

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

February 7, 1996

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

Serial No. 96-031
NL&OS/EJW
Docket No. 50-339
License No. NPF-7

Gentlemen:

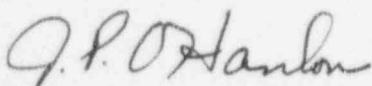
VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT 2
INSERVICE INSPECTION REQUEST FOR RELIEF

North Anna Unit 2 is presently in the second period of the second ten-year interval. Examinations are being conducted in accordance with the requirements of Section XI to the 1986 Edition of the ASME Boiler and Pressure Vessel Code.

By letter Serial No. 92-193, dated March 27, 1992, we re-submitted the North Anna Unit 2 Second Ten-Year Interval Inservice Inspection Program (original was submitted by letter Serial No. 90-662, dated November 1, 1990). A request for relief (Relief Request NDE-16) pertaining to volumetric examination of the pressurizer nozzle-to-vessel weld and nozzle inner radius section was included in that re-submittal. Relief Request NDE-16 was denied by letter dated November 5, 1992, "Safety Evaluation (SE) for North Anna Power Station, Unit No. 2 (NA-2)/Second 10-Year Inservice Inspection (ISI) Program with Associated Relief Request (TAC No. M79147)." The SE Report recommended that a remote visual examination be performed on the internal surface of the pressurizer nozzle. However, a remote examination is impractical based on restricted access to the weld area and the lack of any significant problems reported for similarly configured welds. In addition, similar relief requests have subsequently been approved for North Anna Unit 1 and Surry Unit 1. The relief request has been revised to include a more detailed basis for relief and is being re-submitted pursuant to 10 CFR 50.55a(g)(5).

If you have any further questions, please contact us.

Very truly yours,



J. P. O'Hanlon
Senior Vice President - Nuclear

Attachment

960212021? 960207
PDR ADOCK 05000339
Q PDR

AOA?
11

cc: U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W.
Suite 2900
Atlanta, Georgia 30323

R. D. McWhorter
NRC Senior Resident Inspector
North Anna Power Station

RELIEF REQUEST NDE-16 (Revised)

I. IDENTIFICATION OF COMPONENTS

Nozzle-to-Vessel Welds
Nozzle Inner Radius Section

Pressurizer: (2-RC-E-2)

<u>Drawing No.</u>	<u>Weld No.</u>
12050-WMKS-RC-E-2	9 9NIR

II. IMPRACTICABLE CODE REQUIREMENTS

Section XI of the ASME Boiler and Pressure Vessel Code, 1986 Edition, requires in Category B-D, Item No. B3.110 and B3.120, that the Pressurizer Surge Line Nozzle-to-Vessel Weld and Nozzle Inside Radius Section to be volumetrically examined. Relief is requested from these requirements.

III. BASIS FOR RELIEF

The North Anna Unit 2 pressurizer surge nozzle is surrounded by 78 heater penetrations (see attached drawings). Engineering recommends that the heater cables be disconnected prior to the removal of insulation. This recommendation is due to the possibility of damage to the heater element connections if the insulation is removed while the cables are connected.

Based upon the most recent survey of the applicable area, the dose rate is 300 MR/hour in the general area, 500 MR/hour at one foot, and 1500 to 2000 MR/hour contact. Based upon estimates provided by site Electrical Maintenance, Insulation Removal, and ISI/NDE, it would require ten man-hours to disconnect and reconnect the heater cables, four man-hours to remove and reinstall the reflective insulation and seven man-hours to prepare and examine the nozzle-to-vessel weld and nozzle inside radius section. The resulting dose estimate for these examinations is 15.3 man-rem.

Based upon a review of the fabrication drawings, the estimated percentage of the required volume that could be examined on the pressurizer surge line nozzle-to-vessel weld (9) is as follows:

<u>EXAMINATION ANGLE</u>	<u>PERCENTAGE EXAMINED</u>
45 Degrees	60%
60 Degrees	40%
0 Degrees	80%

The examination coverage of the nozzle inside radius section (9NIR) would be somewhat larger values, however; we feel that the confined access to the nozzle as a result of the pressurizer skirt, surge line piping and heater penetrations, and area dose rates would result in only a "best effort" examination in either case. Therefore, it is felt that the gain in system integrity is not commensurate with the exposure received from the examinations.

