



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OF THE FIRST TEN-YEAR INTERVAL INSERVICE INSPECTION

REQUESTS FOR RELIEF FOR

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNITS NO. 1 AND 2

DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

The Technical Specifications for Diablo Canyon Power Plant (DCPP), Units 1 and 2, state that the inservice inspection and testing of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Title 10 of the Code of Federal Regulations, Section 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10 year interval comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 months prior to the date of issuance of the operating license, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the Diablo Canyon Power Plant, Units 1 and 2, first 10-year inservice inspection (ISI) interval is the 1977 Edition through Summer 1978 Addenda (77S78). The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein.

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Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

In a letter dated March 17, 1992, the licensee, Pacific Gas and Electric Company, submitted requests for relief from ASME Code requirements determined to be impractical for the Diablo Canyon Power Plant, Units 1 and 2, first 10-year ISI interval. As the result of a conference call held April 14, 1992, the licensee resubmitted the relief requests in an alternate format in a letter dated June 22, 1992. During conference calls held on July 30 and 31, 1992, and in a submittal dated August 4, 1992, the licensee provided clarification regarding the June 22, 1992 submittal.

## 2.0 EVALUATION

The staff, with technical assistance from its contractor, the Idaho National Engineering Laboratory (INEL), has evaluated the information provided by the licensee in support of the requests for relief as follows:

### A. Request for Relief No. NDE-006A (Unit 1), Examination Category C-B, Item C2.20, Steam Generator Nozzle-to-Shell Weld

Code Requirement: Table IWC-2500-1, Examination Category C-B, Item C2.20, requires 100% surface and volumetric examinations of nozzle welds in vessels over 1/2 inch in thickness as defined by Figure IWC-2520-4.

Licensee's Code Relief Request: Relief is requested from performing the volumetric examination of the Steam Generator 1-3 Feedwater Nozzle-to-Shell Weld to the extent required by the Code.

Licensee's Basis for Requesting Relief: The licensee states that the volumetric examination is limited to 70% of the required volume due to nozzle configuration that limits a portion of the ultrasonic scan perpendicular to the weld. Access from the nozzle bore is not possible due to a welded thermal sleeve and support structure inside the vessel.

Licensee's Proposed Alternative Examination: None. The volumetric examination will be performed to the maximum extent practical.

Staff Evaluation: Steam generator nozzle-to-vessel welds and adjacent base metal are required to be examined volumetrically as specified by the Code. However, examination of the entire feedwater nozzle-to-shell weld is not possible due to the nozzle configuration, a configuration which partially



restricts access for the ultrasonic scans. Therefore, the Code requirement is impractical. In order to perform the examination to the extent required by the Code, the steam generator nozzles would have to be redesigned and replaced. Imposition of the requirement on the licensee would cause a burden that would not be compensated by an increase in safety above that provided by the limited examination.

The licensee states that 70% of the subject weld can and will be performed; therefore, a significant portion of the required examination is being performed. In addition, 100% of the Code-required surface examination is being performed. Considering the impracticality of performing the volumetric examination to the extent required by the Code, and the burden on the licensee if the Code requirements were imposed, it is concluded that, pursuant to 10 CFR 50.55a(g)(6)(i), relief should be granted as requested. The Code-required surface examination along with the volumetric examination will provide adequate assurance of the continued structural integrity of the subject steam generator nozzle-to-shell weld.

B. Request for Relief No. NDE-008A (Unit 1), Examination Category B-F, Items B5.20, B5.30, and B5.50, Pressurizer and Steam Generator Safe End Welds

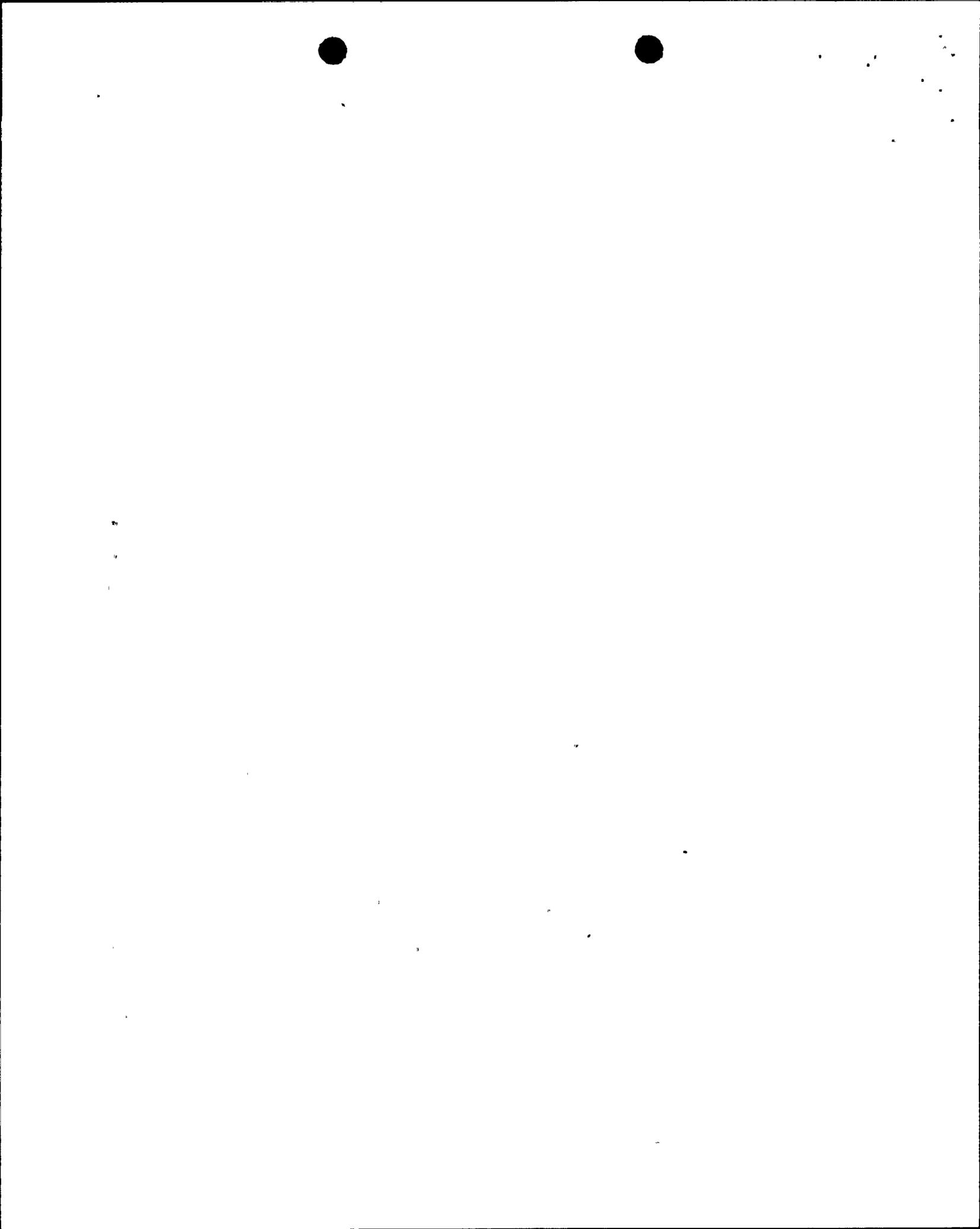
Code Requirement: Table IWB-2500-1, Examination Category B-F, Items B5.20, B5.30, and B5.50 require volumetric and surface examination of pressurizer and steam generator nozzle-to-safe end welds, and associated safe end-to-pipe welds, as defined by IWB-2500-8.

Licensee's Code Relief Request: Relief is requested from performing the volumetric examination of Pressurizer and Steam Generator Safe End Welds WIB-RC-1-5SE and WIB-340SE to the extent required by the Code.

