mon Cel 82 Cnt Air Ret	3/8	<50
4635	Hyd Mon Cel 83 Cnt Air Sup	3/8	<50
4636	Hyd Mon Cel 83 Cnt Air Ret	3/8	<50
749	Cont Str Sump Pps Disch	2	27
2993	Refueling Canal Water Return	4	7
4663	Post LOCA Sample & R & Cavity Sump	1/4	<50



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-2**

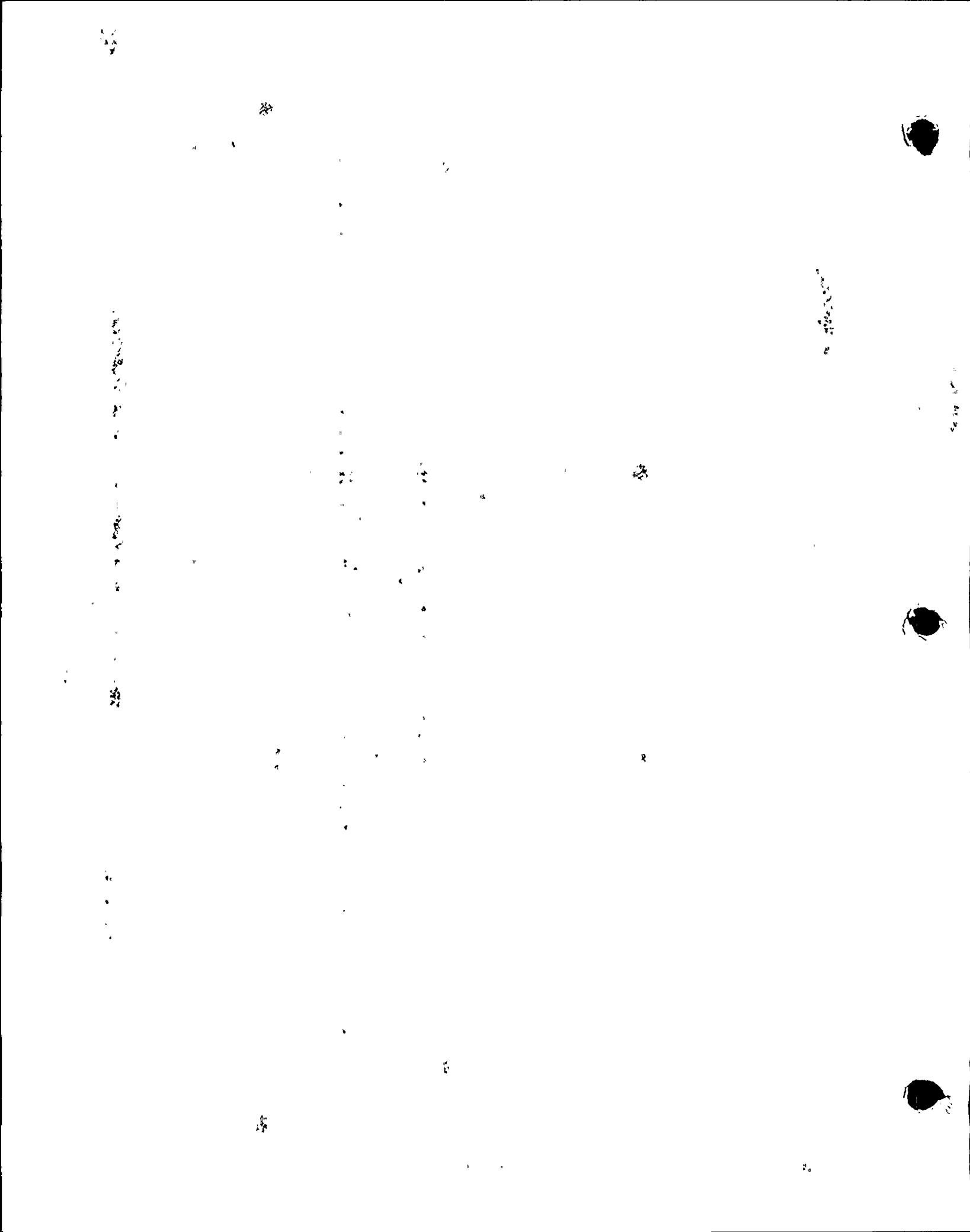
### **Justification for Granting of Relief**

The LLRT performed at 50 psi to meet 10 CFR 50, Appendix J, fully demonstrates the pressure retaining integrity of these lines at a pressure exceeding the Section XI test requirement. The LLRT is an instrumented test measuring leakage throughout the entire test boundary including the penetration valves and the pipe segment inside the penetration itself. The VT-2 examination would only check the accessible external surfaces of the pipe (or floors underneath) for evidence of leakage that is visually apparent. The LLRT schedule is similar to that required by Section XI. Performing a set of essentially duplicate tests at a lower pressure as would be needed to meet the Section XI requirement, imposes a burden that is not compensated by any increase in safety.

### **Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals. The LLRT tests are normally performed at intervals not exceeding 60 months.

This request is essentially identical to pressure test relief 8 in the first ISI interval, approved in NRC letter dated October 25, 1989.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-3

### Pressure Test Requirement for Which Relief is Requested

Eight ASME Code Class 1 closed end drain line segments, 25 ASME Code Class 1 open end tail pipes, and four ASME Code Class 2 open end tail pipes between first and second off manual isolation valves or between first off valve and blind flange or connection.