A remote visual examination of the inside surface was considered as an alternative but was eliminated for the following reasons:

- 1) Access to the pressurizer surge nozzle is restricted by a strainer basket. The basket has $\frac{3}{8}$ inch holes on a $\frac{1}{2}$ inch triangular pattern. The distance from the manway to the nozzle is over 40 feet long. It would be difficult to position a borescope to obtain 100% coverage.
- 2) This examination was performed at another utility with a similar arrangement. They were not able to pass a borescope through the strainer. The surface of the area below the strainer was reported to be murky and did not give the best picture. The examination did reveal some cracks in the cladding. These cracks were evaluated by UT and determined to be very shallow. The cladding cracks were determined to be caused by thermal shock of cold water flowing into the pressurizer while it was empty with the heaters on.
- 3) Aside from the event referenced in item 2, we know of no other problem reported by industry or the NRC concerning cracking in the area of the pressurizer nozzle.

A similar relief request was approved for North Anna Unit 1 and Surry Unit 1.

IV. ALTERNATIVE EXAMINATION

A visual (VT-2) examination of the pressurizer surge line nozzle-to-vessel weld will be performed during the normally scheduled system leakage test each refueling. In addition, Technical Specifications requires that the Reactor Coolant System Leak Rate be limited to one gallon per minute unidentified leakage. This value is calculated at least once per 72 hours. Additionally, the containment atmosphere particulate radioactivity is monitored every 12 hours. No additional alternative requirements are deemed necessary.

.25 [6.4] MIN. R.

1

SEE DETAIL "C"

12 5 11

5

2.00 R.
[50.8]

SEE DETAIL "B"

46.54
46.04

[1182.1]
[1169.4]

C.G.

SURGE
NOZZLE

31.00 DIA.
[787.4]

7

55.00
[1397.0]

6

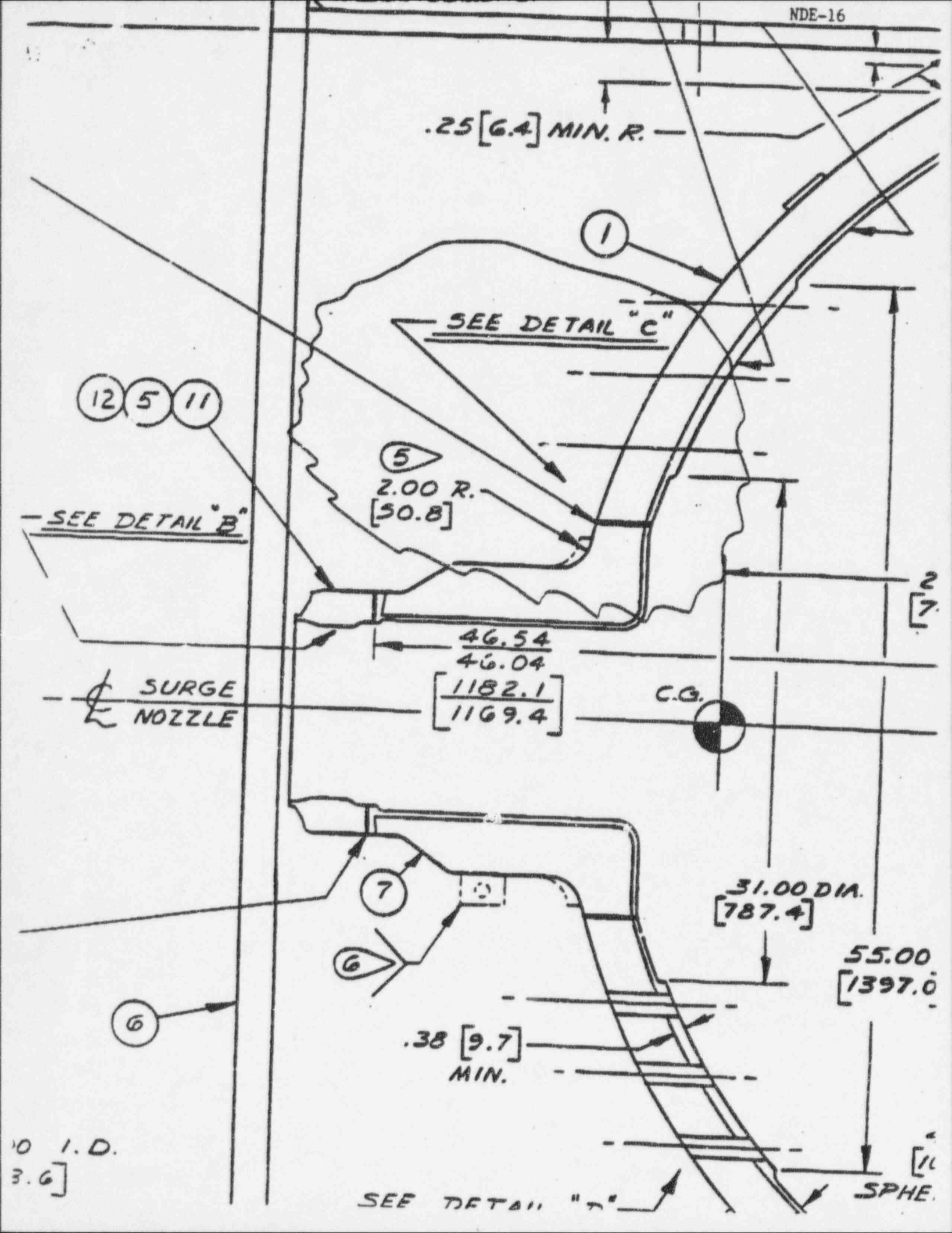
.38 [9.7]
MIN.

