Entergy

Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601
Tel 914 272 3200
Fax 914 272 3205

Michael R. Kansler
Senior Vice President &
Chief Operating Officer

April 3, 2002
IPN-02-024

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

SUBJECT: Indian Point Nuclear Generating Unit No. 3
Docket No. 50-286
Revised Relief Request Nos. 3-12, 3-14, 3-16, and 3-17
Third 10-Year Inservice Inspection Interval Program Plan

Reference:
1. NYPA letter IPN-00-055 to NRC, "Third Ten Year Inservice Inspection Interval," dated July 18, 2000
2. NRC letter, "Request for Additional Information Regarding Third 10-Year Inservice Inspection Program (TAC No. MA9757)," dated February 13, 2001
3. Entergy letter IPN-01-024 to NRC, "Request for Additional Information Regarding Third Ten Year Inservice Inspection Interval Program Plan," dated March 20, 2001

Dear Sir:

This letter transmits the revised Request for Reliefs (RRs) for the Indian Point Nuclear Generating Unit No. 3 (IP3), RR 3-12, RR 3-14, RR 3-16 and RR 3-17. These RRs were initially submitted with the IP3 Third 10-Year Inservice Inspection Program Plan (Reference 1). In response to the letter of request for additional information (RAI) from the NRC (Reference 2), these RRs were withdrawn (Reference 3) for administrative reasons.

Attachment 1 contains the revised relief requests which incorporated supplemental information, drawings/sketches, and/or previous inspection data from the 2nd Interval to address the specific issues identified in the RAI (Reference 2) letter for the subject RRs.

Approval is requested by December 16, 2002 to support implementation for the upcoming R12 refueling outage.

A047

There are no new commitments made in this letter. If you have any questions, please contact Ms. Charlene Faison at 914-272-3378.

Very truly yours,

Michael R. Kansler
Senior Vice President and
Chief Operating Officer

Attachments: As stated

cc:

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Resident Inspector's Office
Indian Point Unit 3
U.S. Nuclear Regulatory Commission
P.O. Box 337
Buchanan, NY 10511

Mr. Patrick Milano, Project Manager
Project Directorate I
Division of Licensing Project Management
U.S. Nuclear Regulatory Commission
Mail Stop 0-8-C2
Washington, DC 20555

ATTACHMENT I TO IPN-02-024

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

THIRD TEN-YEAR INSERVICE INSPECTION
INTERVAL PROGRAM PLAN
REVISED RELIEF REQUESTS

Relief 3-12, Revision 1
Relief 3-14, Revision 1
Relief 3-16, Revision 1
Relief 3-17, Revision 2

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3
DOCKET NO. 50-286
DPR-64

RELIEF REQUEST NUMBER 3-12, Rev. 1
(Page 1 of 2)

A. COMPONENT IDENTIFICATION

Code Class:	1
References:	Table IWB-2500-1, Category B-A; Figure IWB-2500-3
Examination Category:	B-A
Item Numbers:	B1.21, BI.22
Description:	Reactor Vessel Closure Head and Bottom Head Circumferential and Meridional Welds

B. CODE REQUIREMENT

10 CFR 50.55a(xv) requires the use of Appendix VIII of Section XI, 1995 Edition with the 1996 Addenda for the qualification process.

C. RELIEF REQUESTED:

Indian Point 3 requests relief to utilize the Performance Demonstration Initiative (PDI) procedure (PDI-UT-6) for Reactor Vessel welds for thicknesses greater than the currently qualified procedure thickness.

D. BASIS FOR RELIEF

Pursuant to 10 CFR 50.55a(3)(i), relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety. The PDI procedure is qualified for thicknesses up to 7.64". As can be seen from the enclosed "Profile of the Reactor Vessel Closure Head" sketch, portions of the meridional and circumferential head welds may exceed this thickness. Based on input from EPRI-PDI group, the search units specified in PDI-UT-6 have a large depth of field and are capable, though not currently qualified, for thicknesses up to 11". This capability is well above the maximum weld thickness shown on the attached profile of the Indian Point Unit 3 Reactor Vessel Closure Head sketch (Attachment 1).

While not a part of this relief, Entergy plans to perform the inspection of the Head-to-Flange Weld (B1.40, Weld #1 on INT-1-1300) using the PDI method in lieu of the Section XI examination as well. The PDI method will be used in accordance with Section IWA-2240 of Section XI for alternative examination methods. The PDI procedure is qualified in accordance with Appendix VIII and will be used in lieu of the prescriptive requirements of Article 4, Section V of the ASME B&PV Code. The procedure and personnel qualified to the procedure are currently the state of the art

RELIEF REQUEST NUMBER 3-12, Rev. 1
(Page 2 of 2)

and exceeds the requirements of Section XI and Section V. In using the PDI procedure, only the 60°RL transducer will be used from the outside of the vessel.

E. PROPOSED ALTERNATE EXAMINATION

PDI procedure PDI-UT-6 will be used for reactor head inspections as allowed by and in accordance with ASME, B&PVC, Section XI, 1989 Addition, No Addenda, IWA-2240, "Alternative Examinations", but in some areas the actual thickness may be beyond the qualified thickness indicated in the procedure.

F. JUSTIFICATION FOR RELIEF

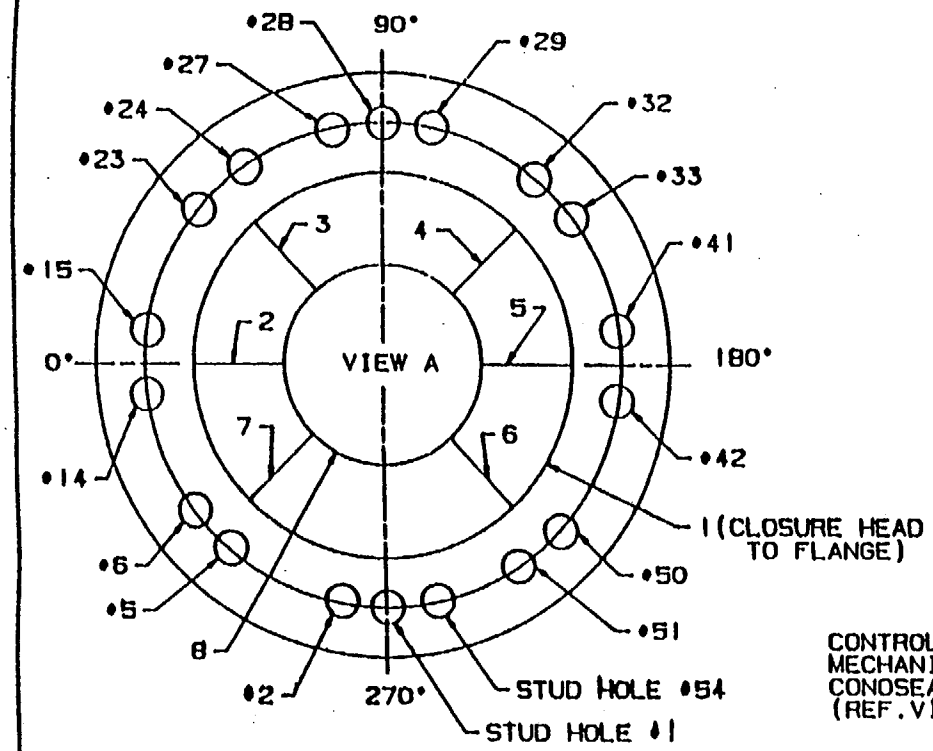
The use of the PDI procedure beyond its qualified thickness will still result in accurate data. Based on input from EPRI, the search units specified in PDI-UT-6 have a large depth of field and are capable, although not currently qualified, for thicknesses up to 11". The actual thicknesses encountered for part of the weld length will be slightly greater than the qualified maximum, but are within the qualified range for most of the weld length. The procedure uses the latest in technology for ultrasonic inspection as compared to the requirements of Section XI and Section V.

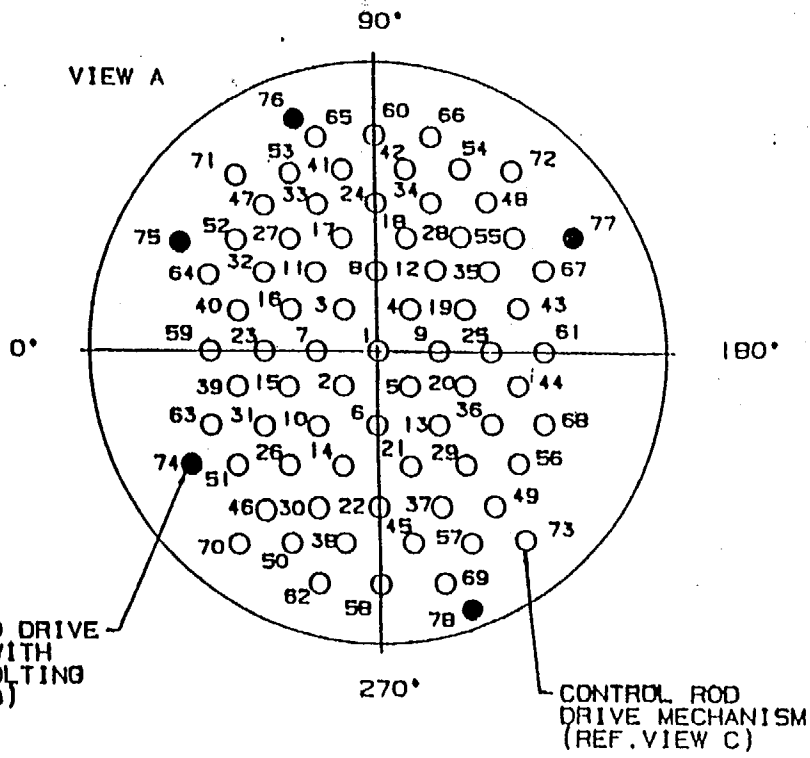
G. PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the third inspection interval, July 21, 2000 through July 20, 2009.