### ASME Section XI Code Requirements

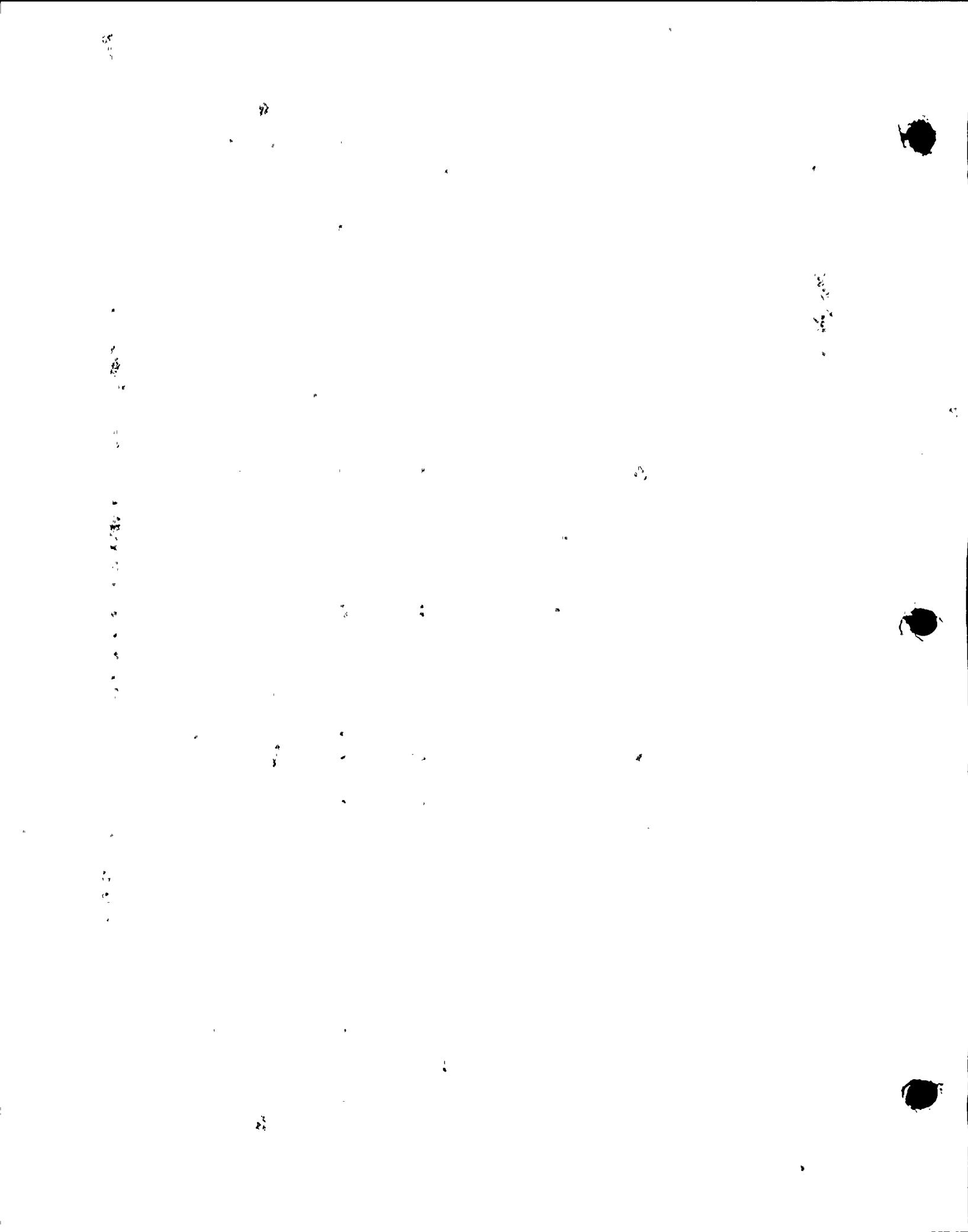
1989 Edition, Table IWB-2500-1, Category B-P, Item B15.51; Table IWC-2500-1, Category C-H, Item C7.40, and Code Case N-498-1, requires that piping systems be subject to IWB-5222 tests or IWC-5222 tests at normal operating pressure once each inspection interval, during which visual examination VT-2 is conducted.

### Code Requirement from Which Relief is Requested

Relief is requested from performing the IWB-5222 and IWC-5222 tests for certain line segments as described below.