Licensee's Basis for Requesting Relief: The licensee states that volumetric examination of the subject welds is limited to 75% of the required volume due to surface contours and component configurations that restrict ultrasonic examination perpendicular to the weld. The surface contours of the pressurizer and steam generator nozzle and safe end involve compound curvatures and abrupt contours that occasionally cause transducer lift-off and prevent full contact during examination.

Licensee's Proposed Alternative Examination: None. The Code-required volumetric examination will be performed to the maximum extent practical.

Staff Evaluation: The Code requires volumetric examination of all Class 1 pressure retaining dissimilar metal welds, including those on the pressurizer and steam generator. However, surface contour and geometry cause transducer lift-off and incomplete transducer contact, which precludes a 100% volumetric examination. Therefore, the Code requirement is impractical. In order to perform the examination to the extent required by the Code, the subject components would have to be redesigned and



replaced. Imposition of the requirement on the licensee would cause a burden that would not be compensated by an increase in safety above that provided by the limited examination.

The licensee states that 75% of the subject welds can and will be performed; therefore, a significant portion of the required examination is being performed. In addition, 100% of the Code-required surface examination is being performed. Considering the impracticality of performing the volumetric examination to the extent required by the Code, and the burden on the licensee if the Code requirements were imposed, it is concluded that, pursuant to 10 CFR 50.55a(g)(6)(i), relief should be granted as requested. The Code-required surface examination along with the volumetric examination will provide adequate assurance of the continued structural integrity of the subject steam generator and pressurizer safe end welds.

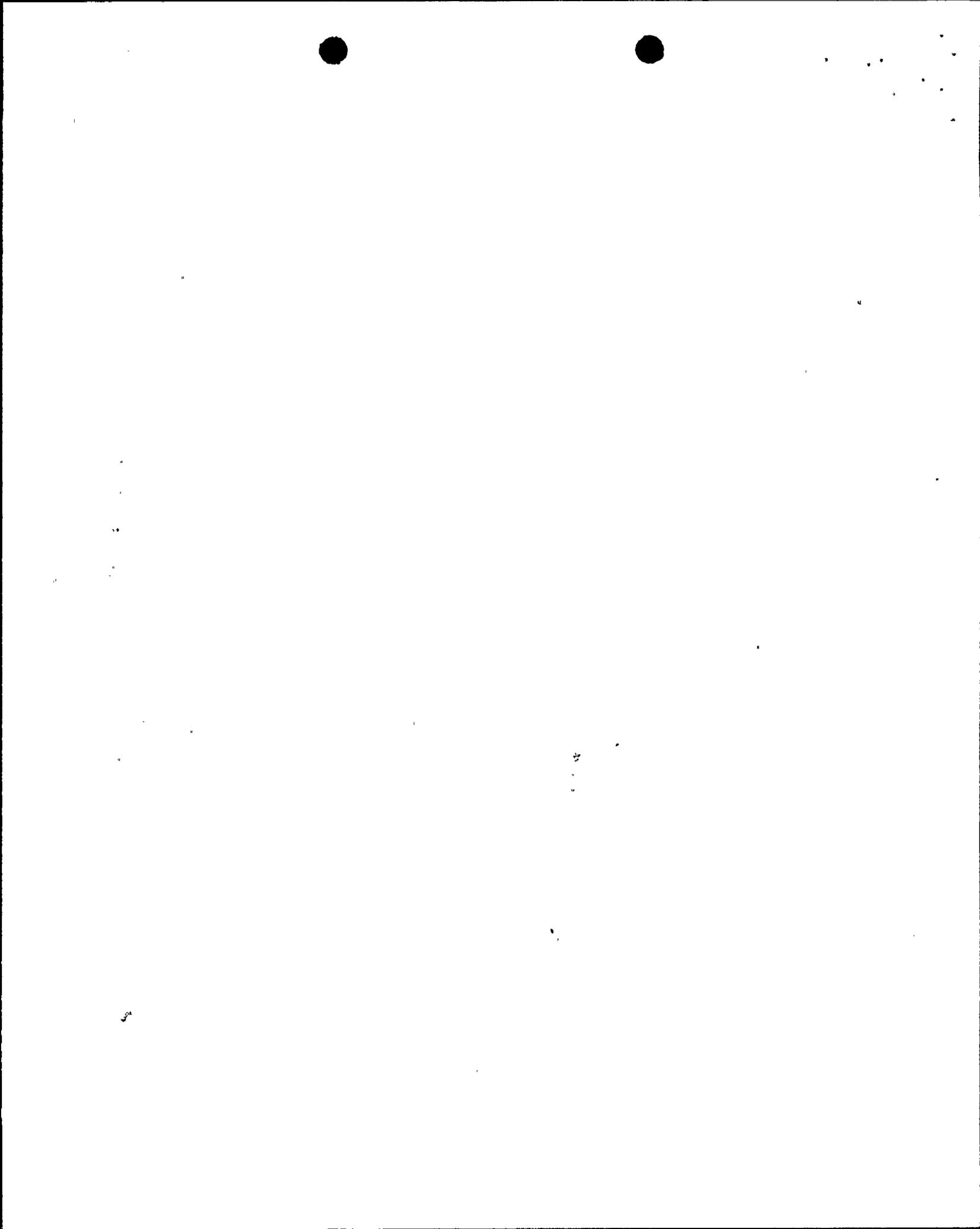
C. Request for Relief No. NDE-008B (Unit 1), Examination Category B-J, Items B9.11, B9.31, and B9.40, Class 1 Pipe Welds

Code Requirement: Table IWB-2500-1, Examination Category B-J, Items B9.11 and B9.31 require 100% surface and volumetric examination of circumferential pipe welds 4 inches and greater, and branch connection welds 2 inches and greater, as defined by Figures IWB-2500-8, -9, -10, and -11. Item B9.40 requires a 100% surface examination of socket welds.

Licensee's Code Relief Request: Relief is requested from performing the volumetric and surface examinations to the extent required by the Code for the following welds:

<u>Weld Number</u>	<u>Item</u>	<u>% Accessible</u>	<u>Limitation</u>
WIB-57	B9.11	90	Elbow intrados
WIB-419	B9.11	75	Tee configuration
WIB-66	B9.11	75	Hanger clamp
WIB-RC-2-3	B9.31	25	Branch connection config.
WIB-236	B9.11	95	Branch/drain line
WIB-77	B9.11	90	Elbow intrados
WIB-RC-2-4	B9.31	75	Pipe clamp
WIB-39	B9.11	80	Welded rupture restraint
WIB-157	B9.11	80	Adjacent tee/elbow
WIB-207	B9.11	60	Adjacent welded restraint
WIB-271	B9.11	50	Adjacent valve body config.
WIB-338	B9.11	90	Elbow intrados
WIB-322	B9.11	75	Adjacent safe end config.
WIB-302D	B9.40	75	Welded support
WIB-48	B9.11	90	Elbow intrados
WIB-168	B9.11	90	Welded attachment
WIB-214	B9.11	90	Elbow intrados

Licensee's Basis for Requesting Relief: The licensee states that surface examination of Weld WIB-302D is limited due to a permanent structural



impediment that obstructs a portion of the weld. For the remaining welds listed above, volumetric examinations are limited by component surface configurations that restrict access for scans perpendicular to the weld. The specific limitations for each weld are listed above. With the exception of Weld WIB-302D, all welds will receive the required surface examination on 100% of the weld surface. For welds where coverage is at least 90%, a 10% reduction in coverage is considered acceptable per ASME Code Case N-460.

Licensee's Proposed Alternative Examination: None. The Code-required surface and volumetric examinations will be performed to the maximum extent practical.

Staff Evaluation: For the welds named in this relief request, the Code requires volumetric and surface examinations with the exception of the one Item B9.40 weld, which requires only a surface examination. For Weld WIB-302D, the Code-required surface examination is obstructed by a welded support that limits the required surface examination. For the remaining welds, the volumetric examination cannot be performed to the extent required by the Code due to a physical obstruction or component configuration that limits access. Therefore, the Code requirements are impractical for the subject welds. In order to perform the examination to the extent required by the Code, the affected components would have to be redesigned and replaced. Imposition of the requirement on the licensee would cause a burden that would not be compensated by an increase in safety above that provided by the limited examination. The licensee states that a significant portion of the required examinations can and will be performed. The limited examinations will provide reasonable assurance of the structural integrity of the subject welds.