H. ATTACHMENTS TO RELIEF

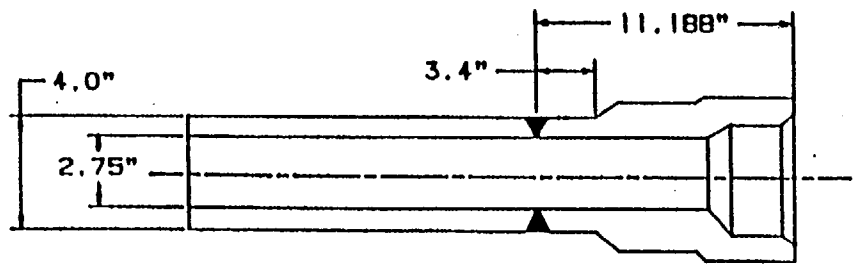
- Sketch INT-1-1300, Rev.4
- Profile of the Reactor Vessel Closure Head





REACTOR VESSEL CLOSURE HEAD: DIAMETER 167.438"
CIRCUMFERENCE: 525.75"
CLOSURE HEAD TO FLANGE WELD 1: 8.0"T A508-64 CARBON STEEL
MERIODIONAL WELDS 2 THRU 7: 8.0"T SA302 GRADE B CARBON STEEL
CONTOL ROD DRIVE MECHANISMS 1 THRU 78: 0.625"T SB-167 INCONNEL TO 304 STAINLESS STEEL

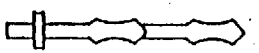
CONTROL ROD DRIVE MECHANISMS
VIEW C



CONOSEAL BOLTING
VIEW B


MALE FLANGE


UPPER POSITIONER


UPPER AND LOWER CLAMP (1 EACH)

NEW YORK POWER AUTHORITY INDIAN POINT UNIT NO. 3	
REACTOR VESSEL CLOSURE HEAD	
INT-1-1300	REV. 4

Attachment to IP3 RR 3-12, Rev. 1
IPN-02-024

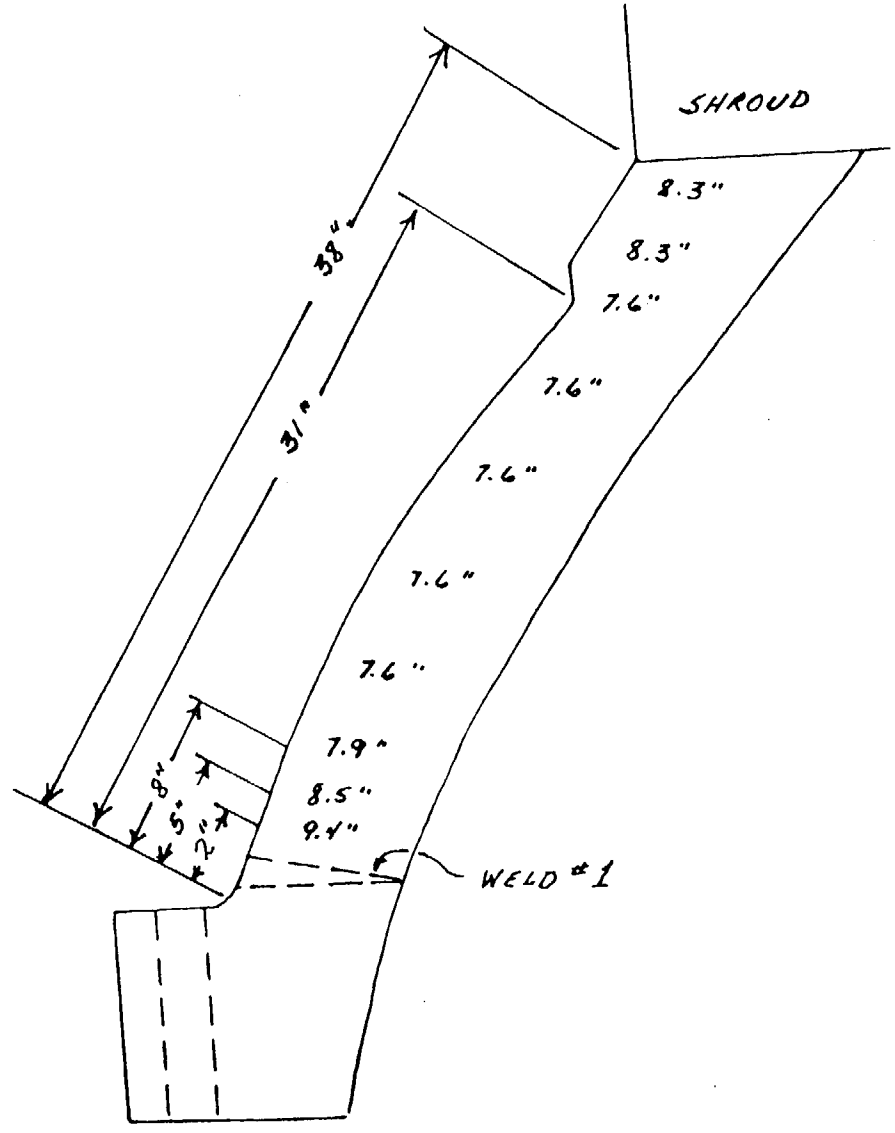
WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

PROFILE OF THE RECTOR VESSEL CLOSURE HEAD

PLANT INDIAN POINT UNIT 3 SKETCH INT-1-1300, REV. 4

SYST./COMP. REACTOR VESSEL CLOSURE HEAD DATE 05-05-01

EXAMINER Gary M. Jackson IDENTIFICATION WELDS 1, 3, 5 AND 7



Attachment to IP3 RR 3-12, Rev 1
IPN-02-024

RELIEF REQUEST NUMBER 3-14, Rev. 1
(Page 1 of 3)

A. COMPONENT IDENTIFICATION

Code Class:	1
References:	Table IWB-2500-I, Category B-B, Figure IWB-2500-I and 2
Examination Category:	B-B
Item Number:	B2.11, B2.12
Description:	Inspection of Pressurizer Shell-To-Head Circumferential and Longitudinal Welds

B. CODE REQUIREMENT

Table IWB-2500-1, Category B-B, Items B2.11 and B2.12 require volumetric examination of the Pressurizer Circumferential and the adjoining foot of the longitudinal shell-to-head welds as defined by Figures IWB-2500-1 and -2.

C. RELIEF REQUESTED

Indian Point 3 requests relief from performing the code required volumetric examination of the pressurizer upper head circumferential weld # 17 on sketch INT-1-2100 (attached) and from examining the intersecting one foot of the longitudinal shell-to-head welds (#s 2 and 16). In addition, relief is requested from examining 100% of the lower circumferential weld # 1.

D. BASIS FOR RELIEF

Pursuant to 10CFR50.55a(a)(3)(ii), relief is requested on the basis that compliance with the specified Code requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The pressurizer was designed and fabricated to Codes in effect during the late 1960's. The Codes used did not provide for full access for inservice inspection as required by later Codes. The upper circumferential and longitudinal welds are enclosed in a biological and missile shield (see attached drawings 9321-F-25453 and 9321-F-25463). Insulation details can be seen on attached drawing 9321-LL-53253. The insulation in this area and the fact that the vessel is surrounded by a support structure indicates that these welds are completely inaccessible for volumetric examination.

RELIEF REQUEST NUMBER 3-14 (I), Rev. 1
(Page 2 of 3)

Welds 1 and 2 for the lower head have been examined in the past but complete coverage was not possible. For the longitudinal weld (# 2), the first 15" of the adjoining section of the weld is covered by permanent insulation. One foot of the accessible portion of the weld was scanned in the last interval, but the insulation near the weld limits the 45 and 60 degree scans as indicated in the attached "Limitation to Examination" sheets. The circumferential weld (# 1) is accessible for the entire length, but with limitations as shown on the attached "Limitation to Examination" sheets for the previous interval.

E. PROPOSED ALTERNATE EXAMINTION

Visual examination (VT-2) will be performed of the upper head welds (#s 16 and 17) for evidence of leakage during system pressure tests in accordance with IWB-2500, Category B-P, and Code Case N-498-1. It is expected that any through wall defects would be detected by this examination prior to the failure of the pressurizer based on the expectation that the component will experience leakage before a catastrophic failure ("leak before break"). A similar request for relief was approved and performed in the second interval (Reference SER dated November 7, 1991, TAC NO. 72247).

Volumetric examination of the lower head welds (#s 1 and 2) will be performed, but only to the extent practical as described above in this relief request. In lieu of the adjoining one foot of weld #2, an accessible foot of the weld will be examined to the extent practical.

F. JUSTIFICATION FOR RELIEF

Based on the reliable operating history of this and similar vessels at other plants and the performance of VT-2 examinations for leakage, granting of this relief request will not decrease the overall level of quality and safety of this component.

RELIEF REQUEST NUMBER 3-14, Rev. 1
(Page 3 of 3)

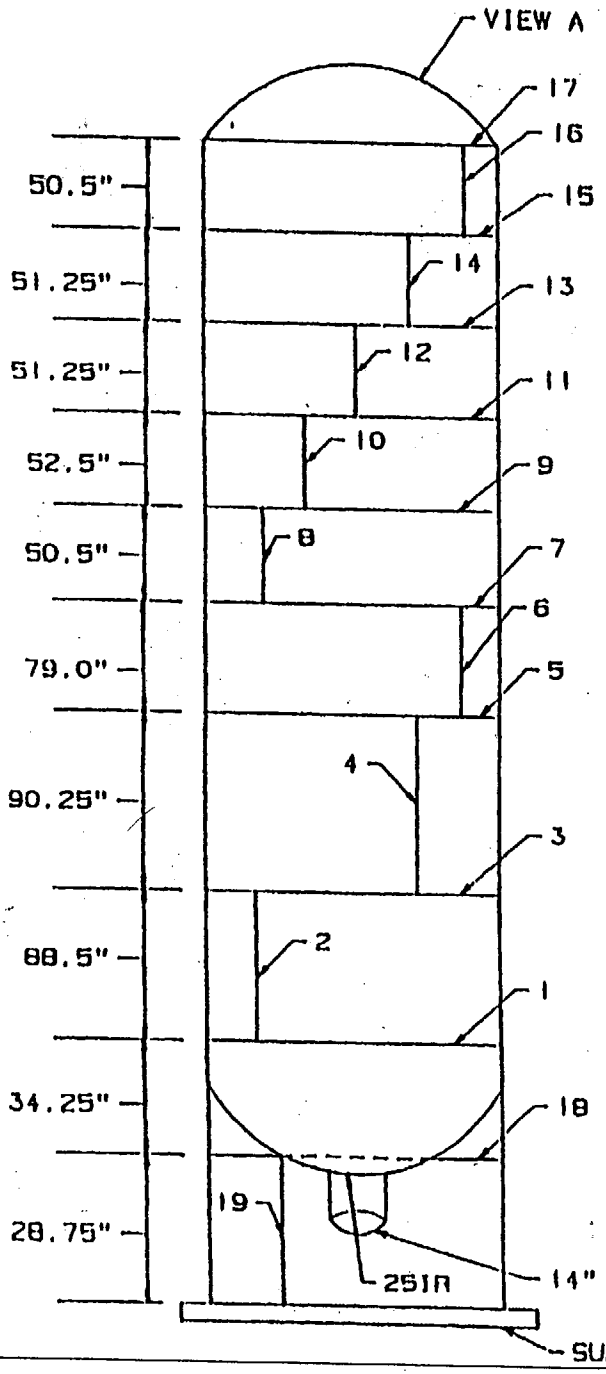
G. PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the third inspection interval, July 21, 2000 through July 20, 2009.