### Basis for Relief Request

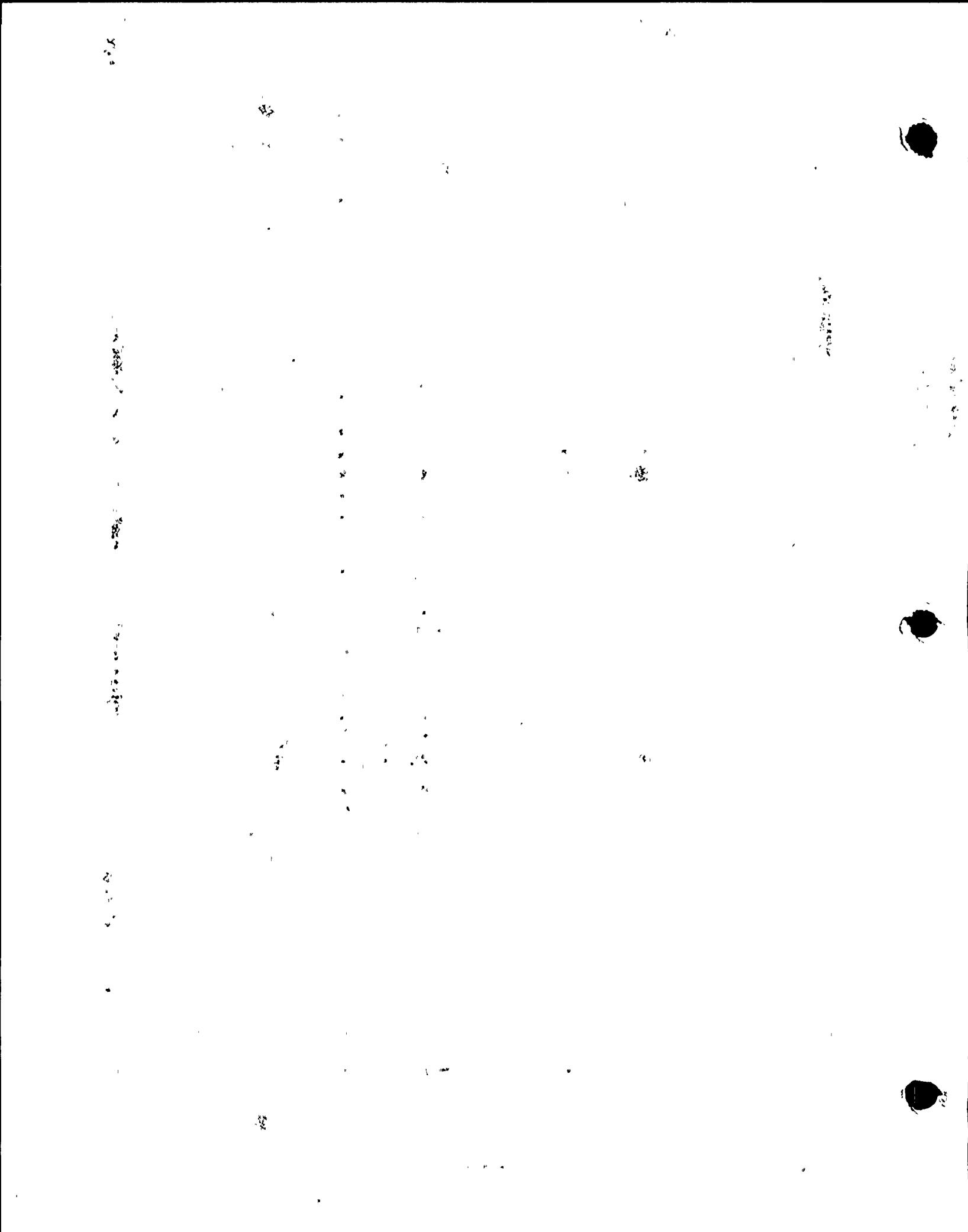
These line segments between the manual isolation valves (or between the manual isolation valve and blind flange) serve as open or closed end drains, fill, vent, or test lines. All of the segments are short, the closed end drains less than 18 inches and the open end segments less than 12 inches on average; and small diameter, being 3/4 inch NPS except for two at 1 inch NPS and four at 2 inch NPS. None of the isolation valves are capable of automatic closure. The line segments are not normally pressurized. Line pressure may exist due to first off valve leakby and thermal effects. The Code 10-year pressure test (as required by Code Case N-498-1) is impractical, and relief is requested for the following reasons:



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-3**

**Basis for Relief Request (continued)**

- a) Using system pressure to test these line segments would require opening the first off manual valve in Mode 3 (Hot Standby) to pressurize between the two valves or valve and blind flange. However pressure testing in this manner would result in violation of the Class 1 system requirement for double isolation valve protection.
- b) For the closed end drains, costly system modifications would be required to break the system and install test connections with open ended isolation valves at each location, with the concurrent unnecessary radiation exposure to personnel, in order to permit pressurization during Mode 6 (Refueling). Testing these closed end drain segments without modification would require defueling the reactor, reclosing and repressurizing the primary system, and extending the outage critical path by approximately ten days. Both these options constitute extreme hardships with no compensating increase in safety.
- c) For the open ended line segments, testing in Mode 6 without modification is possible because the lines are provided with test connections and isolation. However, pressurizing each line segment to the nominal reactor coolant system operating pressure would require use of a hydro pump at each of the locations. This would result in unnecessary radiation exposure to plant personnel and increase the risk of contaminated liquid spill. All of these locations are in high radiation areas. Staging the hydro pump, providing access, removing the pipe cap, opening the second off valve, filling and pressurizing the line segment, inspecting, depressurizing and restoring the system, securing the equipment, and disposing of the effluent is estimated by PG&E to require one manrem at each location.