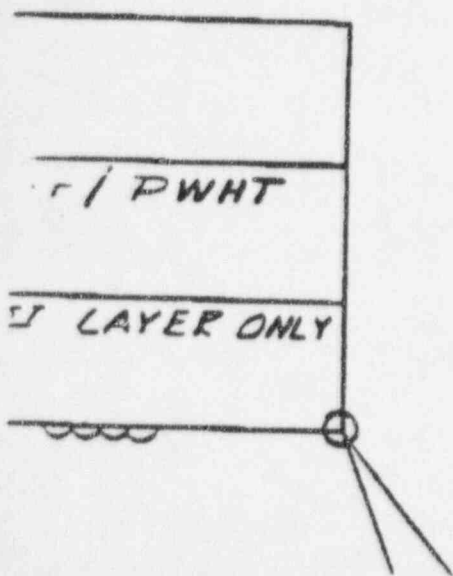
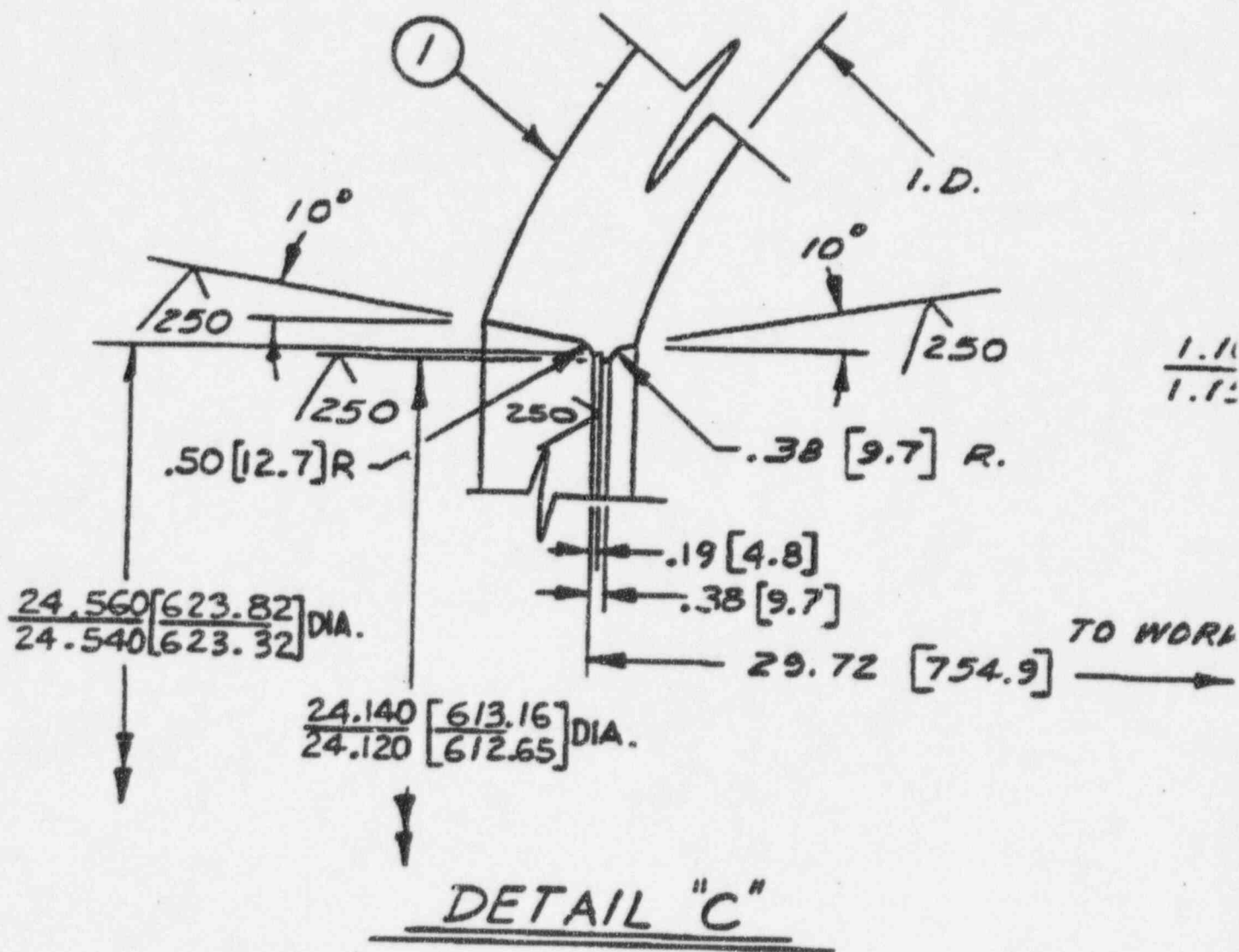
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10 I.D.
[3.6]