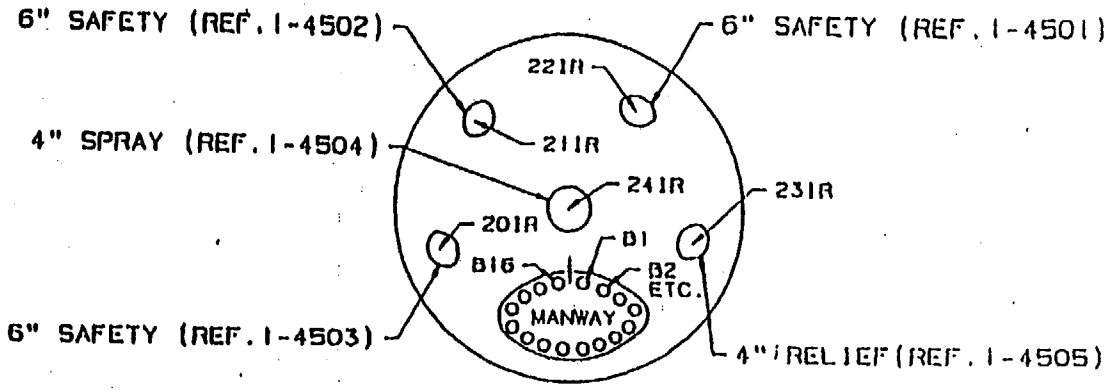
H. ATTACHMENT TO RELIEF

- Sketch INT-1-2100, Rev.8
- Dwg. 9321-LL-53253, Rev.2
- Dwg. 9321-F-25453, Rev.20
- Dwg. 9321-F-25463, Rev.12
- "Limitation of Examination" Sheets (3 pages) for Welds (# 1 and 2) for the 2nd Interval

PRESSURIZER



VIEW A



WELDS 1 THRU 17: SHELL: 4.75"T SA 302 GRADE B CARBON STEEL
UPPER & LOWER HEAD: 4.75"T SA216 GRADE WCC CARBON STEEL
DIAMETER: 92.375" ; CIRCUMFERENCE: 290.05"
NOZZLE TO VESSEL WELDS: NOT APPLICABLE
NOZZLE INSIDE RADIUS SECTION: 201R THRU 251R
INTEGRALLY WELDED ATTACHMENT SUPPORT SKIRT WELD 18.
1.5"T CARBON STEEL PLATE TO SA516 GRADE 70 CARBON STEEL
MANWAY BOLTING: 16-1.88" DIAMETER
SUPPORTS: REF. INT-1-2100A

NOTE: SAFETY NOZZLE LOCATIONS PER CON.ED. DRAWING A202108 AND LINE NUMBER STAMPED ON INTEGRALLY WELDED ATTACHMENTS RC-H-342, RC-H-343 AND RC-H-344.
NOTE: WELD 2-0" TO 15" (ADJACENT WELD 1) INACCESSIBLE DUE TO PERMANENT INSULATION.
WELD 19 LOCATED 25" CCW FROM WELD 2.

ENTERGY NUCLEAR NORTHEAST INDIAN POINT UNIT NO.3	
PRESSURIZER RCPCPR1	
INT-1-2100	REV. 8

Attachment to IPN-02-024, RC 3-14 Rev 1

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: DWG. NO. 9321-LL-53253-2 "CONTAINMENT BUILDING PRESSURIZER - INSULATION SECTIONS & DETAILS" WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT DWG. NO. 9321-LL-53253-2

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: DWG. NO. 9321-F-25453-20 "CONTAINMENT BUILDING PRIMARY COOLANT PRESSURIZER SAFETY RELIEF VALVE PIPING - SHEET NO. 1" WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT DWG. NO. 9321-F-25453-20

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: DWG. NO. 9321-F-2545463-12 "CONTAINMENT BUILDING PRIMARY COOLANT PRESSURIZER SAFETY RELIEF VALVE PIPING - SHEET NO. 2" WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT DWG. NO. 9321-F-254563-12

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

Attachment to IPN-02-024, RR 3-14, Rev. 1

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

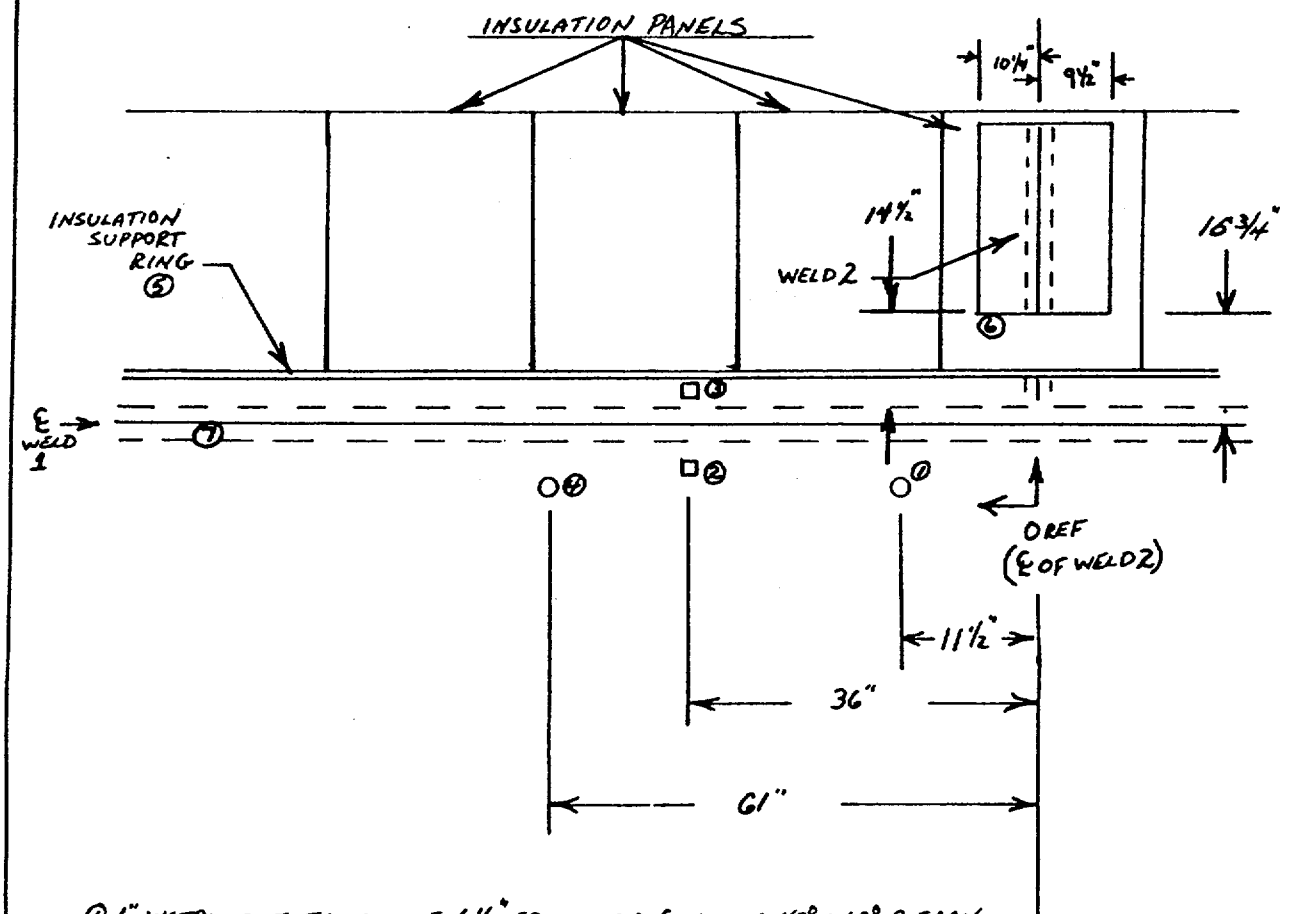
PLANT Indian Point UNIT No. 3 SKETCH INT-1-2100

SYST/COMP Pressurizer RC/PCPR1 PROCEDURE INT-ISI-47 Rev. 0

EXAMINER [signature] James R. Dellinger II DATE 2-15-89; 2-16-89
[signature] LEVEL II

RELATED TO: U/T ✓ P/T _____ M/T _____ V/T _____ ITEM(S): 1 + 2

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



① 1" INSTRUMENTATION LINE 6½" FROM WELD & LIMITS 45° + 60° 2 SCAN.
② 2"x2" WELDED PAD 3" FROM WELD & LIMITS 0°, 45° + 60° 2, 7 + 8 SCANS.
③ 2"x2" WELDED PAD 2⅞" FROM WELD & LIMITS 0°, 45° + 60° 5, 7 + 8 SCANS.
④ 1" INSTRUMENTATION LINE 6½" FROM WELD & LIMITS 45° + 60° 2 SCAN
⑤ INSULATION SUPPORT RING 4½" FROM WELD & LIMITS 0°, 45° + 60° 5, 7 + 8 SCANS.
⑥ PERMANENT INSULATION, LIMITS 45° + 60° 8 SCANS + 60° 2 + 5 SCANS.
⑦ WELD CONFIGURATION LIMITS 0°, 45° + 60° 7 + 8 SCANS