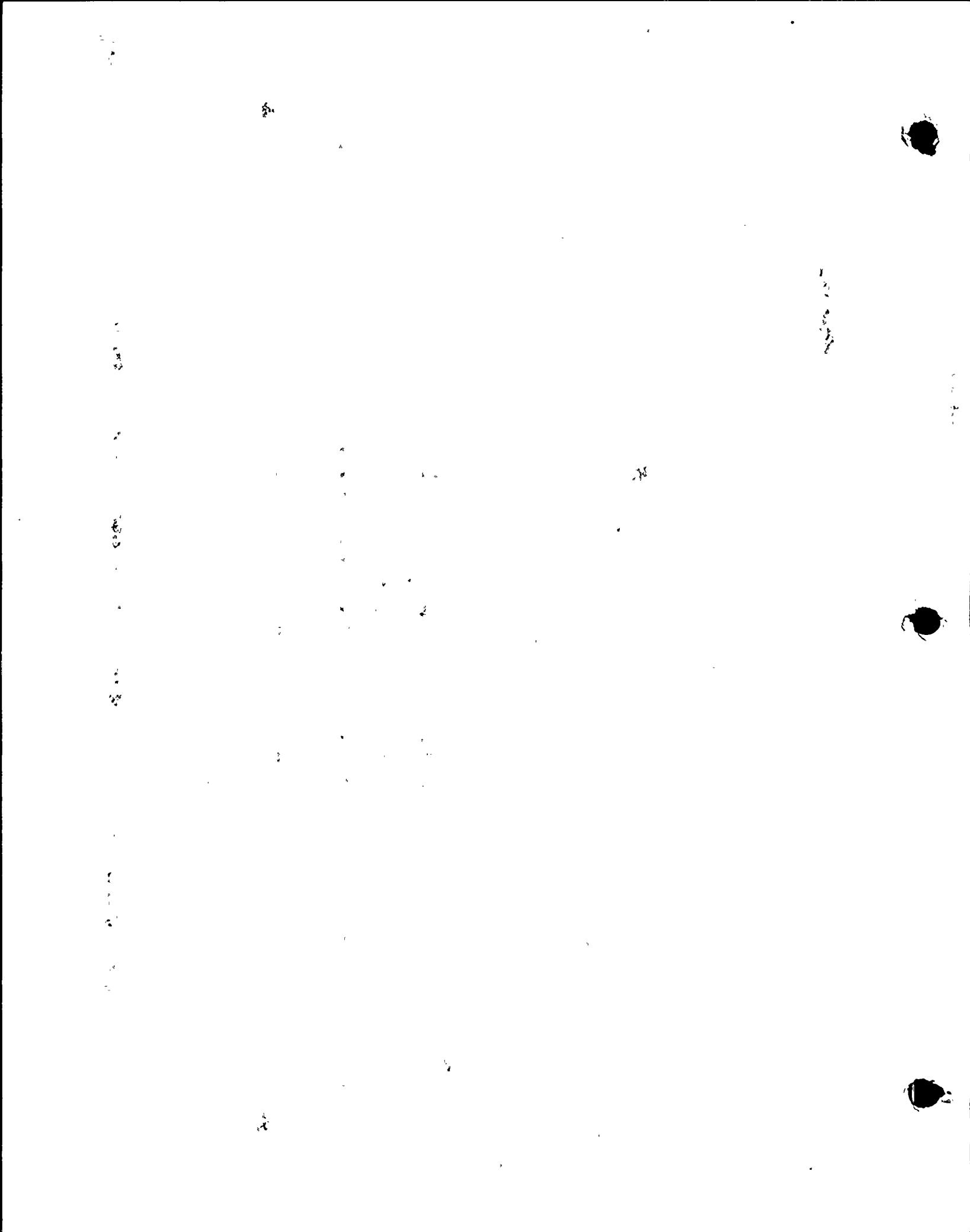
**INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-3**

**Proposed Alternative**

Each line segment below will be visually inspected once during the 10-year system test; however, the line segments will not be pressurized to full system pressure. Pressure may exist due to first off valve leakby and thermal effects. The Class 1 line segments are also observed each refueling outage during the system leakage test and the Class 2 line segments are also observed once each inspection period during the system inservice test.

Note: Line numbers given refer to the main line that the subject segment is joined to. The small segments do not have individual line numbers.

<u>Class</u>	<u>Size</u>	<u>Location</u>	<u>Description</u>
1	3/4	line 2527 betwn vlvs 8364A & 283	RCP Lp 1 Seal Inj Drn RCDT
1	3/4	line 2534 betwn vlvs 8364B & 294	RCP Lp 2 Seal Inj Drn RCDT
1	3/4	line 2536 betwn vlvs 8364C & 303	RCP Lp 3 Seal Inj Drn RCDT
1	3/4	line 2541 betwn vlvs 8364D & 308	RCP Lp 4 Seal Inj Drn RCDT
1	3/4	segment between vlvs 513 & 514	Pzr Spray Drn to RCDT
1	2	segment betwn vlvs 8057A & 8058A	RCP Lp 1 Cld Lg Drn RCDT
1	2	segment betwn vlvs 8057B & 8058B	RCP Lp 2 Cld Lg Drn RCDT
1	2	segment betwn vlvs 8057C & 8058C	RCP Lp 3 Cld Lg Drn RCDT
1	3/4	line 109 betwn vlvs 579 & 570	Hot Leg Recirc Vent
1	2	line 961 betw vlvs 8057D & 8066, 8058D	Lp 4 Cld Lg Drn (to 3/4")
1	3/4	RVRLIS connection between valve 8070 & blind flange	
1	3/4	line 14 Loop 2 spray line vent between valve 517 & 518	
1	3/4	line 14 Loop 2 spray line drain to RCDT between valve 515 & 516	
1	3/4	line 14 Loop 2 spray line drain to RCDT between valve 519 & 520	
1	3/4	line 13 Loop 1 spray line vent between valve 521 & 522	
1	3/4	line 13 Loop 1 spray line drain between valve 523 & 524	
1	3/4	line 1195 Pressurizer PORV vent betwn valve 8056 & blind flange	
1	3/4	line 1469 Pzr lp seal vent betwn valve 8052 & 8064A,8064B,8064C	
1	3/4	line 1495 RCP 1 seal bypass vent betwn valve 8362A & blind flng	
1	3/4	line 1496 RCP 2 seal bypass vent betwn valve 8362B & blind flng	
1	3/4	line 1497 RCP 3 seal bypass vent betwn valve 8362C & blind flng	
1	3/4	line 1498 RCP 4 seal bypass vent betwn valve 8362D & blind flng	