Code Case N-460 defines "essentially 100%" to be 90% or better. For Welds WIB-57, WIB-236, WIB-77, WIB-338, WIB-48, WIB-168, and WIB-214, the licensee has indicated that at least 90% of the required volume can and will be examined; therefore, the intent of the Code has been met and relief is not required. For the remaining welds, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted as requested. The limited examination will provide adequate assurance of the continued structural integrity of the subject pipe welds.

D. Request for Relief No. NDE-008C (Unit 1), Examination Category C-F, Item C5.21, Class 2 Circumferential Pipe Welds

Code Requirement: Table IWC-2500-1, Examination Category C-F, Item C5.21, requires surface and volumetric examinations of circumferential pipe welds over 1/2 inch nominal wall thickness as defined by IWC-2520-7.

Augmented Requirement: In a letter dated October 26, 1986, the NRC required volumetric examination of a representative sample of containment spray system (CSS) Class 2 piping welds.



Licensee's Code Relief Request: Relief is requested from performing volumetric examination of Weld WIC-177 in the chemical and volume control system (CVCS) and Weld WIC-264-2 in the CSS, to the extent required by the Code and the October 26, 1986 letter.

Licensee's Basis for Requesting Relief: The licensee states that ultrasonic angle beam scans normal to the welds are limited due to surface configurations that obstruct access to portions of the subject welds. Coverage is limited to 75% of Weld WIC-264-2 due to weld configuration. For Weld WIC-177, coverage is limited to 90% due to an adjacent hanger that obstructs access from one side. For Weld WIC-177, the licensee states that (a) a 1-1/2 Vee scan would be performed from one side of the weld, (b) the Code-required surface examination would be performed on 100% of the weld, and (c) a 10% reduction in coverage is acceptable per ASME Code Case N-460.

Licensee's Proposed Alternative Examination: None. The required examinations will be performed to the extent practical.

Staff Evaluation: The Code requires surface and volumetric examination of Weld WIC-177. However, the volumetric examination is obstructed by a hanger that limits access to 90% of the required volume. Code Case N-460 defines "essentially 100%" to be 90% or better. The licensee states that 90% of Weld WIC-177 is accessible for examination; therefore, the intent of the Code has been met by examination of 90% of the required volume and relief is not required.

Examination of Weld WIC-264-2 is not required by the Code, but is part of an augmented examination sample of the CSS imposed by the staff in a letter dated October 26, 1986. However, examination coverage is limited to 75% of the required weld volume due to weld configuration. Therefore, the required examination is impractical to perform without modification to the weld. Imposition of the requirement on the licensee would cause a burden that would not be compensated by an increase in safety above that provided by the limited examination. A significant portion of the augmented examination can and will be performed; therefore, the limited examination will provide reasonable assurance of the continued inservice structural integrity of the weld.

Based on the above, it is concluded that relief should be granted for Weld WIC-264-2 and that relief is not required for Weld WIC-177.

E. Request for Relief No. NDE-007A (Unit 2), Examination Category C-B, Item C2.20, Steam Generator Nozzle-to-Vessel Weld

Code Requirement: Table IWC-2500-1, Examination Category C-B, Item C2.20, requires 100% surface and volumetric examinations of nozzle welds in vessels over 1/2 inch in thickness as defined by Figure IWC-2520-4.



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Licensee's Code Relief Request: Relief is requested from performing the volumetric examination to the extent required by the Code for steam generator Feedwater Nozzle-to-Shell Weld WICG-101-1.

Licensee's Basis for Requesting Relief: The licensee states that the volumetric examination is limited to 75% of the required volume due to the nozzle configuration which limits a portion of the ultrasonic scan perpendicular to the weld. Access from the nozzle bore is not possible due to a welded thermal sleeve and support structure inside the vessel.

Licensee's Proposed Alternative Examination: None. The volumetric examination will be performed to the maximum extent practical.

Staff Evaluation: The steam generator nozzle-to-vessel welds require a volumetric examination of the full weld volume and adjacent base metal as specified by the Code. However, examination of the entire feedwater nozzle-to-shell weld is not possible due to the nozzle configuration which restricts access to a portion of the weld. Therefore, the Code requirement is impractical. In order to perform the examination to the extent required by the Code, the steam generator nozzles would have to be redesigned and replaced. Imposition of the requirement on the licensee would cause a burden that would not be compensated by an increase in safety above that provided by the limited examination.

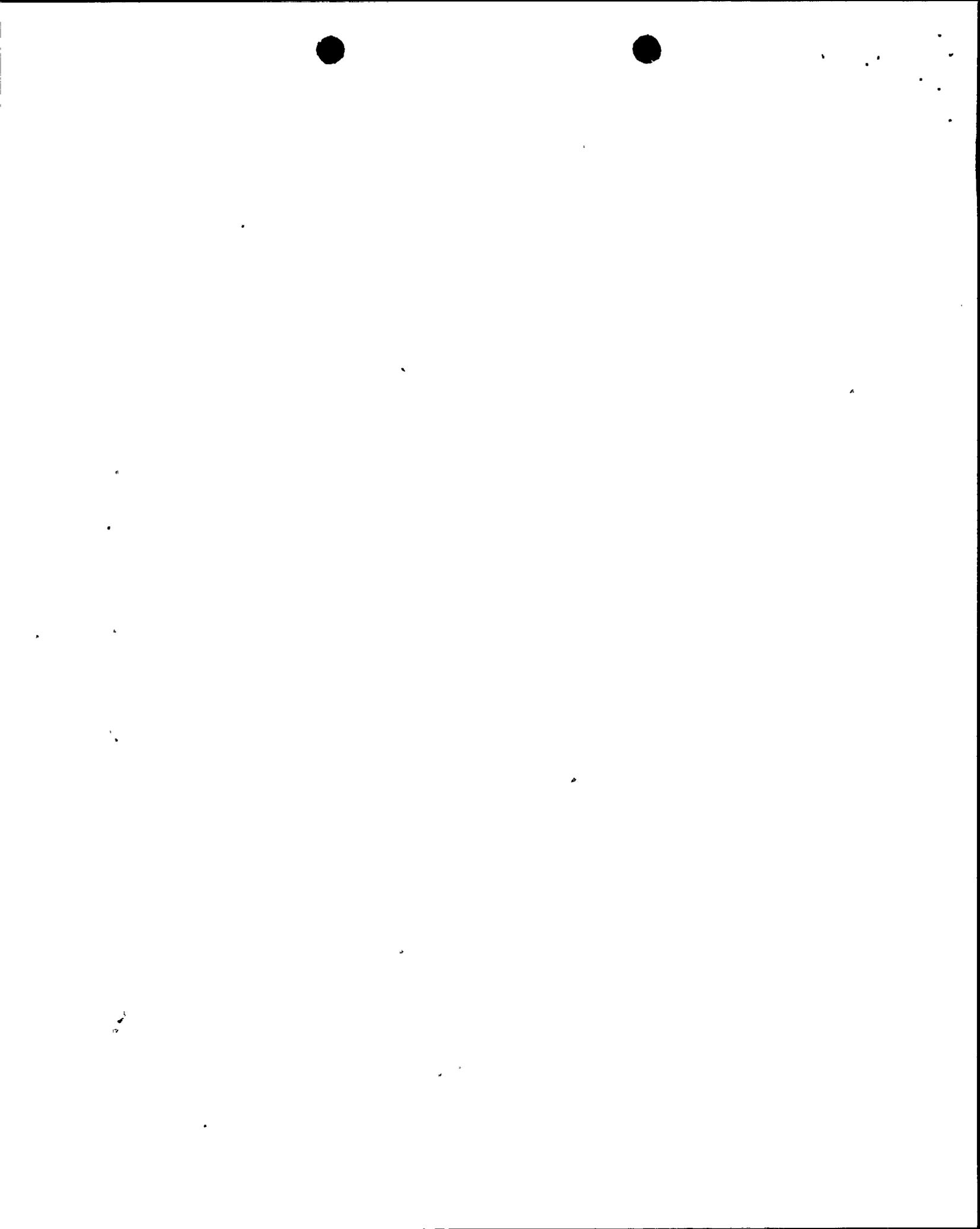
The licensee states that a significant portion (75%) of the required weld volume can and will be performed; therefore, the limited volumetric examination, along with the Code-required surface examination, will provide adequate assurance of the continued structural integrity of this weld. Based on the above evaluation and pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted as requested.