ABS/HGB 2-23-89

F49077

Attachment to IPN-02-024, RR3-14, Rev. 1

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

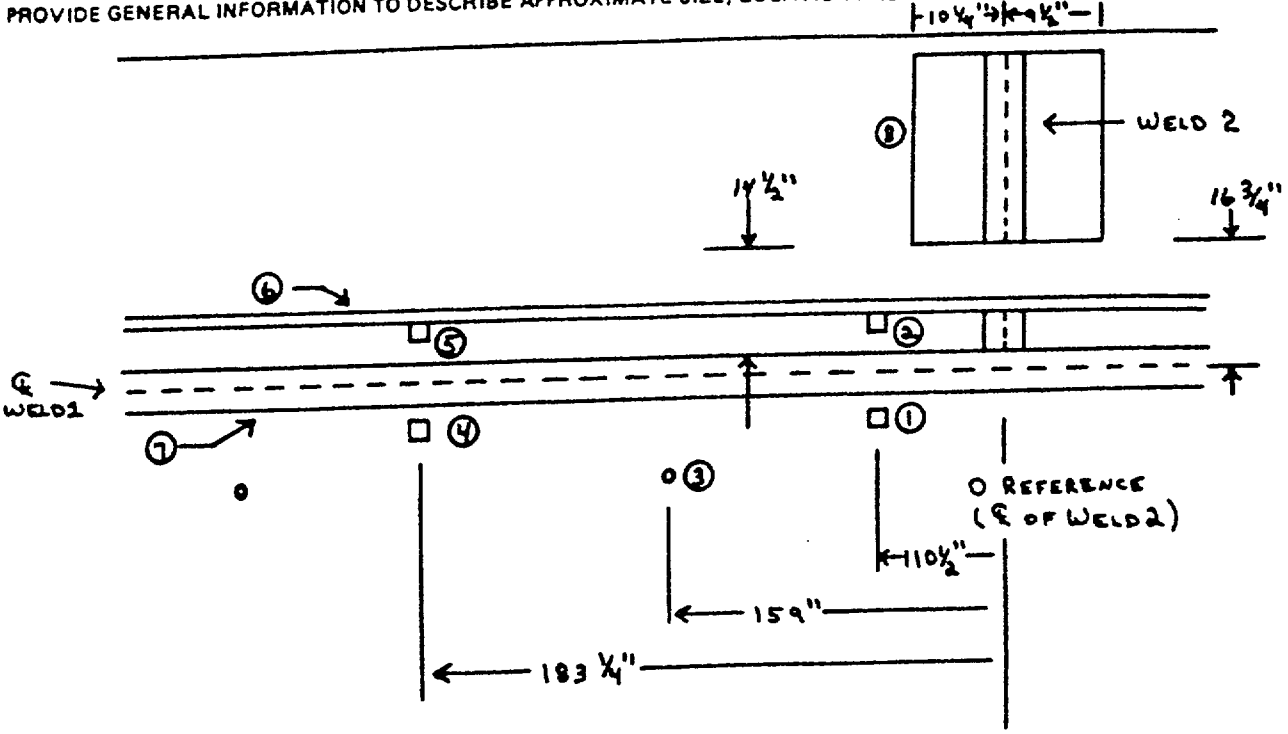
PLANT INDIAN POINT UNIT No.3 SKETCH INT-1-2100

SYST/COMP PRESSURIZER RCPC PRI PROCEDURE INT-ISI-47 REV. 1

EXAMINER James R. DeBruno LEVEL II William F. Kelley Robert S. Carlat DATE 10-21-90

RELATED TO: U/T ✓ P/T ____ M/T ____ V/T ____ ITEM(S): 1 + 2

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



① 2"x2" WELDED PAD 3" FROM WELD ℄ LIMITS 0°, 45°+60° 2, 7+8 SCANS
② 2"x2" WELDED PAD 3" FROM WELD ℄ LIMITS 0°, 45°+60° 5, 7+8 SCANS
③ 1" INSTRUMENTATION LINE 6½" FROM WELD ℄ LIMITS 45°+60° 2 SCAN
④ 2"x2" WELDED PAD 3" FROM WELD ℄ LIMITS 0°, 45°+60° 2, 7+8 SCANS
⑤ 2"x2" WELDED PAD 2¾" FROM WELD ℄ LIMITS 0°, 45°+60° 5, 7+8 SCANS
⑥ INSULATION SUPPORT RING 4½" FROM WELD ℄ LIMITS 0°, 45°+60° 5, 7+8 SCANS
⑦ WELD CROWN LIMITS 0°, 45°+60° 2, 5, 7+8 SCANS
⑧ PERMANENT INSULATION LIMITS 45°+60° 2+5 SCANS

APB/HSB 11-2-90

10/23/90

Attachment to IPN-02-024, RR 3-14, Rev. 1

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

LIMITATION TO EXAMINATION

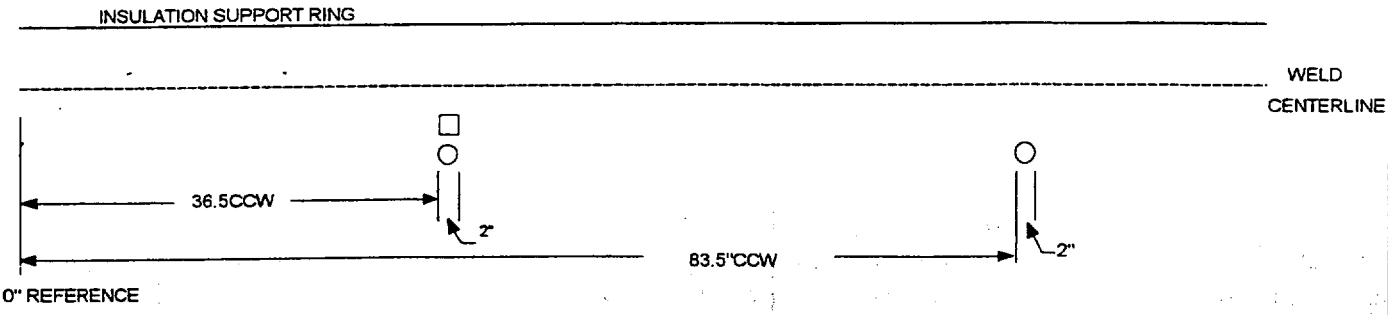
PLANT INDIAN POINT UNIT NO. 3 SKETCH INT-1-2100 REV. 7

SYST./COMP. PRESSURIZER RCPCPR1 PROCEDURE INT-ISI-47 REV. 1

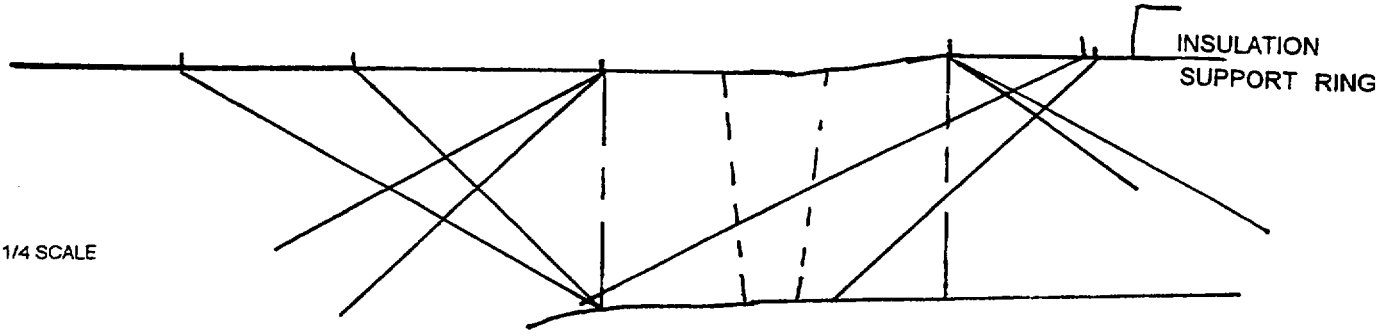
EXAMINER [signature] LEVEL II DATE 6-9-97

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S) WELD #1

PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



INSULATION SUPPORT RING 5.6" FROM WELD TOE ON 5 SIDE LIMITS 60°, 5 SCAN
2 INSTRUMENTATION NOZZLES, 2 SIDE, 4" FROM WELD TOE LIMITS , LIMITS 45° & 60° SCAN FOR 4"
1 2"X2" WELDED PAD, 2 SIDE, 1.5" FROM TOE OF WELD, LIMITS ALL SCANS FOR 2"
9% EXAM REQUIRED VOLUME NOT COVERED.
45° 99% EXAMINED
60° 91% EXAMINED
0° 99% EXAMINED



NEW YORK POWER AUTHORITY LEVEL III REVIEW / DATE [signature] 6/13/97

ANII REVIEW / DATE [signature] 6-13-97

F4907

RELIEF REQUEST NUMBER 3-16, Rev. 1
(Page 1 of 3)

A. COMPONENT INDENTIFICATION

Code Class:	1
References:	Table IWB-2500- 1, Figure IWB-25OO-7
Examination Category:	B-D
Item Number:	B3.120
Description:	Inspection of Pressurizer Nozzle Inside Radius Sections

B. CODE REQUIREMENT

Table IWB-2500-1, Category B-D, requires a volumetric examination of the pressurizer nozzle inside radius section.

C. RELIEF REQUESTED

Indian Point 3 requests relief from the performing the code required volumetric examination of the pressurizer nozzle inside radius section.

D. BASIS FOR RELIEF

Pursuant to 10 CFR 50.55a(3)(i), relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety. The pressurizer was designed and fabricated to Codes in effect during the late 1960s. The Codes used did not provide for full access for inservice inspection, nor did they require a surface finish in the nozzle area suitable for UT examination. The design of the nozzles, utilizing a gradual inside radius section, is specifically intended to reduce stress in this area and minimize the conditions that might lead to cracking.