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-3**

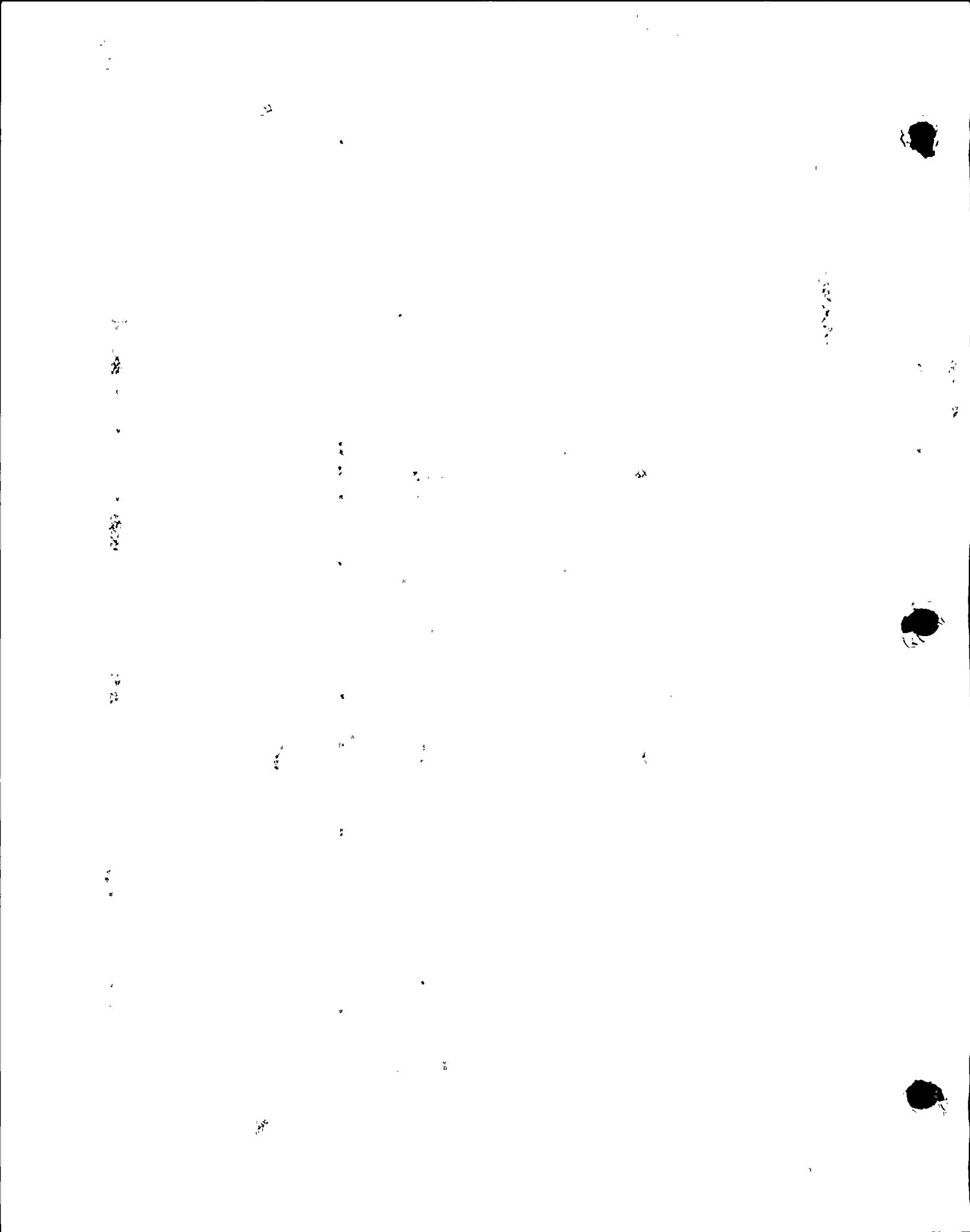
Proposed Alternative (continued)

<u>Class</u>	<u>Size</u>	<u>Location</u>	<u>Description</u>
1	3/4	U2 In 246	Charging line loop 4 vent between valve 100 & 572
1	3/4	U2 In 253	Accumulator inject loop 1 vent between valve 138 & 139
1	3/4	U2 In 254	Accumulator inject loop 2 vent between valve 140 & 141
1	3/4	U2 In 256	Accumulator inject loop 4 vent between valve 144 & 145
1	3/4	line 235	Safety inject loop 1 hot leg vent between valve 50 & 51
1	3/4	U2 In 236	Safety inject loop 2 hot leg vent between valve 54 & 55
1	3/4	line 237	Safety inject loop 3 hot leg vent between valve 58 & 59
1	3/4	U2 In 238	Safety inject loop 4 hot leg vent between valve 62 & 63
1	3/4	line 109	Hot leg recirc vent between valve 6 & 935
1	3/4	line 109	RHR loop 4 vlv 8702 thermal expn drain betw vlv 3, 4 & 7
2	1	Reactor vessel head vent	between valve 8078B & 8078A
2	1	Reactor vessel head vent	between valve 8078C & 8078D
2	3/4	RVRLIS hot leg instrument connection	between valve 617 & 616
2	3/4	React vessel head vent valve test conn	betw test conn & valve 661

Justification for Granting of Relief

The relief request is justified in accordance with 10 CFR 50.55a(a)(3) because:

- a) The proposed alternative provides a reasonable assurance of continued structural integrity. These small, short line segments are normally not pressurized, except for any valve leakby and thermal effects that may cause pressurization. The proposed alternative visual examination will confirm the structural integrity of the line segments. During the 10-year system test, the line segments are expected to remain depressurized. If, however, the line segments pressurize due to valve leakby and thermal effects, the proposed alternate visual examination will essentially be identical to the Code-required VT-2 examination.



## INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-3

### Justification for Granting of Relief (continued)

- b) Compliance with the Code requirements would result in hardship and unusual difficulties without a compensating increase in the level of quality and safety. For the closed end drain line segments, PG&E would have to either (i) pressurize in Mode 3 (Hot Standby), which would involve an unreviewed safety question by defeating RCS double isolation, resulting in operation in a less conservative manner, (ii) add costly test connections with concurrent increase in potential failure points and unnecessary radiation exposure to plant personnel, or (iii) test with the reactor defueled and reclosed, which would significantly increase outage critical path time to repressurize the reactor and would impose an unnecessary thermal cycle on the system.

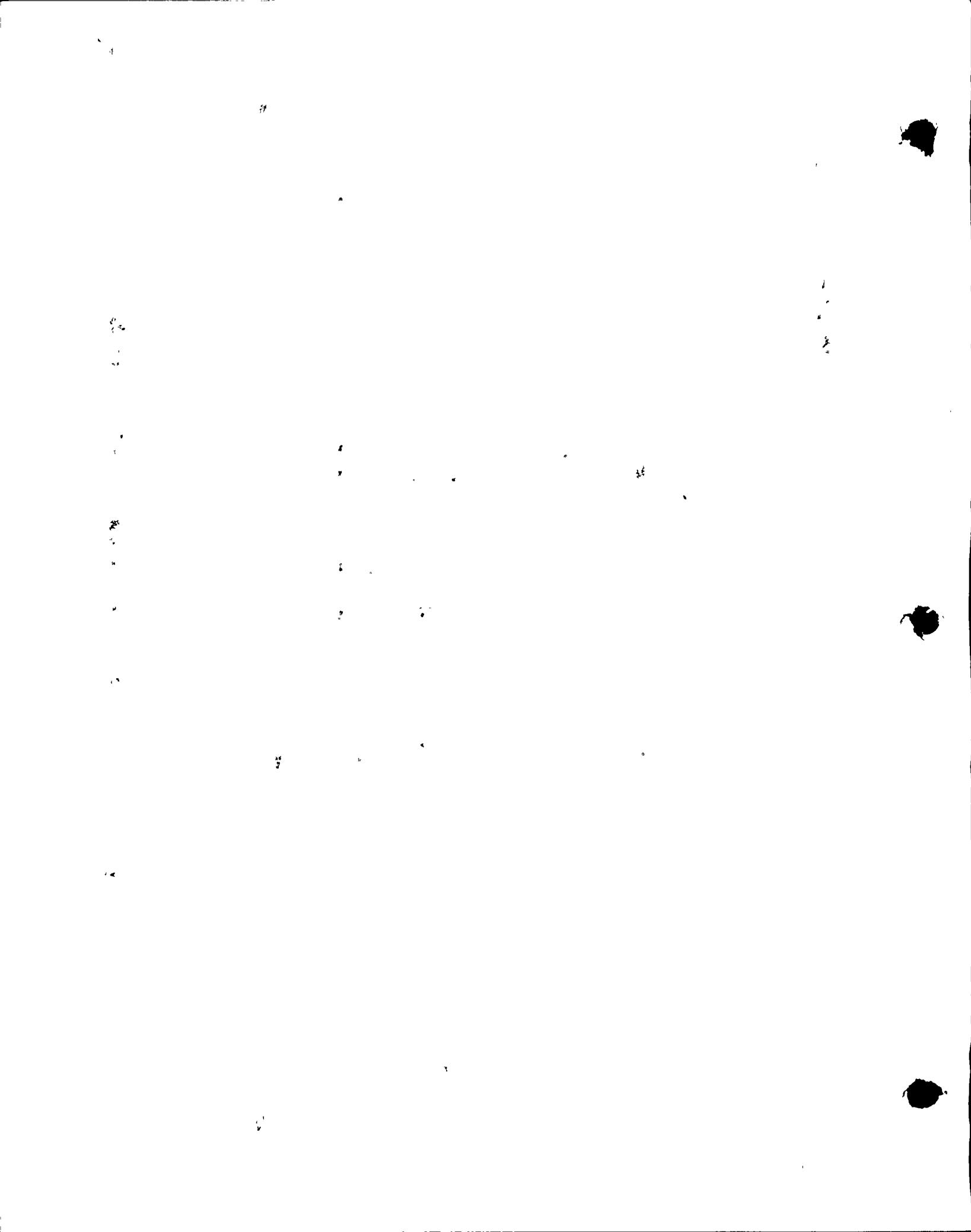
For the open ended line segments, the possibility of testing in Mode 6 exists; however, multiple applications of hydro pumps would be required in high radiation areas with increased personnel exposure and the potential for contaminated liquid spill and increased radwaste generation.

- c) The public health and safety is not compromised by this relief because the alternative visual examination provides an acceptable level of quality and safety.

### Implementation Schedule

This relief request will be implemented during Units 1 and 2 second ISI intervals. The alternate visual examination is scheduled at or near the end of the interval, coincident with the 10-year system pressure test.