F. Request for Relief No. NDE-009A (Unit 2), Examination Category B-F, Item B5.20 and B5.50, Pressurizer Safe End Welds

Code Requirement: Table IWB-2500-1, Examination Category B-F, Items B5.20 and B5.50, require 100% surface and volumetric examinations of the pressurizer dissimilar metal nozzle-to-safe end and safe end-to-pipe welds as defined by IWB-2500-8.

Licensee's Code Relief Request: Relief is requested from performing volumetric examination of the pressurizer dissimilar metal safe end Weld WIB-345SE to the extent required by the Code.

Licensee's Basis for Requesting Relief: The licensee states that the subject weld is limited to 75% of the required weld volume by inconel buttering that prevents ultrasonic examination from the upstream side of the weld. In addition, the examination is limited by compound surface curvature on the outside diameter, and the nozzle taper, which can cause transducer lift-off. The Code-required surface examination can and will be performed on 100% of the weld length.



Licensee's Proposed Alternative Examination: None. The Code-required volumetric examination will be performed to the maximum extent practical.

Staff Evaluation: The Code requires a 100% volumetric examination of the pressurizer dissimilar metal safe end welds. However, examination of the entire pressurizer safe end weld is not possible due to the component configuration which causes transducer lift-off and restricts access to a portion of the weld. Therefore, the volumetric examination is impractical to perform to the extent required by the Code. In order to perform the examination to the extent required by the Code, the pressurizer nozzle would have to be redesigned and replaced. Imposition of the requirement on the licensee would cause a burden that would not be compensated by an increase in safety above that provided by the limited examination.

The licensee states that a significant portion (75%) of the required weld volume can and will be examined; therefore, the limited volumetric examination, along with the Code-required surface examination, will provide adequate assurance of the continued structural integrity of this weld. Pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted as requested.

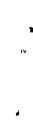
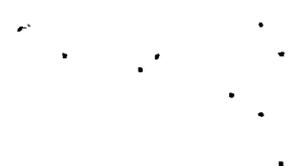
G. Request for Relief No. NDE-009B (Unit 2), Examination Category B-J, Items B9.11, B9.31, and B9.40, Class 1 Pipe Welds

Code Requirement: Table IWB-2500-1, Examination Category B-J, Items B9.11 and B9.31 require 100% surface and volumetric examination of circumferential pipe welds 4 inches and greater, and branch connection welds 2 inches and greater, as defined by Figures IWB-2500-8, -9, -10, and -11. Item B9.40 requires a 100% surface examination of socket welds.

Licensee's Code Relief Request: Relief is requested from performing the volumetric and surface examinations to the extent required by the Code for the following welds:

<u>Weld Number</u>	<u>Item</u>	<u>% Accessible</u>	<u>Limitation</u>
WIB-RC-2-4	B9.11	85	Component config.
WIB-337	B9.11	90	Welded lugs
WIB-432	B9.31	25	Branch connection config.
WIB-249	B9.11	66	Stanchion
WIB-105	B9.31	50	Branch connection
WIB-909	B9.40	90	Hanger
WIB-611	B9.40	75	Hanger

Licensee's Basis for Requesting Relief: The licensee states that Items B9.11 and B9.31 welds are limited due to surface configuration that limits ultrasonic scans perpendicular to the weld. The B9.40 welds are obstructed by hangers that block access to a small portion of each weld. For Welds WIB-337 and WIB-909, a 10% reduction in coverage is considered acceptable per ASME Code Case N-460. For Weld WIB-337, a 1-1/2 V



examination was performed, in addition to the 1/2 V examination, in one direction normal to the weld. All B9.11 and B9.31 welds received surface examinations on 100% of the weld surface.

Licensee's Proposed Alternative Examination: None. The Code-required surface and volumetric examinations will be performed to the maximum extent practical.

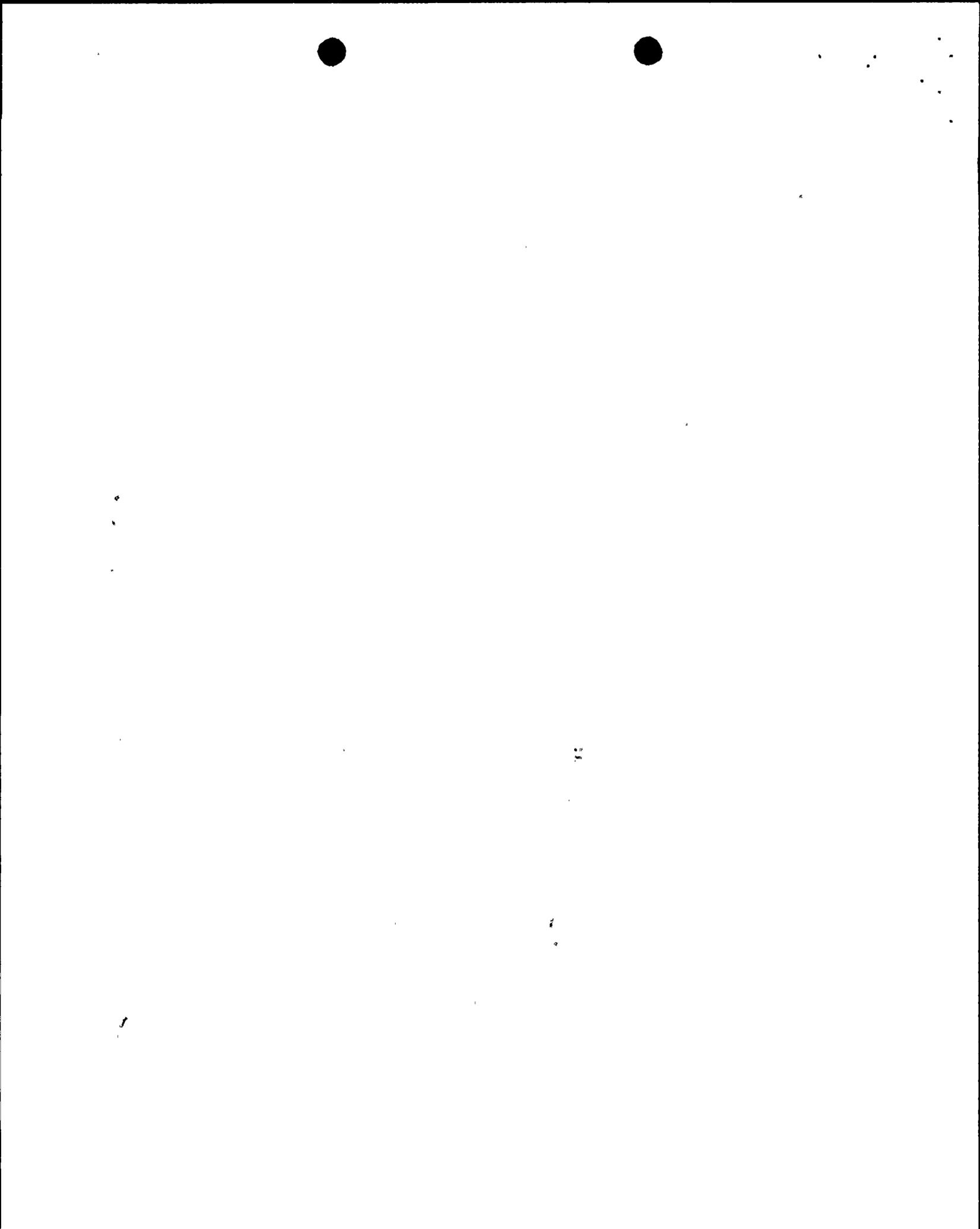
Staff Evaluation: The Code requires volumetric and surface examinations of the subject welds with the exception of the Item B9.40 welds that require only surface examination. For Weld WIB-611, the Code-required surface examination is obstructed by a hanger, which limits the examination coverage. For the remaining welds, the Code-required volumetric examinations cannot be performed to the extent required by the Code due to physical obstructions or component configuration that limit access. Therefore, the Code requirements are impractical for the subject welds. In order to perform the examination to the extent required by the Code, the affected components would have to be redesigned and replaced. Imposition of the requirement on the licensee would cause a burden that would not be compensated by an increase in safety above that provided by the limited examination. The licensee states that a significant portion of the required examinations can and will be performed; therefore, the limited examinations will provide reasonable assurance of the continued structural integrity of the subject welds.