The nozzles on the pressurizer are cast with the vessel heads. The identification numbers for these nozzles are 20IR, 21IR, 22IR, 23IR, 24IR, and 25IR as shown on sketch INT-1-2100. The as-cast surface of the heads, combined with the geometry of this area, makes ultrasonic examination of the nozzle inner radii impractical (see drawing 681J281). The geometry and size of the nozzles are such that a radiographic examination is not feasible. Specifically, the radiographic test film cannot be situated properly from the I.D. due to a lack of interior structure. Placement of the source will not allow proper film to source distance, resulting in greatly reduced sharpness. Surface and visual examinations would be restricted by anticipated high radiation levels and the as-clad surface.

RELIEF REQUEST NUMBER 3-16, Rev. 1
(Page 2 of 3)

A similar relief to perform only the visual, VT-2 examination was initially requested for the 2nd ISI Interval, but was granted with an additional condition to perform a remote video examination of the pressurizer nozzle inside radius sections, with the exception of the pressurizer surge nozzle (25IR) which has a retaining basket covering the outlet to preclude remote visual examination (Reference SER dated December 21, 1994, TAC NO. M8269 for Relief Request No. 9). These pressurizer nozzle inside radius sections were remote visually inspected during the Second ISI Interval (Refueling Outage 10 in 1999). No evidence of cracking was found.

E. PROPOSED ALTERNATE EXAMINATION

In lieu of the code-required volumetric examination all nozzles (with the exception of Pressurizer Surge Nozzle 25IR) will be examined visually (VT-3) using a remote color video camera. This visual (VT-3) examination for all the accessible nozzles will be performed at the same time during an outage when the Pressurizer manway cover is removed for maintenance activities; or by the end of the 10-Year interval for ISI inspection. In addition, all nozzles will be visually examined (VT-2) at each refueling outage during system pressure tests in accordance with IWB-2500, Category B-P, and Code Case N-498-1. It is expected that any through wall defects would be detected by the proposed alternate examinations prior to failure of the component. This is based on the expectation that the component will experience leakage before a catastrophic failure ("leak before break")

F. JUSTIFICATION FOR RELIEF

The type and frequency of examinations proposed for the nozzles are the same as previously approved for the 2nd inspection interval. Based on the reliable operating history of this and similar vessel nozzles at other plants, and the satisfactory remote visual examination results from the inspection performed in 1999, the granting of this relief to perform the remote visual VT-3 and the VT-2 examination of the pressurizer nozzles during system pressure test will not decrease the overall level of quality and safety. The remote visual examination will be the alternate examination for the 3rd Interval.

Since access to perform the VT-3 visual examination is through the pressurizer manway, it will be performed during the interval when the pressurizer manway is scheduled for removal due to maintenance purposes. Otherwise, the VT-3 examination will be performed at the end of the interval when the manway will be removed for the proposed alternate ISI examination. All the accessible nozzles will be examined at the same time to minimize impact on outage schedules, radwaste generation and radiation exposures. During the 2nd Interval, a total of 150 mRem was recorded for the performance of this remote visual (VT-3) examination.

RELIEF REQUEST NUMBER 3-16, Rev. 1
(Page 3 of 3)

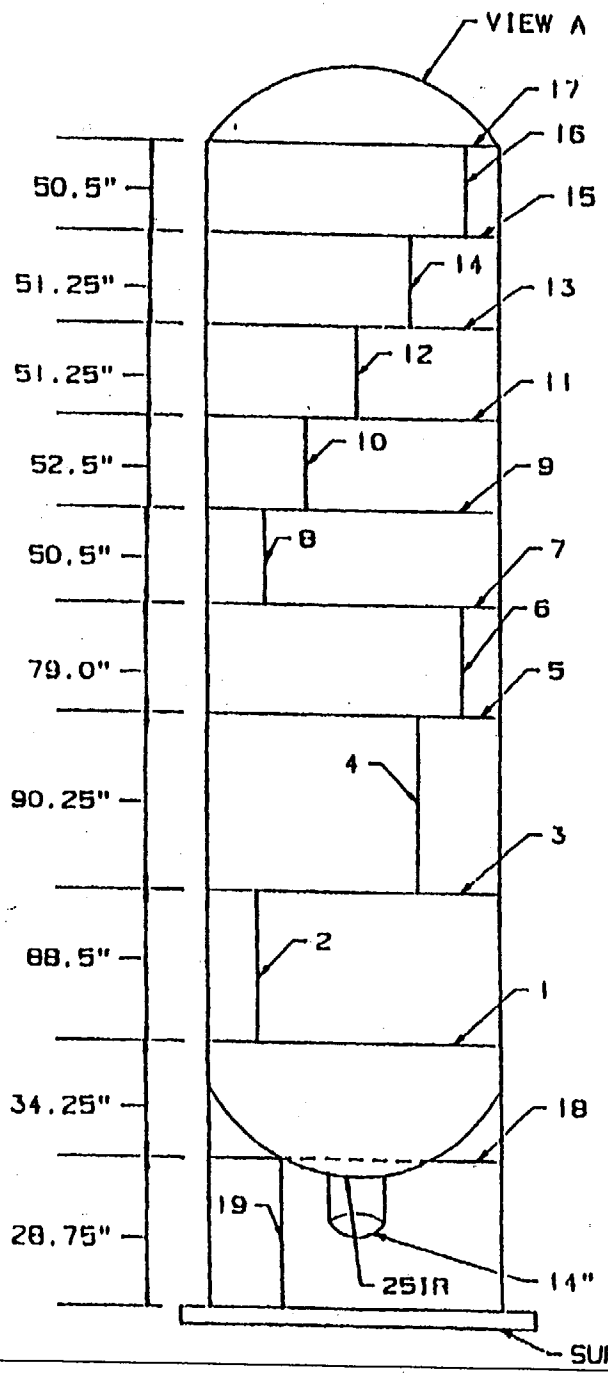
G. PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the third inspection interval, July 21, 2000 through July 20, 2009.

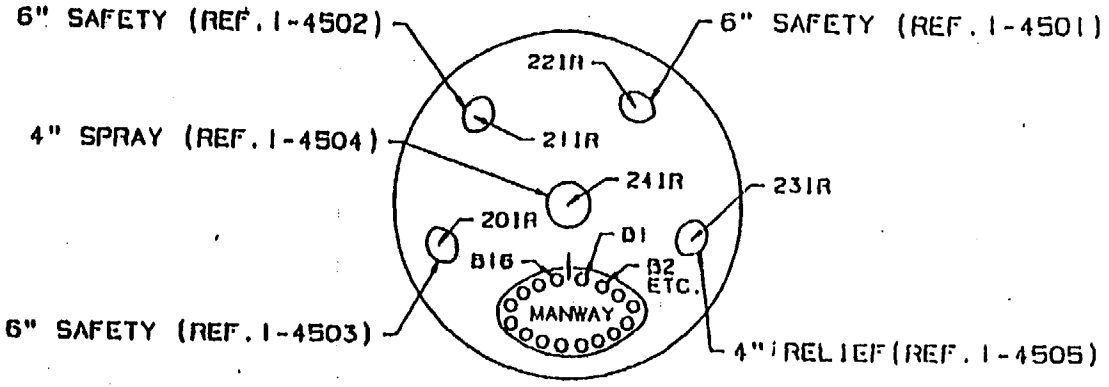
H. ATTACHMENTS

- Sketch INT-1-2100
- Drawing 681J281, Rev.4

PRESSURIZER



VIEW A



WELDS 1 THRU 17: SHELL: 4.75"T SA 302 GRADE B CARBON STEEL
UPPER & LOWER HEAD: 4.75"T SA216 GRADE WCC CARBON STEEL
DIAMETER: 92.375" ; CIRCUMFERENCE: 290.05"
NOZZLE TO VESSEL WELDS: NOT APPLICABLE
NOZZLE INSIDE RADIUS SECTION: 201R THRU 251R
INTEGRALLY WELDED ATTACHMENT SUPPORT SKIRT WELD 18.
1.5"T CARBON STEEL PLATE TO SA516 GRADE 70 CARBON STEEL
MANWAY BOLTING: 16-1.88" DIAMETER
SUPPORTS: REF. INT-1-2100A

NOTE: SAFETY NOZZLE LOCATIONS PER CON.ED. DRAWING A202108 AND LINE NUMBER STAMPED ON INTEGRALLY WELDED ATTACHMENTS RC-H-342, RC-H-343 AND RC-H-344.
NOTE: WELD 2-0" TO 15" (ADJACENT WELD 1) INACCESSIBLE DUE TO PERMANENT INSULATION.
WELD 19 LOCATED 25" CCW FROM WELD 2.