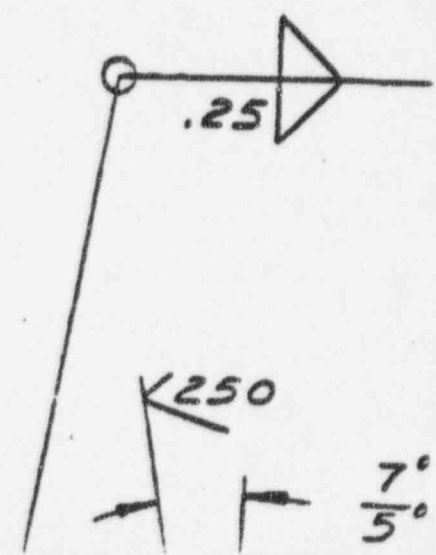
SEE DETAIL "D"

SPHE.



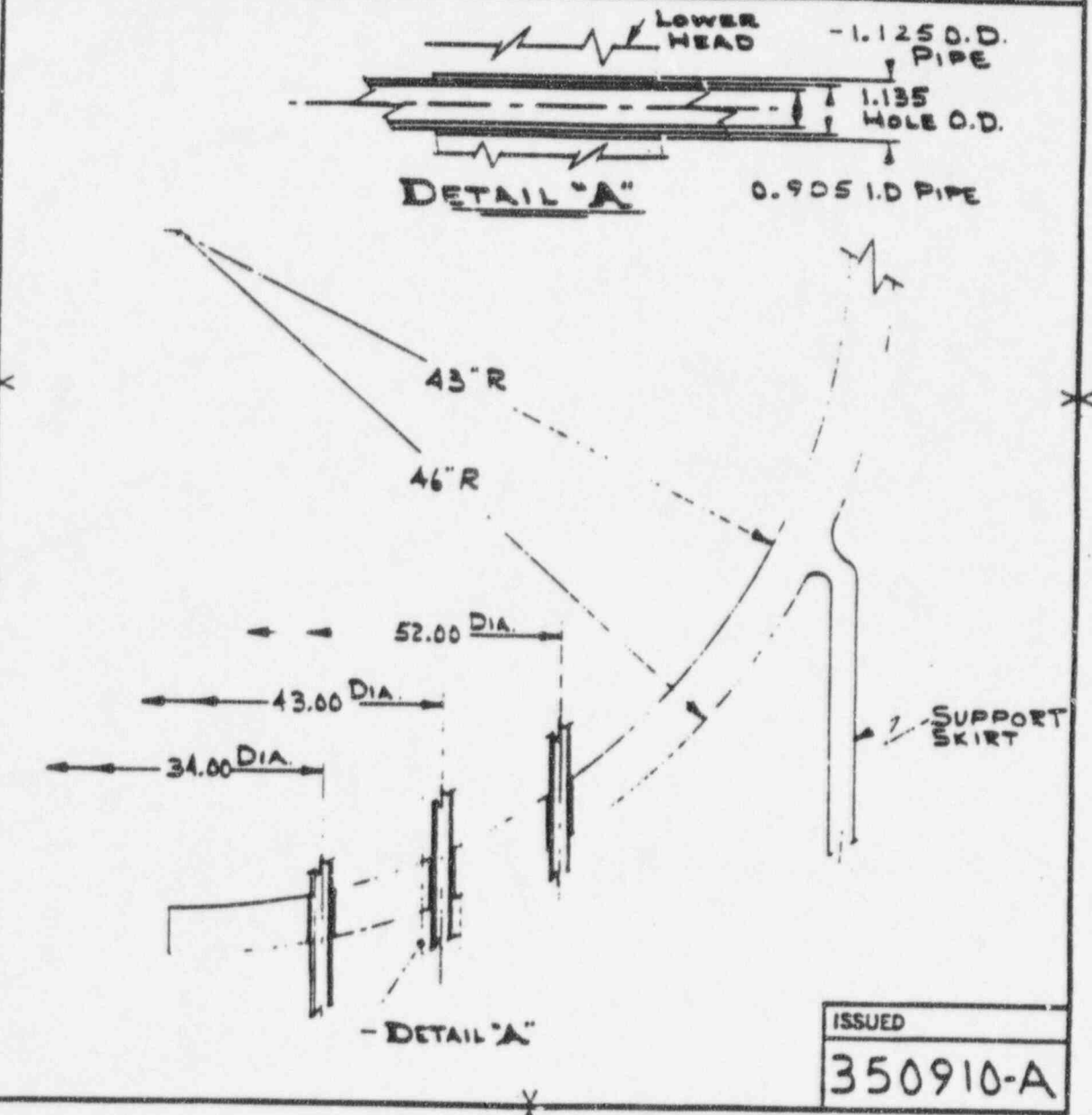


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WESTINGHOUSE ELECTRIC CORPORATION TAMPA DIVISION TAMPA, FLA.
 TITLE: HEATER WELL DETAILS (FABRICATED HEAD DESIGN)