Code Case N-460 defines "essentially 100%" to be 90% or better. For Welds WIB-909 and WIB-337, the licensee indicates that 90% of the required surface or volume can and will be examined; therefore, the intent of the Code has been met and relief is not required. For Welds WIB-RC-2-4, WIB-432, WIB-249, WIB-105, and WIB-611, it is concluded that pursuant to 10 CFR 50.55a(g)(6)(i), relief should be granted as requested. The limited examinations provide adequate assurance of the continued structural integrity of the subject pipe welds.

H. Request for Relief No. 10 (Units 1 and 2), Examination Category B-P, Item B15.51, Class 1 Closed-End Drains

Code Requirement: Table IWB-2500-1, Examination Category B-P, Item B15.51, requires a system hydrostatic test of Class 1 pressure retaining piping as specified by IWB-5222.

Licensee's Code Relief Request: Relief is requested from performing the Code-required system hydrostatic test and VT-2 visual examination on the following line segments:



<u>Line</u>	<u>Enclosing Valves</u>	<u>Description</u>
2527	8364A & 283	Seal injection drain to RCDT (Loop 1)
2534	8364B & 294	Seal injection drain to RCDT (Loop 2)
2536	8364C & 303	Seal injection drain to RCDT (Loop 3)
2541	8364D & 308	Seal injection drain to RCDT (Loop 4)
Seg.	513 & 514	Pressurizer spray drain to RCDT
Seg.	8057A & 8058A	Cold-leg drain to RCDT (Loop 1)
Seg.	8057B & 8058B	Cold-leg drain to RCDT (Loop 2)
Seg.	8057C & 8058C	Cold-leg drain to RCDT (Loop 3)

Licensee's Basis for Requesting Relief: The licensee states that these closed-end line segments serve as drains from the high pressure reactor coolant system (RCS) to the low pressure reactor coolant drain tank (RCDT). Portions of these lines are between first- and second-off RCS isolation valves. The lines are short (less than 18 inches on average), small diameter, and are not normally pressurized. Line pressure may exist due to first-off valve leakage and thermal effects. 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. However, pressure testing in this manner would violate Class 1 system design requirements for double isolation valve protection. The plant design does not include provisions to allow pressure testing at or above normal system pressure. Testing during Mode 6 (refueling) would require costly modifications to install a test connection with an open-ended isolation valve on each line and would cause unnecessary radiation exposure to plant personnel. Testing during Mode 6 without modifications would require defueling the reactor and repressurizing the primary system, extending the critical path outage time by approximately 10 days.

Licensee's Proposed Alternative Examination: The subject line segments will be visually inspected once every 10 years concurrent with the scheduled RCS hydrostatic test.

Staff Evaluation: The Code requires that all Class 1 piping within the pressure retaining boundary receive a system hydrostatic test and VT-2 visual examination. In lieu of that requirement, the licensee proposes a visual inspection during the required RCS hydrostatic test without pressurizing the subject line segments.

The subject line segments are located between the first- and second-off isolation valves that isolate the Class 1 RCS from the RCDT. These segments are short and normally not pressurized. Performing the hydrostatic test with the rest of the RCS would require opening the first isolation valve during Mode 3 to pressurize the lines. This would result in a violation of the Class 1 system design requirement for double isolation protection. Performing the examinations at any other time would require system modifications and installation of test connections to pressurize the segments. Consequently, the Code-required hydrostatic test is impractical to perform for these line segments. In order to perform the Code-required hydrostatic test, the RCS would require design



modifications to accommodate hydrostatic testing. Imposition of the requirement on the licensee would cause a burden that would not be compensated by an increase in safety above that provided by the proposed alternative.

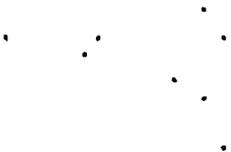
Considering the impracticality of performing the Code-required hydrostatic test and the burden on the licensee if the requirements were imposed, it is concluded that, pursuant to 10 CFR 50.55a(g)(6)(i), relief should be granted as requested. The proposed VT-2 visual examination will provide reasonable assurance of the structural integrity of the subject line segments.

I. Request for Relief No. 11A (Units 1 and 2), Examination Category B-P, Item B15.51, Class 1 Piping: Open-End Tailpipes

Code Requirement: Table IWB-2500-1, Examination Category B-P, Item B15.51, requires a system hydrostatic test of Class 1 pressure retaining piping as specified by IWB-5222.

Licensee's Code Relief Request: Relief is requested from performing the Code-required system hydrostatic test on the following line segments:

<u>Location</u>	<u>Description</u>
Line 109	Between valves 579 and 570
Line 961	Between valves 8057D and 8066, 8058D
V-8070	RVRLIS connection between valve 8070 and blind flange
Line 14	Between valves 517 and 518
"	" " 515 and 516
"	" " 519 and 520
Line 13	" " 521 and 522
"	" " 519 and 520
Line 1195	PORV Vent between valve 8056 and blind flange
Line 1469	Loop seal vent between valves 8052, and 8064A, B & C
Line 1495	RCP 1 seal bypass vent between valve 8362A and flange
Line 1496	RCP 2 seal bypass vent between valve 8362B and flange
Line 1497	RCP 3 seal bypass vent between valve 8362C and flange
Line 1498	RCP 4 seal bypass vent between valve 8362D and flange
Line 246	Between valves 100 and 572
Line 253	" " 138 and 139
Line 254	" " 140 and 141
Line 255	" " 142 and 143
Line 256	" " 144 and 145
Line 235	" " 50 and 51
Line 236	" " 54 and 55
Line 237	" " 58 and 59
Line 238	" " 62 and 63
Line 109	" " 6 and 935
Line 109	RHR 4 valve 8702 thermal expansion valves 3, 4 & 7



Licensee's Basis for Requesting Relief: These line segments between the isolation valves are open-ended tailpipes and serve as drain, vent, test, and fill lines. The line segments are short (less than 12 inches on average), small diameter, and are not normally pressurized. Line pressure may exist due to first-off valve leakage and thermal effects. The isolation valves are not capable of automatic closure. The Code-required hydrostatic test is impractical to perform on the subject line segments because using system pressure to test these lines would require opening the first-off valve in Mode 3 to pressurize between the two valves. This approach would result in a violation of Class 1 system design requirements for double isolation valve protection. Testing in Mode 6 (refueling) is possible because these lines are provided with test connections and isolation. However, hydro testing each line segment would require extensive preparation and the use of a hydro pump at each location to pressurize the line. This would result in unnecessary radiation exposure (1 man-rem per location) to plant personnel and an increased risk of contaminated liquid spill. All of these valves are in high radiation areas.

Licensee's Proposed Alternative Examination: A visual inspection will be performed once every 10 years concurrent with the scheduled RCS hydrostatic test.