ENTERGY NUCLEAR NORTHEAST INDIAN POINT UNIT NO.3	
PRESSURIZER RCPCPR1	
INT-1-2100	REV. 8

Attachment to IPN-02-024, RR3-16, Rev. 1

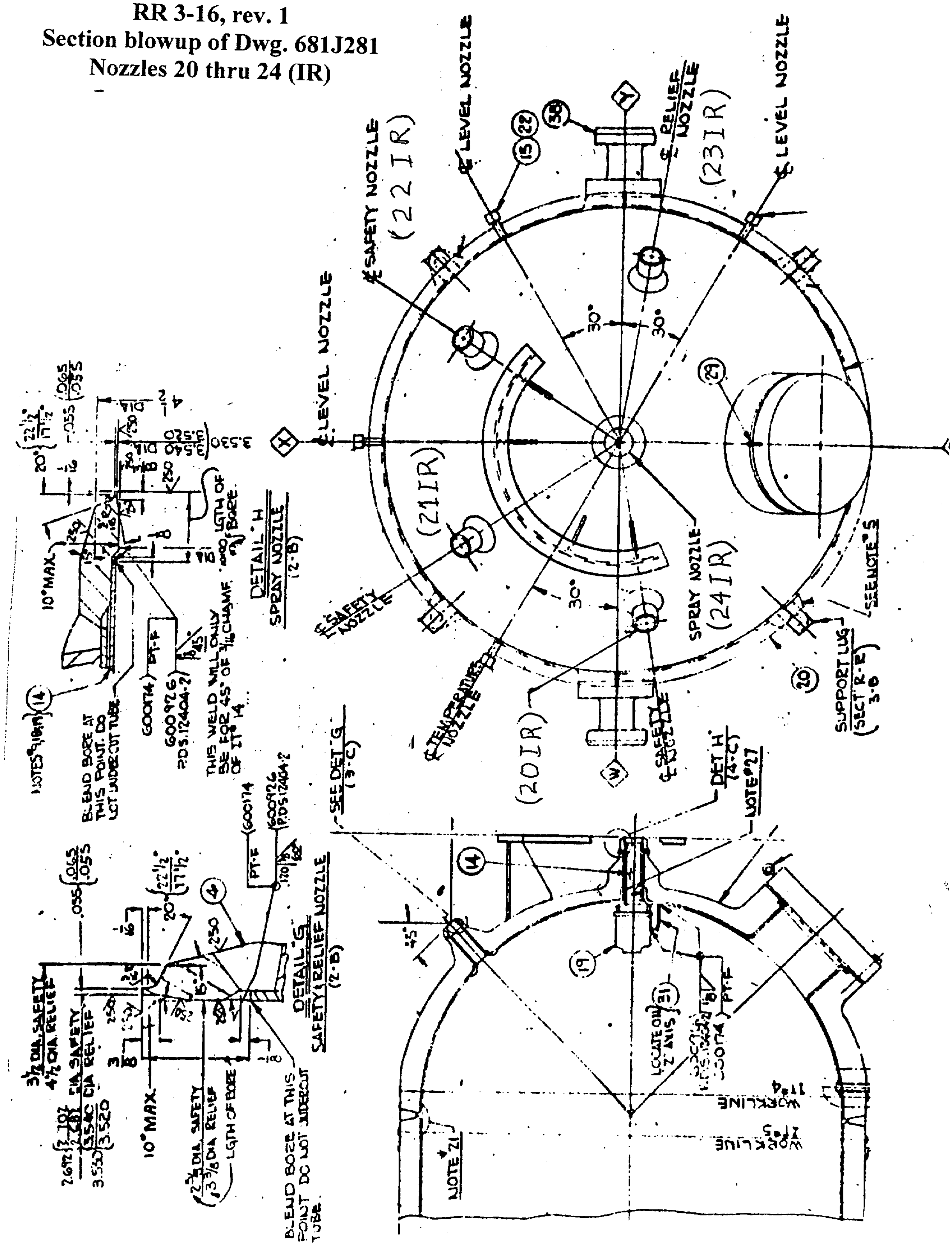
THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

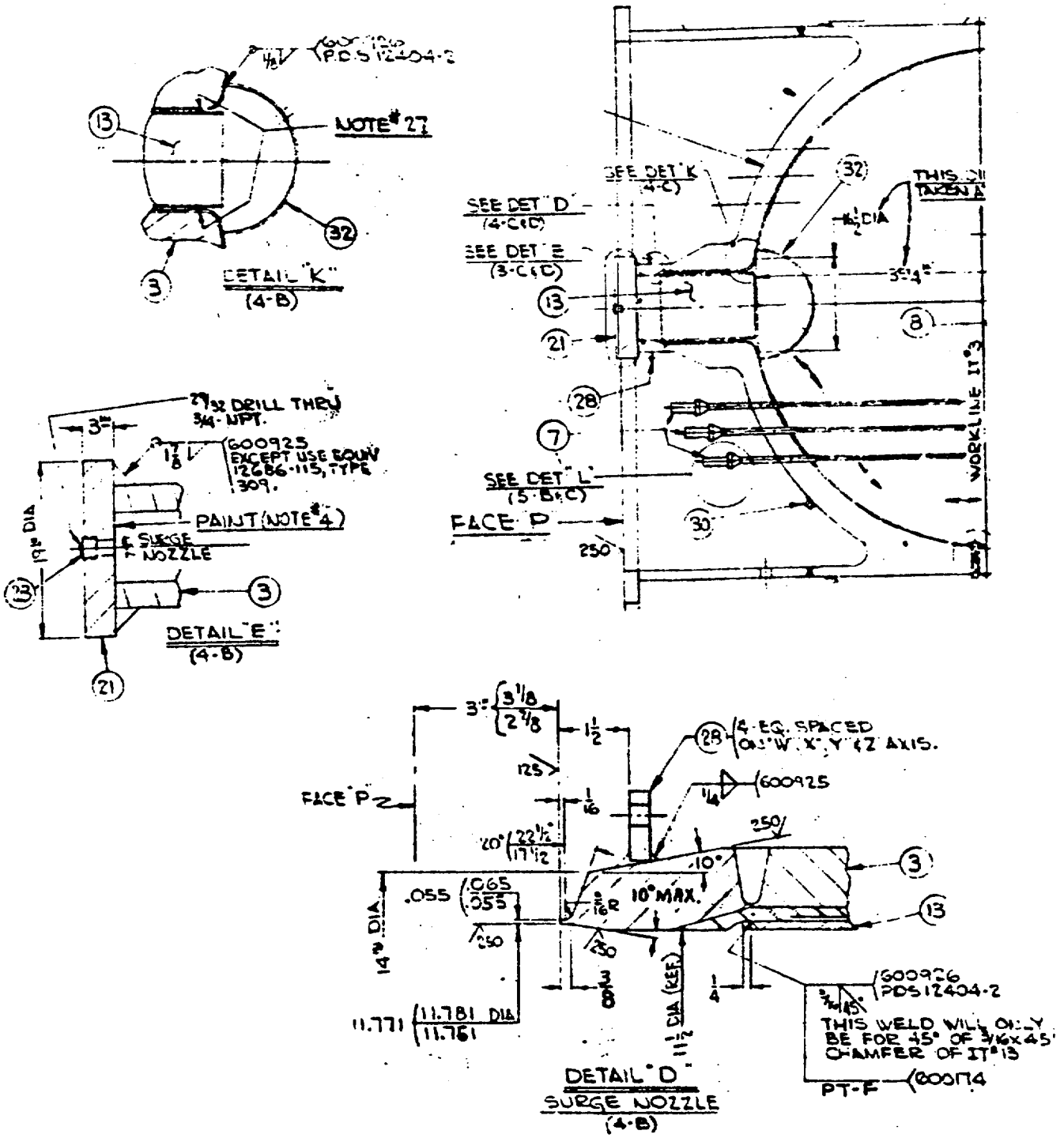
DWG. NO. 68IJ281 "GENERAL ASSEMBLY & FINAL MACHINING" WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT DWG. NO.68IJ281

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

Attachment to IPN-02-024
RR 3-16, rev. 1
Section blowup of Dwg. 681J281
Nozzles 20 thru 24 (IR)



Attachment to IPN-02-024
RR 3-16, rev. 1
Section blowup of Dwg. 681J281
25IR 14" Surge Nozzle



Attachment to IPN-02-024
RR 3-16, rev. 1
Section blowup of Dwg. 681J281
Bill of Material

1st PW CODE / 2nd PHASE CODE	SYMBOL	ITEM	DESCRIPTION, MATERIAL DIMENSIONS AND/OR PATTERN NO., AND/OR STYLE NO.	DRAWING	NT.	MATL SPEC	ASSY SYM / REQ FOR 1 UNIT	UNIT WT
		1	GENERAL ASS'Y (FINAL MACHINING (NOTE #1)	3 THRU 32		—	1	
		2						
		3	LOWER HEAD ASS'Y GP #1	681J232		—	1	[illegible]
		4	UPPER HEAD ASS'Y GP #1	681J253		—	1	15,395
		5	SHELL BARREL GP #3	4417D15		—	1	[illegible]
		6						
		7	HEATER ASS'Y	393A701	3	—	78	
		8	HEATER SUPPORT PLATE	4417D79	1	—	1	48.
		9	HEATER SUPPORT PLATE	4417D79	2	—	1	125
		10	HEATER SUPPORT PLATE	4417D79	3	—	4	500
		11	BRACKET ASS'Y GP #2	632C555		—	8	21.0
		12	BRACKET ASS'Y GP #3	632C555		—	4	60
		13	THERMAL SLEEVE (SURGE NOZZLE)	465B088	1	—	1	31.0
		14	THERMAL SLEEVE (SPRAY NOZZLE)	632C560	5	—	1	
		15	PIPE SUB ASS'Y-PR DWG 456B820 GP #3	—		—	9	5.5
		16						
		17	NAME PLATE (BRACKET GP #1	389A209		—	1	2.0
		18	RATING PLATE (BRACKET GP #1	267AT19		—	1	5.0
		19	SPRAY NOZZLE (NOTE #20)	—		(NOTE #20)	1	[illegible]
		20	INSULATION ANGLE (NOTE #31) GP #3	650B012		—	10	308.0
		21	TEST CAP - FR 19" DIA X 3" THK			SA-216 GR WCA	1	250
		22	PIPE PLUG - 1/2 FIG #3 (NOTE #15)	16590		76260EA	9	—
		23	PIPE PLUG - 3/4 FIG #4 (NOTE #4)	16590		76260EA	1	—
		24						—
		25	BOLT - 5/8-11 X 2 1/4 LG (STAMP SYM TP. 304)	16462		(NOTE #2)	RA	—
		26	WASHER - 1 1/4 O.D X 11/16 I.D X 1/8 (25% ALL OVER)			(NOTE #2)	RA	—
		27	NUT - 5/8-11 STYLE NO 460B496410			—	RA	—
		28	BRACKET	632C560	2	—	4	
		29	EYEBOLT DWG # 270A004 H02			—	1	—
		30	NUT - 1/2-11 STYLE NO 460B496008			—	KG	—
		31	LOCKING BAR	632C560	3	—	1	
		32	RETAINING BASKET	632C560	1	—	1	
		33						

INDIAN POINT UNIT NO. 3
THIRD INSPECTION INTERVAL
RELIEF REQUEST NO. RR 3-17, Rev. 2

A. COMPONENT INDENTIFICATION

IWA-4000/All ISI Class 3 moderate energy service water piping.