PRESSURIZER HEATERS

PANEL NO. 1 BACKUP COLOR CODE



PANEL NO. 2 BACKUP COLOR CODE



PANEL NO. 3 CONTROL COLOR CODE



PANEL NO. 4 BACKUP COLOR CODE



PANEL NO. 5 BACKUP COLOR CODE



PANEL 3 - CONTROL GROUP

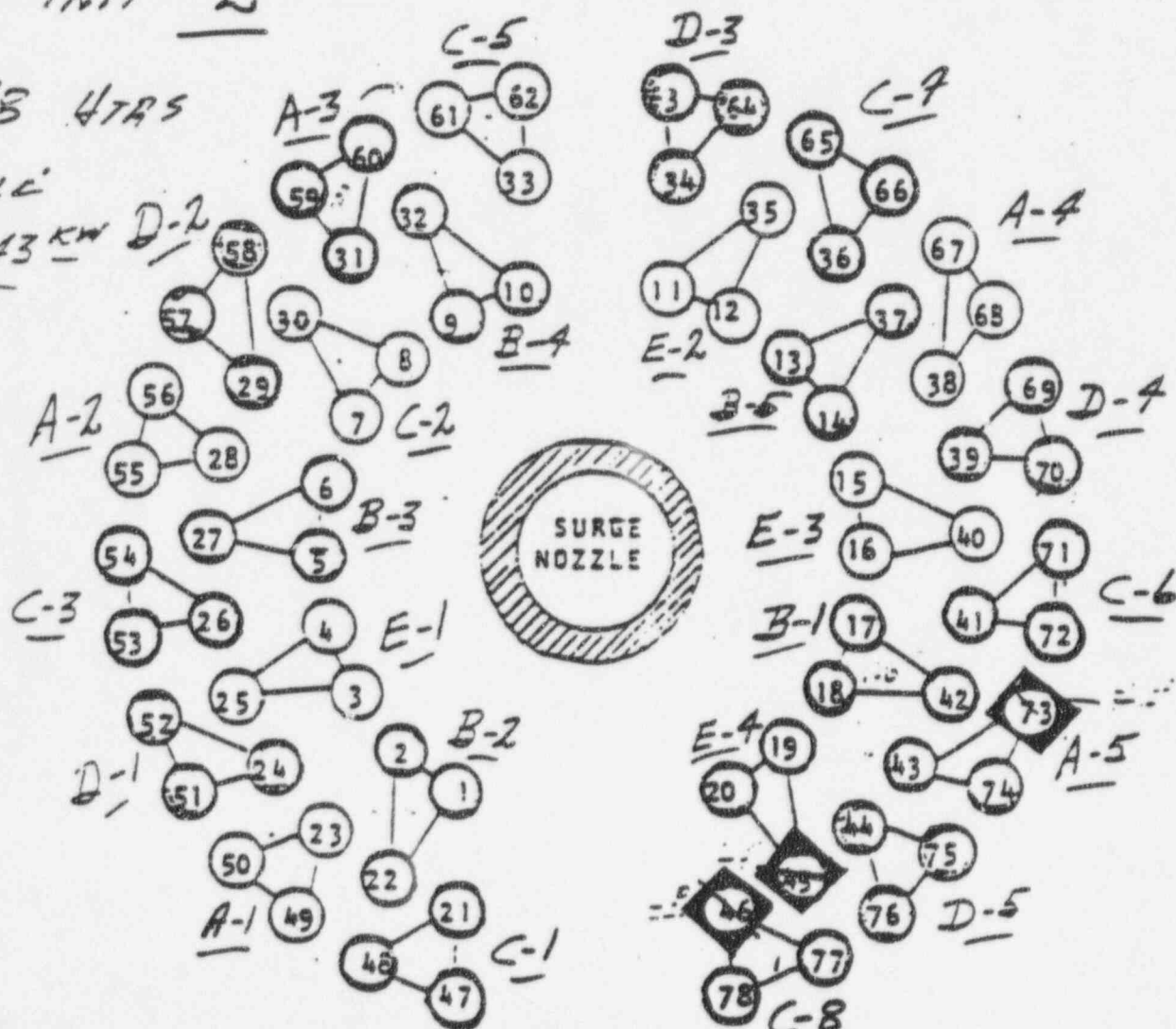
UNIT #2

PRESSURIZER HEATER PATTERN

OF 18 HTS

DEH-2LL

1343 KW



BOTTOM VIEW LOOKING FROM BELOW VESSEL

6

7

6

5

F

E

D

C

B

A

PRESSURIZER

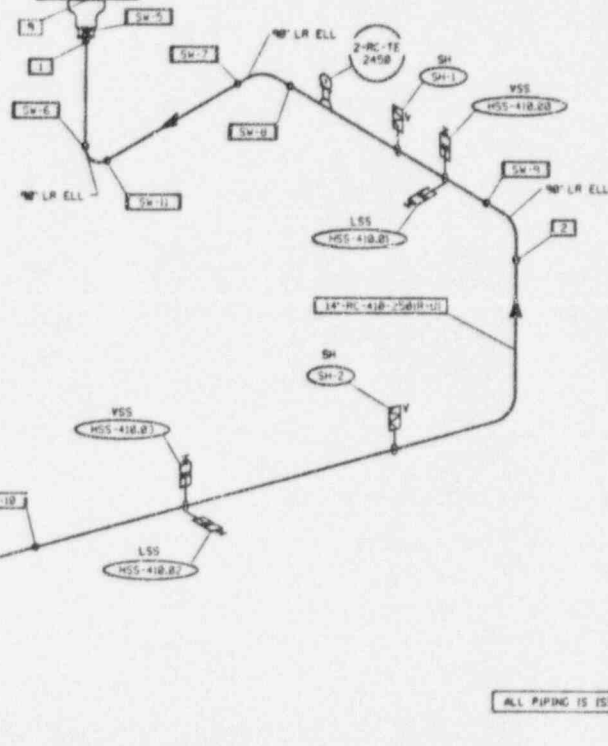