Staff Evaluation: The Code requires a system hydrostatic test for all Class 1 pressure-retaining piping. The Class 1 piping segments included in this relief request are open-ended tailpipes located between the isolation valves. These lines serve as drain, vent, test, and fill lines and are typically 1-inch diameter or less (line 961 includes a 2-inch diameter section), and are not normally pressurized.

Using system pressure to perform the hydrostatic test would require opening the first-off valve, which is a violation of the Class 1 system design requirement for double valve protection. Testing during refueling is possible, but all of the subject segments are located in high radiation areas and testing would expose site personnel to excessive radiation (an estimated 1 man-rem per location). Therefore, the Code-required hydrostatic test is impractical to perform on the subject line segments.

Based on the above evaluation and pursuant to 10 CFR 50.55a(g)(6)(i), it is concluded that relief should be granted as requested. The VT-2 visual examination performed during the RCS hydrostatic test will provide reasonable assurance of the operation readiness of the line segments.

J. Request for Relief No. 11B (Unit 1), Examination Category C-H, Item C7.21, Class 2 Piping: Open-End Tailpipes

Note: The components in this relief request were incorrectly identified by the licensee as Item C7.11 (Class 2 pressure vessels).



Code Requirement: Table IWC-2500-1, Examination Category C-H, Item C7.21, requires a system hydrostatic test and VT-2 visual examination of Class 2 pressure-retaining piping as specified by IWC-5222.

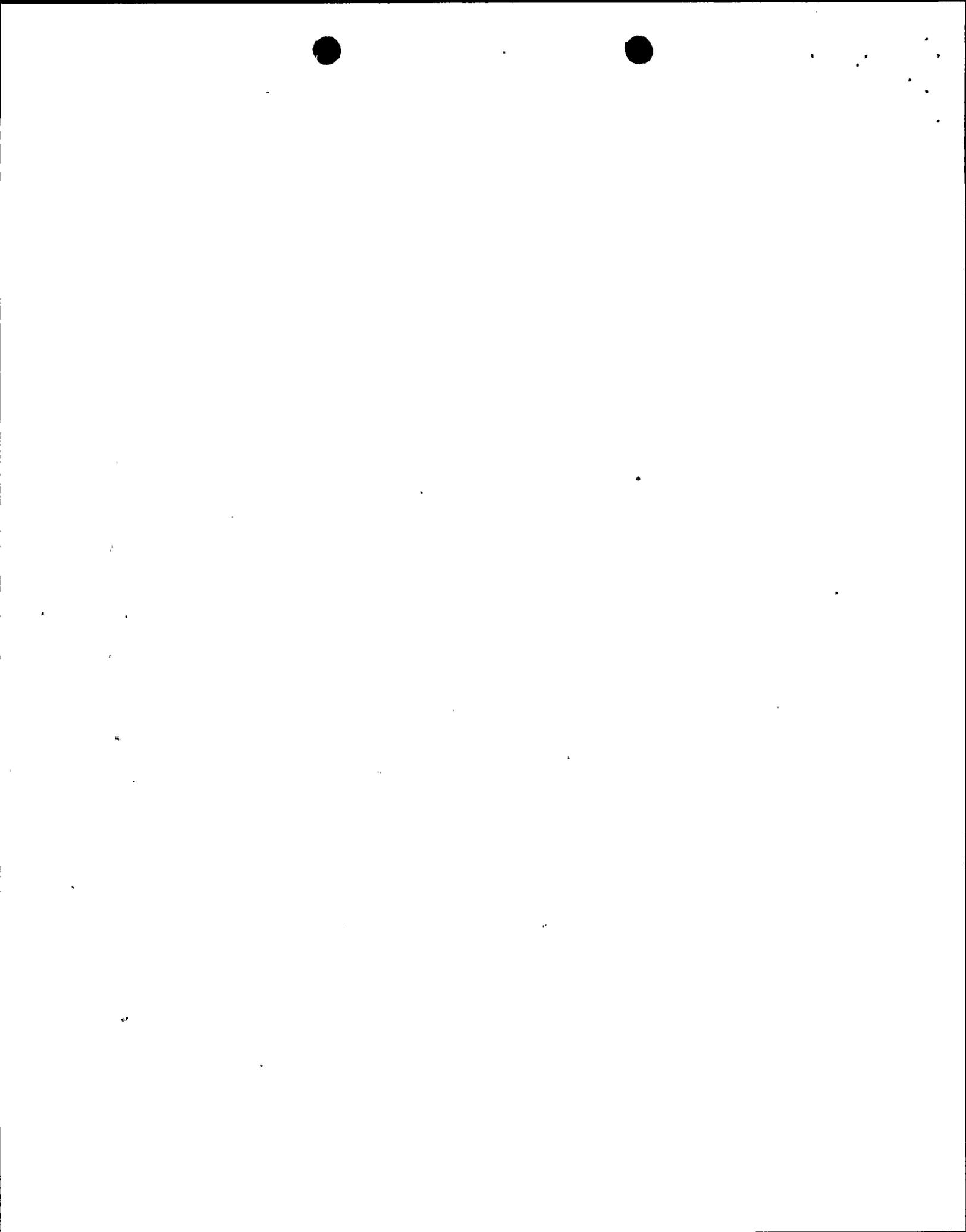
Licensee's Code Relief Request: Relief is requested from performing the Code-required system hydrostatic test on the reactor vessel head vent lines between Valves 8078B and 8078A (Units 1 & 2), and Valves 8078C and 8078D (Units 1 & 2); the RVRLIS hot leg instrumentation connection lines between Valves 617 and 616 (Units 1 & 2); and the reactor vessel head vent valve test connections between the test connection and Valve 661 (Unit 1) and Valve 677 (Unit 2).

Licensee's Basis for Requesting Relief: The licensee states that these line segments between the isolation valves are open-end tailpipes and serve as vent, drain, test, and fill lines. The line segments are short (less than 12 inches on the average), small diameter, and are not normally pressurized. Line pressure may exist due to first-off valve leakage and thermal effects. The isolation valves are not capable of automatic closure. The Code-required hydrostatic test for these lines is impractical because using system pressure to pressurize the lines would require opening isolation valves in Mode 3 (hot standby). This approach would violate Class 1 system design requirements for double isolation valve protection. Testing in Mode 6 (refueling) is possible because these lines are provided with test connections and isolation. However, hydro testing each line segment would require the use of a hydro pump at each location to pressurize the line. This method would result in unnecessary radiation exposure (1 man-rem per location) to plant personnel and an increased risk of contaminated liquid spill. All of these valves are in high radiation areas.

Licensee's Proposed Alternative Examination: The subject segments will receive a visual inspection once each interval concurrent with the scheduled RCS hydrostatic test.

Staff Evaluation: The Code requires a system hydrostatic test of all Class 1 pressure retaining piping. The Class 1 piping segments included in this relief request are open-ended tailpipes located between the isolation valves. These lines serve as drain, vent, test, and fill lines and are typically 1-inch diameter or less (line 961 includes a 2-inch diameter section), and are not normally pressurized.

Using system pressure to perform the hydrostatic test would require opening isolation valves, which would violate the Class 1 system design requirement for double valve protection. Testing during refueling is possible, but all of the subject segments are located in high radiation areas and testing would expose site personnel to excessive radiation exposure (an estimated 1 man-rem per location).