B. CODE REQUIREMENTS

ASME Code, Section XI, IWA-4310 requires that the defect be removed or reduced in size in accordance with Article IWA.

C. RELIEF REQUESTED:

Relief is requested from removing defects and repairing in accordance with the design specification or the original construction code for internal wall thinning or pitting resulting from conditions such as, but not limited to, microbiological corrosion; cavitations induced pitting; erosion/corrosion and/or localized pitting corrosion.

The ASME Section XI Code Committee recognized that an alternative repair approach existed for internal wall thinning of Class 3 piping systems which have experienced degradation mechanisms, such as flow-assisted corrosion and/or microbiological corrosion that would provide an acceptable repair configuration. This alternative repair technique as described in Code Case N-562-1 involves the application of additional weld metal on the exterior of the piping system, which restores the wall thickness requirement. Code Case N-562-1 was approved by the ASME Section XI Code Committee on July 30, 1998. However, it has not been incorporated into NRC Regulatory Guide 1.147 and thus is not available for application at nuclear power plants.

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative will provide an acceptable level of quality and safety. This relief request applies to all ASME Class 3 moderate energy (i.e., less than or equal to 200°F and/or less than or equal to 275 psig maximum operating conditions) carbon steel plant service water piping systems.

Entergy Nuclear Operations, Inc. (ENO) also proposes to use the following welding processes for the weld overlay: Shielded Metal Arc Welding (SMAW); Gas Tungsten Arc Welding (GTAW) -manual and/or automated); Gas Metal Arc Welding (GMAW) and Flux Cored Arc Welding (FCAW). The overlays may be installed on water backed piping or piping that is empty.

D. BASIS FOR RELIEF

Code Case N-562-1 provides alternative requirements to those of IWA-4000 and for the repair of internal piping system defects or degradation. The ASME XI Code Committee determined that the weld overlay would ensure that an adequate level of quality and safety was being maintained. Therefore, the proposed alternative is justified per 10CFR50.55a(a)(3)(i) as the proposed repair will provide an acceptable level of quality and safety. The primary purpose for implementing this repair method is to allow adequate time for additional examination of adjacent piping so that pipe replacement

can be planned to reduce impact on system availability including Maintenance Rule applicability, availability of replacement materials and cost. In addition, use of Code Case N-562-1 may reduce outage schedules, as installation of a weld overlay would avoid the need for a pipe replacement and corresponding system line-ups and drain-downs during scheduled refueling outages.

A similar relief request was approved at Southern Nuclear Operation Company's Hatch Plant, Units 1 and 2 (Reference SER dated May 31, 2000, TAC Nos. MA 6123 and MA 6124).

E. ALTERNATIVE REPAIR TECHNIQUE:

ENO will implement the requirements of Code Case N-562-1 in its entirety with the additional restrictions and exceptions as described below, for Class 3 moderate energy (i.e., $\leq$ 200°F and/or $\leq$ 275 psig maximum operating pressure) piping system repairs resulting from phenomenon such as flow-assisted corrosion and/or microbiological corrosion. These types of defect are typically identified by small leaks in the piping system or by pre-emptive non-code and code-required examinations performed by the licensee to monitor the degradation mechanisms. The repair technique described in Code Case N-562-1 will be utilized whenever engineering evaluation determines that such a repair is suitable for the particular defect or degradation being resolved.

Provisions for use of this Code Case will be addressed in the repair and replacement program procedure. These provisions will require that adjacent areas be examined to verify that the repair will encompass the entire flawed area and that there are no other unacceptable degraded locations within a representative area dependent on the degradation mechanism present. An evaluation of the degradation mechanism will be performed to determine the re-examination schedule to be performed over the life of the repair. The repair will be considered to have a maximum service life of two operating cycles at which time an ASME Section XI code repair (typically a pipe replacement) will replace the weld overlay unless specific approval is requested and received from the NRC to make it permanent.

The NRC had previously approved Indian Point Unit 3 relief request No. 3-7 (Reference SER dated May 17, 2001, TAC NO. MA9757) to utilize ASME Section XI Code Case N-532. Code Case N-532 provides alternatives for the documentation requirements for repair and replacement activities. Code Case N-532 allows use of Form NIS-2A in lieu of Form NIS-2 as required by Code Case N-562-1, paragraph 7.0. Therefore, Entergy will document the use of Code Case N-562-1 on Form NIS-2A in lieu of Form NIS-2.

F. IMPLEMENTATION SCHEDULE

The relief request is applicable for the Third 10-Year Interval and will be utilized upon receipt of NRC approval.

G. ATTACHMENTS TO THE RELIEF REQUEST:

Code Case N-562-1.

Attachment to IPN-02-024
RR 3-17, Rev. 2

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: July 30, 1998

See Numeric Index for expiration and any reaffirmation dates.

Case N-562-1
Alternative Requirements for Wall Thickness Restoration of Class 3 Moderate Energy Carbon Steel Piping
Section XI, Division 1

Inquiry: As an alternative to replacement or internal weld repair, what requirements may be applied for wall thickness restoration of Class 3 moderate-energy carbon steel piping systems that have experienced internal wall thinning or pitting from conditions such as, but not limited to, flow-assisted corrosion and microbiological corrosion?

Reply: It is the opinion of the Committee that areas of Class 3 moderate energy (i.e., less than or equal to 200°F or and less than or equal to 275 psig maximum operating conditions) carbon steel piping experiencing internal thinning or pitting may have the wall thickness restored externally by means of a weld-deposited carbon or low-alloy steel reinforcement on the outside surface of the piping in accordance with the following requirements. Excluded from these provisions are conditions involving corrosion-assisted cracking or any other form of cracking.

1.0 GENERAL REQUIREMENTS

(a) The wall thickness restoration shall be performed in accordance with a Repair/Replacement Plan satisfying the requirements of IWA-4150.[1]

(b) The wall thickness restoration shall meet the requirements of IWA-4000,[2] except as stated in this Case.

(c) If the minimum required thickness of deposited weld metal necessary to satisfy the requirements of para. 3.0 is greater than the nominal thickness for the size and schedule of the piping, the provisions of this Case shall not apply. In addition, the total thickness of filler metal applied over multiple repairs shall not exceed the original nominal thickness of the piping.

2.0 INITIAL EVALUATION

The material beneath the surface to which the weld overlay is to be applied shall be evaluated to establish the existing average wall thickness and the extent and configuration of degradation to be reinforced by the weld overlay. Consideration shall be given to the cause of degradation. The extent of degradation in the piping, and the effect of the repair on the piping, shall be evaluated in accordance with IWA-4160.[3]

3.0 DESIGN

3.1 General Design Requirements

(a) Unless otherwise established by theoretical or experimental analysis, or by proof testing as provided for in para. 3.3 or para. 3.4, the full thickness of the weld overlay shall extend a distance of at least s in each direction beyond the area predicted, over the design life of the restoration to infringe upon the required thickness.[4]

where

$s = \geq \frac{3}{4}\sqrt{Rt_{nom}}$

R = outer radius of the component

t_{nom} = nominal wall thickness of the component

Edges of the weld overlay shall be tapered to the existing piping surface at a maximum angle ("α" in Fig. 1) of 45 deg. Final configuration of the reinforcement shall permit the examinations and evaluations required herein, including any required preservice or inservice examinations of encompassed or adjacent welds.

[1] IWA-4140 in the 1989 Edition with the 1991 Addenda through 1995 Edition. IWA-4130 (Repair Progam) in the 1989 Edition with the 1990 Addenda and earlier Editions and Addenda.

[2] IWA-4000/7000 and IWC/IWD-4000/7000, as applicable, in the 1989 Edition with the 1990 Addenda and earlier Editions and Addenda.

[3] IWA-4150 in the 1989 Edition with the 1991 Addenda through 1995 Edition. IWA-4130 (Repair Program) in the 1989 Edition with the 1990 Addenda and earlier Editions and Addenda.

[4] Design thickness as prescribed by the Construction Code.

(b) The thickness shall be sufficient to maintain required thickness for the predicted life of the repair, and, except for the tapered edges, the overlay shall have a uniform thickness.

(c) The tensile strength of the weld filler metal for the reinforcement shall be at least that specified for the base metal to which it is applied.

(d) The predicted maximum degradation of the overlaid piping and the overlay over the design life of the restoration shall be considered in the design. The predicted degradation of the piping shall be based upon in-situ inspection and established data for similar base metals. If the weld overlay is predicted to become exposed to the corroding medium, the predicted degradation of the overlay shall be based upon established data for base metals or weld metals with similar chemical composition to that of the filler metal used for the weld overlay.

(e) The effect of weld overlay application on interior coating shall be addressed in the Repair/Replacement Plan [Repair Program].

3.2 Design

The design of weld overlays not prequalified by paras. 3.3, 3.4, or 3.5 shall be in accordance with the applicable requirements of the Construction Code or ND-3100 and ND-3600 (including Appendix II), and shall consider the weld overlay as an integral portion of the piping or component upon which it is applied (not as a weld). The allowable stress values of the base metal shall apply to the design of the deposited weld metal. The following factors shall be considered, as applicable, in the design and application of the reinforcement:

(a) The shrinkage effects, if any, on the piping.

(b) Stress concentrations caused by application of the overlay or resulting from existing and predicted piping internal surface configuration.

3.3 Proof Test Qualification as a Piping Product

As an alternative to design, the configuration of weld overlays may be qualified by performance of proof testing of a mockup in accordance with the following requirements:

(a) A satisfactory mockup burst test shall qualify the design or configuration for application in the same orientation on the same type of item, and the same location on fittings, when the following conditions are satisfied (see Fig. 1):

(1) the base metal is of the same P-No. and Group Number when impact properties are applicable, as the base metal tested;

(2) the specified minimum tensile strength of the item does not exceed that specified for the base metal tested;

(3) the average thickness of the overlay areas is at least the thickness of the mockup plug, u;

(4) the overlap on the full thickness of base metal, s, is at least that of the mockup;

(5) the transition angle at the outer edges of the overlay, α, is not greater than that of the mockup;

(6) the overlay surface finish is similar to or smoother than that tested;

(7) the maximum proportionate axial dimension, L/D, is not more than that tested;

(8) the maximum proportionate circumferential dimension, C/D, is not more than that tested;

(9) the nominal diameter is not less than one-half nor more than two times the diameter tested;

(10) the nominal thickness/diameter ratio, t/D, is not less than one-half nor more than three times the t/D, ratio tested.