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-WMS RC-E-002

2-RC-E-2

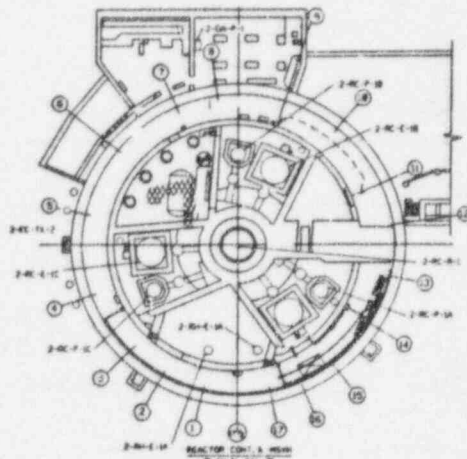
TO/FROM 12050
-WMS 012RC 1

24-RC-407-250(1-1)

ALL PIPING IS 151 CLASS 1A



REV	DATE	DSGN	DRWN	CHKD	APPV	WKS	DESIGN	CHECK	ELECT	MACH	INST	E. M.	INSTR	ENGR	REV	DATE	DSGN	DRWN	CHKD	APPV	WKS	DESIGN	CHECK	ELECT	MACH	INST	E. M.	INSTR	ENGR



REACTION CONTROL SYSTEM
 PLAN 1-211-2
 AREA SHOWN ON ISOMETRIC

KEY PLAN

NOTES:

1. REFER TO STRESS CALCULATION