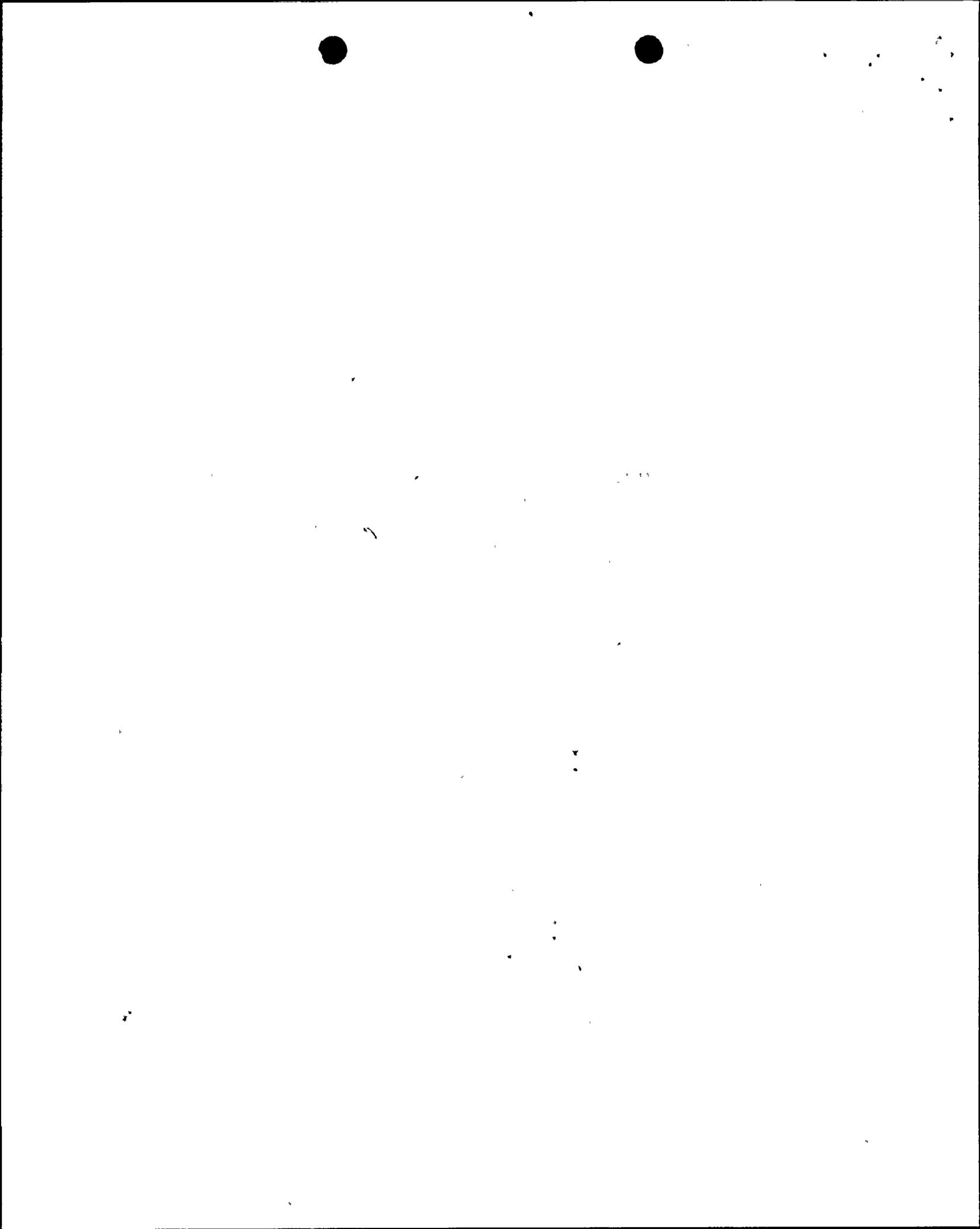
There is no history of failure of these short sections of pipe between isolation valves. In addition, the process pipe to the first-off valve is stagnant; therefore, is representative of the short sections of pipe between the isolation valves. The process pipe to the first-off valve is fully tested. Based on the above evaluation and pursuant to 10 CFR 50.55a(g)(6)(i), it is concluded that relief should be granted as requested. The VT-2 visual examination performed during the RCS hydrostatic test will provide reasonable assurance of the operation readiness of the line segments.

K. Request for Relief No. 12 (Units 1 and 2), Examination Category B-P, Item B15.51, Class 1 Piping

Code Requirement: Table IWB-2500-1, Examination Category B-P, Item B15.51, requires a system hydrostatic test and VT-2 visual examination of Class 1 pressure-retaining piping, as specified by IWB-5222.

Licensee's Code Relief Request: Relief is requested from performing the Code-required system hydrostatic test and VT-2 visual examination for the following line segments:

<u>Line</u>	<u>Description</u>
253 3844 3855 1999	Accumulator, RHR, SI to loop 1 cold leg between Valves 8948A and 8956A, 8819A, 8818A, 8879A
254 3845 3856 2000	Accumulator, RHR, SI to loop 2 cold leg between Valves 8948B and 8956B, 8819B, 8818B, 8879B
255 3846 3857 2001	Accumulator, RHR, SI to loop 3 cold leg between Valves 8948C and 8956C, 8819C, 8818C, 8879C
256 3847 3858 2002	Accumulator, RHR, SI to loop 4 cold leg between Valves 8948D and 8956D, 8819D, 8818D, 8879D
2575 235 3863 689	SI, RHR to loop 1 hot leg between 8949A and 8884A, 8740A, 8905A

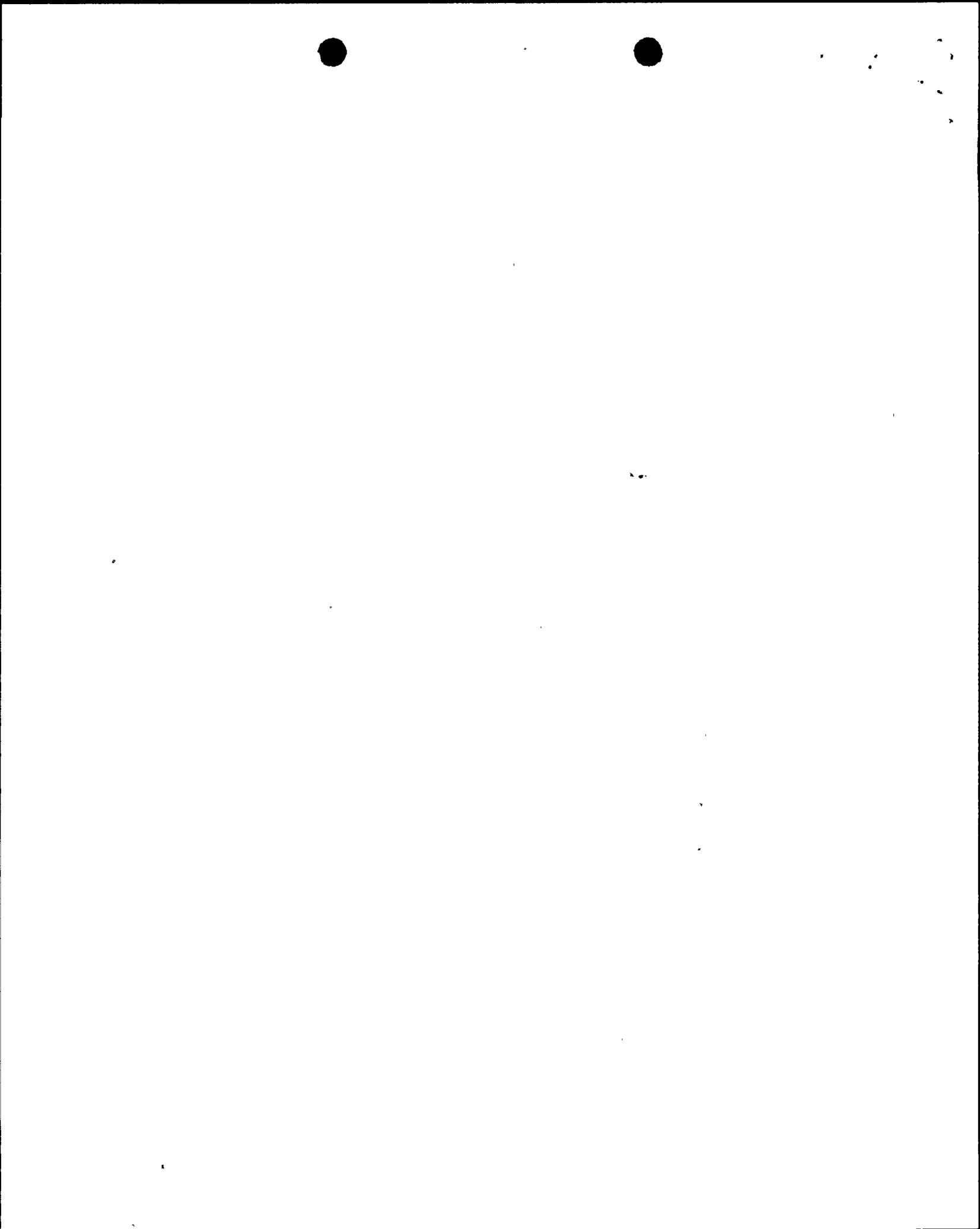


<u>Line</u>	<u>Description</u>
2576	SI, RHR to loop 2 hot leg between 8949B and 8884B, 8740B, 8905B
236	
3864	
691	
237	SI to loop 3 hot leg between 8949C and 8884C, 8905C
1976	
3866	
238	SI to loop 4 hot leg between 8949D and 8884D, 8905D
1990	
3867	