(b) The mockup base shall consist of new base material of similar configuration, or type of item, as the item to be overlaid. A rounded-corner segment of the base material shall be removed to represent the maximum proportionate size (axial dimension of L and circumferential dimension of C) and location of thinning or pitting to be compensated for by the weld overlay. A plug of the same base metal and of uniform thickness u, which shall not exceed the smallest average thickness on which the overlays will be permanently applied, shall be full-penetration welded around the opening and flush with the outside surface of the piping. Alternatively, an equivalent volume of base metal may be removed from the inside surface of the mockup by machining or grinding, without need for welding in a closure plug.

(c) The mockup weld overlay shall be applied in accordance with the design or specified configuration using the specified weld filler metal. Maximum section thickness at the overlaid opening (weld metal plus base metal plug, $u + w$) shall not exceed $87\frac{1}{2}\%$ of the nominal thickness of the piping.

(d) Straight pipe equivalent to a minimum of one pipe diameter, or one-half diameter for piping over NPS 14, shall be provided (butt-welded to the mockup, if necessary) beyond both ends of the overlay. The piping shall be capped and the completed mockup assembly shall be thoroughly vented and hydrostatically

pressure tested to bursting. To qualify the design for general application within the limits of para. 3.3(a), burst pressure shall not be less than:

$$P = \frac{2tS_{act}}{D_o}$$

where

P = minimum acceptable burst pressure, psi
t = minimum specified thickness (excluding manufacturing tolerance) of the base metal being tested, in.
S_{act} = reported actual tensile strength of the base metal being tested, psi
D_o = outside diameter of the pipe, in.

(e) If flexibility analysis was required by the original Construction Code, the effect of the weld overlay shall be reconciled with the original analysis. In this case, for rectangular-shaped overlays on piping designed to ND-3650 and aligned parallel or perpendicular to the axis of the piping, unless a lower stress intensification factor (SIF or i) is established, an SIF (i) of 2.1 shall be applied for overlays on straight pipe and adjacent welds; a stress *multiplier* of 1.7 shall be applied to the SIF (i) for standard elbows; and an SIF (i) of 2.1 shall be applied for tees and branch connections when the toe of the overlay is not less than $2\frac{1}{2}\sqrt{Rt_{nom}}$ from any branch reinforcement in Fig. 1.

3.4 Proof Test Qualification for Specific Applications

As an alternative to design by analysis or proof test qualification as a piping product, the design or configuration of weld overlays may be qualified for limited service conditions using the provisions of ND-6900. "Proof Tests to Establish Design Pressure," except that component hydrostatic testing is not required (other than as required by IWA-4000[2]). The mockups shall be fabricated and tested in accordance with the provisions of para. 3.3(b), (c), and (d), and shall be applied in accordance with the provisions and conditions of para. 3.3(a). The provisions of para. 3.3(e) shall be met.

3.5 Prequalified Design

Application of weld overlays on straight pipe, portions of tees not less than $2\frac{1}{2}\sqrt{Rt_{nom}}$ from any branch reinforcement in Fig. 1 standard elbows, and associated welds to correct limited degradation shall be exempt from the requirements of para. 3.2 through para. 3.4, provided all of the following conditions are satisfied in Fig. 1:

(a) All of the requirements of para. 3.1 apply.

(b) The provisions of para. 3.3(e) shall be met.

(c) The full thickness of weld overlay shall not exceed a maximum axial length of the greater of six in. or the outside diameter of the piping.

(d) The finished overlay shall be circular, oval, full-circumferential, or rectangular in shape.

(1) For each repair, the maximum dimension compensated by a circular overlay shall not exceed $\frac{2}{3}$ the nominal outside diameter of the piping.

(2) Rectangular overlays shall be aligned parallel with or perpendicular to the axis of the piping, and corners shall be rounded with radii not less than the overlay thickness.

(3) For oval overlays, the end radii shall not be less than $\frac{3}{4}\sqrt{Rt_{nom}}$, and the axis of the overlay shall be aligned parallel with or perpendicular to the axis of the piping.

(e) The distance between toes of adjacent overlays shall not be less than t_{nom}.

4.0 Water-backed Applications

(a) Manual application of overlays on water-backed piping shall be restricted to P-No. 1 base materials. Welding of such overlays shall use the SMAW process and low-hydrogen electrodes. In addition, the surface examination required in para. 6.0 shall be performed no sooner than 48 hours after completion of welding. For such overlays consideration should be given to using a temper bead technique similar to that described in IWA-4650.[5]

(b) Piping with wall thickness less than the diameter of the electrode shall be depressurized before welding.

5.0 INSTALLATION

(a) The entire surface area to which the weld overlay is to be applied shall be examined using the liquid penetrant or magnetic particle method, with acceptance criteria in accordance with ND-2500/5300 for the product form (base metal or weld) involved.

(b) If through-wall repairs are required to satisfy the acceptance criteria, or result from application of the

[5] IWA-4540 in the 1989 Edition with the 1991 Addenda through the 1995 Edition. IWE-4200 in the 1986 Edition with the 1988 Addenda through the 1989 Edition with the 1990 Addenda. IWE-4320 in the 1986 Edition with the 1987 Addenda and earlier Editions and Addenda.

weld overlay, they shall be accomplished by sealing with weld metal using a qualified weld procedure suitable for open-root welding. This weld shall be examined in accordance with para. 5.0(a). In addition, the first layer of overlay over the repaired area shall be examined in accordance with para. 5.0(a).

(c) Overlay weld metal shall be deposited using a grove-welding procedure qualified in accordance with Section IX and the Construction Code, Section X and Section III, or IWA-4610 and either IWA-4620 or IWA-4650.[6] The qualified minimum thickness specified in the weld procedure does not apply to the weld overlay or associated base metal repairs.[7]

(d) The surface of the weld overlay shall be prepared by machining or grinding, as necessary, to permit performance of surface and volumetric examinations required by para. 6.0. For ultrasonic examination, a surface finish of 250 RMS or better is required.

6.0 EXAMINATION

(a) The completed weld overlay shall be examined using the liquid penetrant or magnetic particle method and shall satisfy the surface examination acceptance criteria for welds of the Construction Code or ND-5300.

(b) The weld overlay, including the existing piping upon which it is applied, shall be examined to verify acceptable wall thickness.

(c) Weld overlays shall be volumetrically examined as base metal repairs when required by the Construction Code, except as follows:

(1) Weld overlays not exceeding 10 in.^{2} surface area are exempt from volumetric examination.

(2) Other weld overlays shall be exempt from volumetric examination when the finished applied thickness (w in Fig. 1) does not exceed.

(a) $\frac{1}{3}t$ for $t \leq \frac{3}{4}$ in.

(b) $\frac{1}{4}$ in. for $\frac{3}{4}$ in. $< t \leq 2\frac{1}{2}$ in.

(c) The lesser of $\frac{3}{8}$ in. or 10% of t for $t > 2\frac{1}{2}$ in.

where

t = finished full-section thickness of compensated area (e.g., $w + u$, in Fig. 1)

When volumetric examination is required, the full volume of the finished overlay, excluding the tapered edges, but including the volume of base metal required for the design life of the overlay, shall be examined using either the ultrasonic or radiographic method, and shall, to the depth at the surface of the existing piping, satisfy the acceptance criteria for weldments of the Construction Code or ND-5300. The volume of the existing piping, beneath the weld overlay, taken credit for in the design, shall satisfy the volumetric acceptance criteria of ND-2500/5300 for the product form, or IWA-3000.[8]

(d) Follow-up inspection shall be scheduled as necessary to confirm any design assumptions relative to rate or extent of future degradation.

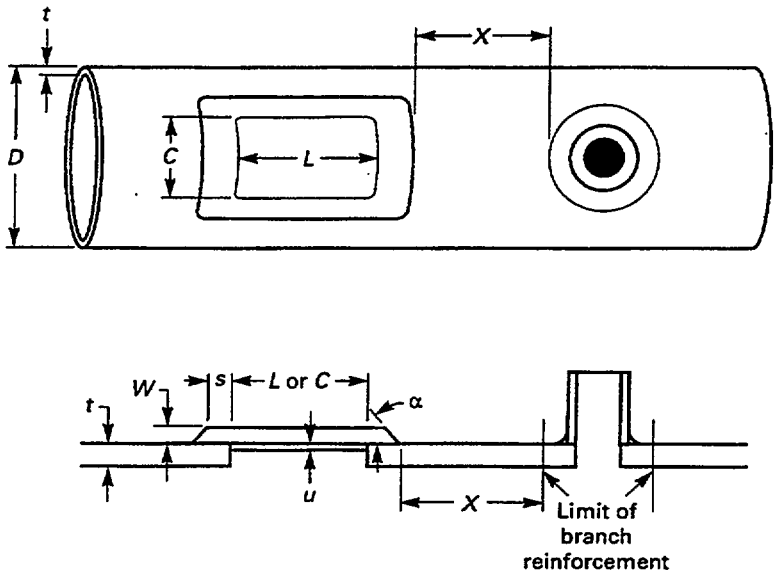
7.0 DOCUMENTATION

Use of this Case shall be documented on an NIS-2 Form.

[6] IWA-4500 and either IWA-4510 or IWA-4540 in the 1989 Edition with the 1991 Addenda through 1995 Edition. IWA-4510 or IWE-4200 in the 1986 Edition with the 1988 Addenda through 1989 Edition with the 1990 Addenda. IWB-4320 or IWE-4320 in the 1986 Edition with the 1987 Addenda or earlier Editions and Addenda.

[7] Exception to IWA-4000.

[8] IWA-3000 and IWB-3514 in the 1989 Edition with the 1990 Addenda and earlier Editions and Addenda.



$X \geq 2^1/_2 \sqrt{Rt_{nom}}$

FIG. 1