This request is essentially identical to pressure test reliefs 10, 11A, 11B and 12 in the first ISI interval, approved in NRC letter dated September 21, 1992. Certain vent or drain lines have subsequently been removed and capped, and are not included in this request.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-3**

### **Pressure Test Requirement for Which Relief is Requested**

Fuel transfer tube to refueling canal.

### **ASME Section XI Code Requirements**

1989 Edition, Table IWB-2500-1, Category B-P, Item B15.51, and Code Case N-498-1 requires that the system be pressurized to normal operating pressure for the periodic system functional tests and the 10-year system test during which the visual examination VT-2 is conducted.

### **Code Requirement from Which Relief is Requested**

Relief is requested from pressurization and performance of the visual examination VT-2.

### **Basis for Relief Request**

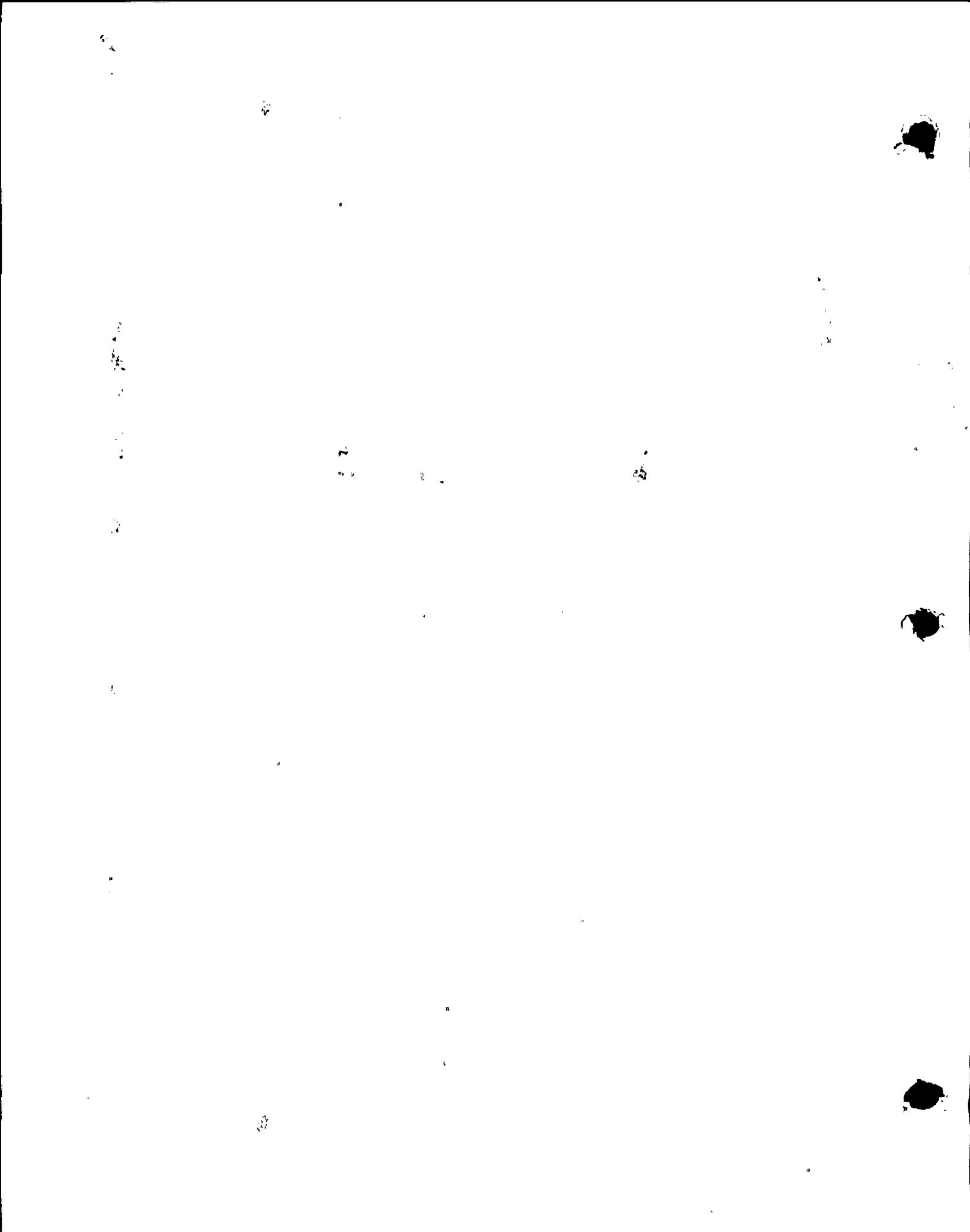
The fuel transfer tube is not safety related except for the containment isolation function, and it is not in service except in Mode 6 (Refueling). It is normally isolated by a flange cover which is the containment isolation point. Most of the tube is inside the containment penetration and inaccessible for examination.

### **Proposed Alternative**

The flange O-ring seal will be inspected for integrity at least once every 3 1/3 years.

### **Justification for Granting of Relief**

The flange cover and seal are the containment isolation points. Inspection of these components will assure leak tight integrity. Since the penetration is flanged off during Modes 1-5, performance of the Code examination with the tube flooded would not serve to provide any assurance of the integrity of the penetration.



Enclosure  
PG&E Letter DCL-96-031

**INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-4**

**Implementation Schedule**

This relief request will be implemented during Units 1 and 2 second ISI intervals. The alternative examination will be conducted at least once every inspection period.

This request is essentially identical to pressure test relief 9 in the first ISI interval, approved in NRC letter dated October 25, 1989.



**INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-5**

**System/Component for Which Relief is Requested**

Containment spray ring discharge headers.

**ASME Section XI Code Requirements**

1989 Edition, Table IWC-2500-1, Category C-H, and paragraph IWC-5222(d) requires that the containment spray ring headers be demonstrated to have an open flowpath once each inspection period.

**Code Requirements for Which Relief is Requested**

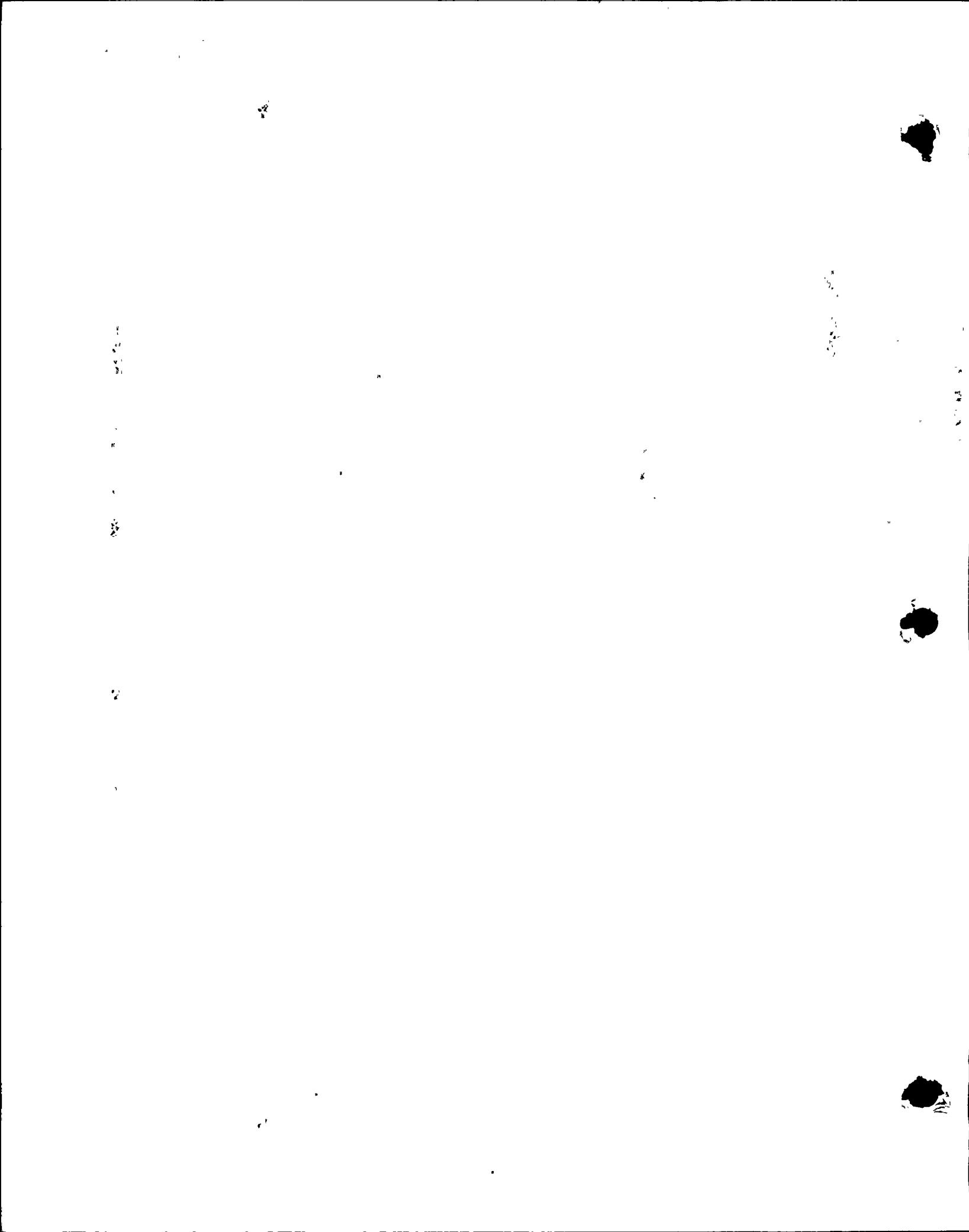
Relief is requested from performing this examination on a periodic basis.

**Basis for Relief Request**

Diablo Canyon Power Plant License Amendments (LAs) 102 (Unit 1) and 101 (Unit 2) have been issued by the NRC in accordance with Generic Letter 93-05, "Line-Item Technical Specification Improvements to Reduce Surveillance Requirements for Testing During Power Operation." These LAs change the frequency of the smoke test which verifies open flowpath in the containment spray ring discharge headers to once in ten years.

**Proposed Alternative**

The open flowpath test of the containment spray ring discharge headers shall be performed by the methods and schedule specified in the Technical Specifications (once in ten years). The actual method used may involve use of smoke, pressurized air and flags, or other similar means of demonstrating availability of the flowpath. This test is typically performed by the system engineers.



## **INSERVICE INSPECTION (ISI) RELIEF REQUEST #PRS-5**

### **Justification for Granting of Relief**

The previous surveillance interval (5 years) was identified in NUREG-1366 as being excessive in maintaining equipment readiness to support safety functions. The proposed ten year scheduled is consistent with safety and efficiency, and is as required by the Technical Specifications.

### **Implementation Schedule**

This relief will be implemented during the Units 1 and 2 second ISI intervals;

This is a new request consistent with recent License Amendments.