Licensee's Basis for Requesting Relief: The licensee states that the first four groups of line segments are normally pressurized at 625 psi (accumulator pressure) during normal operation and while in Mode 3. The line segments in the latter four groups are not normally pressurized, but line pressure may exist due to first-off valve leakage and thermal effects. The Code-required system hydrostatic test is impractical because these line segments are located between check valves that function as RCS pressure boundary isolation valves, per DCPD Technical Specification Table 3.4-1. These check valves are boundary points, making it impossible to test the lines during Modes 4, 5, or 6 due to insufficient RCS pressure to keep the first-off valve shut against the test pressure. In Mode 3, pressurization to the nominal test pressure would risk injection into the RCS.

Licensee's Proposed Alternative Examination: The first four groups of line segments will be visually inspected every refueling outage in Mode 3 at normal system pressure (625 psi) in accordance with STP R-8A, "RCS Operational Pressure Leak Test." The second four groups of line segments will be pressurized to 1530 psi once every 10 years in Mode 3 during performance of STP P-1B, "Routine Surveillance Test of Safety Injection Pumps." The lines will be visually inspected at that time.

Staff Evaluation: System design does not permit pressurizing the subject sections of piping due to check valve configuration. Pressurizing to the nominal test pressure from the Class 2 side would risk injection into the RCS. Therefore, the Code-required system hydrostatic test is impractical to perform. Imposition of the requirement on the licensee would necessitate design modifications to the RCS and would not be significantly compensated for by an increase in safety above that provided by performance of a system leakage test at nominal system pressure. The concept of performing pressure tests at system operating pressure has been accepted by the NRC by incorporation of Code Case N-498, "Alternative Rules for 10-Year Hydrostatic Pressure Testing for Class 1 and 2 Systems," in Regulatory Guide 1.147, Revision 9.



Pursuant to 10 CFR 55.55a(g)(6)(i), relief is granted provided that the requirements of IWA-5213, "Test Condition Holding Time," are met prior to performance of the VT-2 visual examination.

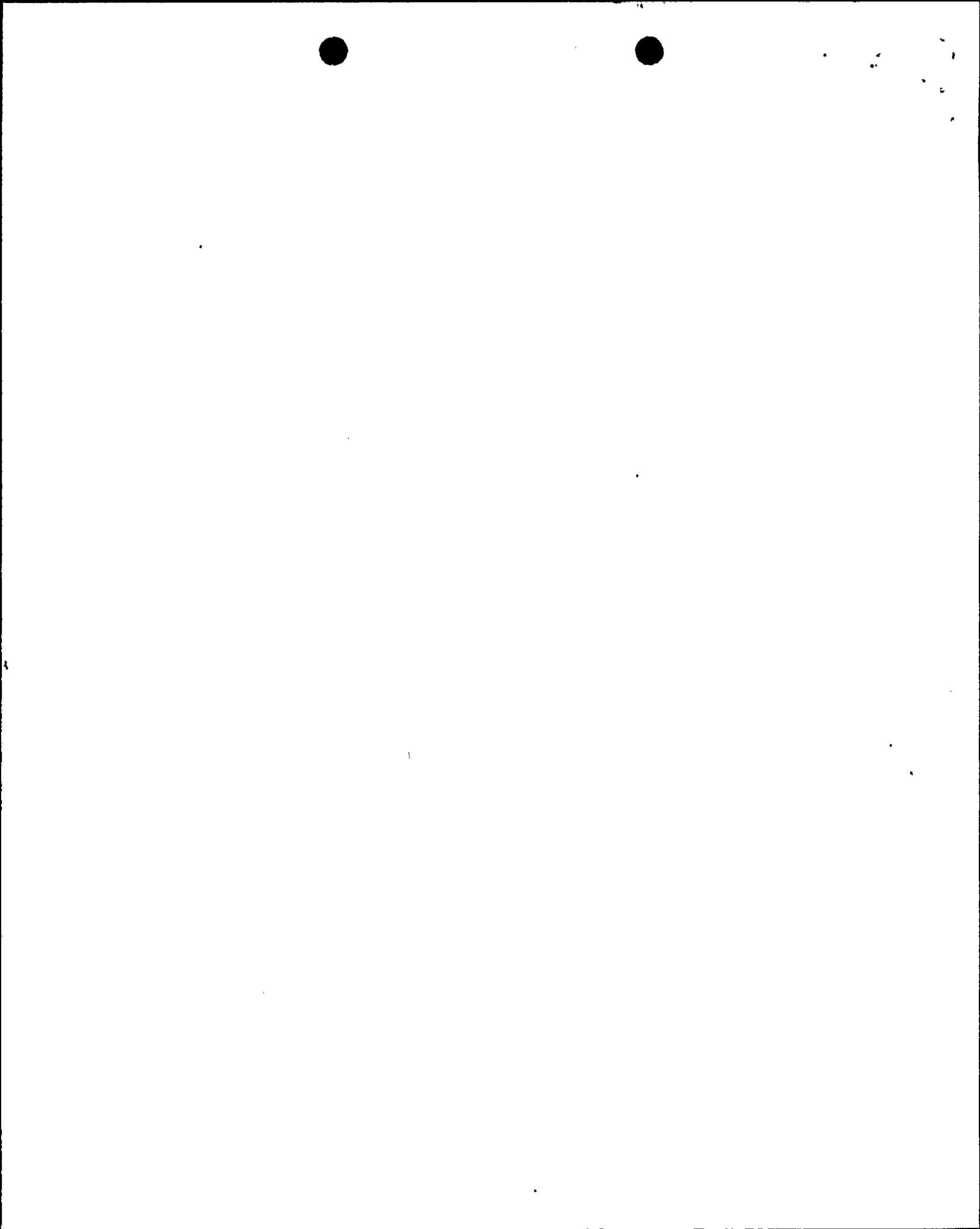
### 3.0 CONCLUSION

Paragraph 10 CFR 50.55a(g)(4) requires that components (including supports) that are classified as ASME Code Class 1, 2, and 3 meet the requirements, except design and access provisions and preservice requirements, set forth in applicable editions of ASME Section XI to the extent practical within the limitations of design, geometry, and materials of construction of the components.

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee determined that conformance with certain Code requirements is impractical for its facility and submitted supporting information. The staff has reviewed the licensee's submittal and has concluded that relief can be granted as requested. Pursuant to 10 CFR 50.55a(g)(6)(i), the staff concludes that the requirements of the Code are impractical and relief may be granted in all cases included in this evaluation. Such relief is authorized by law and will not endanger life, property, or the common defense and security, and is otherwise in the public interest. The relief has been granted giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Principal Contributor: D. Smith

Date:



Mr. Gregory M. Rueger

- 2 -

September 21, 1992

This completes our review of the Diablo Canyon ISI relief requests and closes TAC Nos. M83034 and M83035. If you have any questions regarding this matter, please contact Harry Rood at (301) 504-1352.

Sincerely,

Original signed by

Theodore R. Quay, Director  
Project Directorate V  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Enclosure:  
As stated

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