2. ALL SCAFFERS ARE EXAMINED PER TECHNICAL SPECIFICATIONS 3/4.7.18. SCAFFER MARK NUMBER SHOWN ON ISOMETRICS AND THE KEY COLUMN ARE PER THE CONTROLLED SCAFFER LIST.

**ANSTEC
 APERTURE
 CARD**

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 Aperture Card

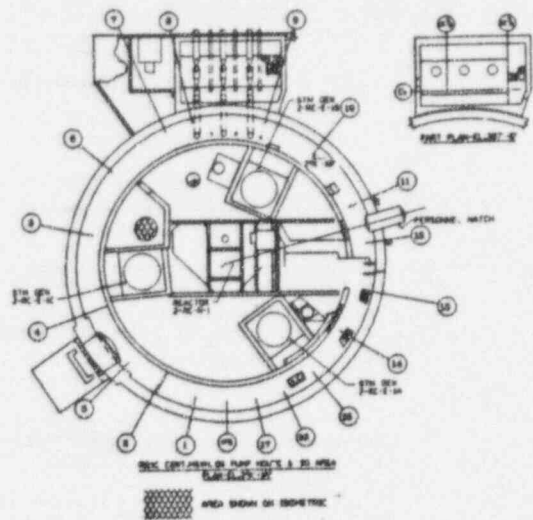
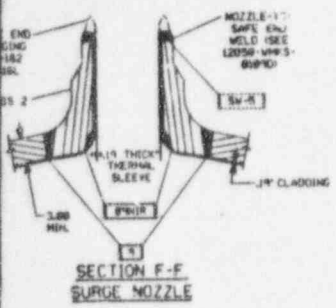
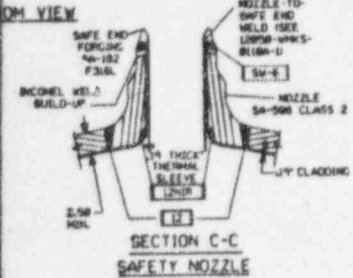
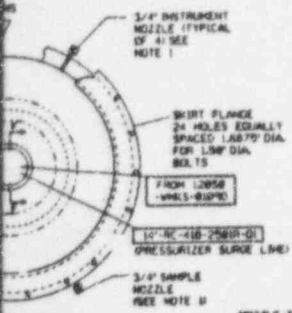
REFERENCE DRAWINGS:

- | | |
|--------------------------|--|
| 12050-EC1-1090 | DOCUMENT UPDATE PROGRAM ISOMETRIC |
| 12050-COM-893A-2 SHEET 3 | ISI CLASSIFICATION BOUNDARY DRAWING INTERVAL 2 |
| 12050-COM-893B-2 SHEET 1 | ISI CLASSIFICATION BOUNDARY DRAWING INTERVAL 2 |
| 12050-PP-96 | PIPING DRAWING |
| 12050-PP-90 | PIPING DRAWING |
| 12050-RC-6410A | ERECTION CONTROL ISOMETRIC |
| WGB-1-4301 | WESTINGHOUSE ISI ISOMETRIC |
| WGB-1-2100 | WESTINGHOUSE ISI ISOMETRIC |

9602120219-01

VIRGINIA POWER NORTH CAROLINA POWER	
NUCLEAR ENGINEERING SERVICES RICHMOND, VIRGINIA	
INSERVICE INSPECTION ISOMETRIC RC SYS; 14' PRESSURIZER SURGE LINE NORTH ANNA POWER STATION UNIT 2 VIRGINIA POWER	

REDRAWN TO SUIT SINGLE SHEET FORM. PER DCA 74-310 AND REVISED PER ISI REVIEW THIS DWG SUPERSEDES REV # ORIGINAL										INITIAL ISSUE										DSGN _____ DSGN SUPY JNF CAD NO. _____ DWRN JEV/MES ENGR SUPY _____ DRAWING NO. _____ CHGD WEN/MBL _____ 12050-WMKS-0109C _____																																																																																																																											
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NOTES:

1. THE PRESSURIZER DIMENSION HEATER ELEMENTS, INSTRUMENT NOZZLES AND SAMPLE NOZZLE ARE PARTIAL PENETRATION WELDED AND CLASSIFIED CATEGORY B-E, ITEM NUMBERS B4,29B4.13, AND B4.11 RESPECTIVELY PER ASME SECTION XI. THE VT-2 VISUAL EXAMINATION OF THESE WELDS WILL BE PERFORMED DURING THE REACTOR COOLANT SYSTEM HYDROSTATIC TEST.
2. THE PRESSURIZER "WIND" GONDER SUPPORT SUPPORT INCLUDES THE ENTIRE SUPPORT ASSEMBLY SHOWN ON DRAWINGS 12050-FY-19A, 19B, 19C AND 19D THAT IS WITHIN THE SUPPORT EXAMINATION BOUNDARY.
3. MATERIAL PER UFSAR TABLE 5.2-2B
4. ZERO REFERENCES: 1 - FOR VERTICAL WELDS-CENTERLINE INTERSECTION OF CIRCUMFERENTIAL HEAD TO SHELL WELD (FIRST INTERVAL ZERO REFERENCE WAS INTERSECTION OF CIRCUMFERENTIAL WELDS ABOVE) 2 - FOR WELD 4 - CENTERLINE INTERSECTION OF VERTICAL WELD ABOVE. 3 - FOR WELD 7 - CENTERLINE OF MANWAY. 4 - FOR WELD 8 - INTERSECTION WITH EXTENSION OF WELD 1.
5. ALL MATERIAL THICKNESSES SHOWN ON THIS DRAWING SHOULD BE CONSIDERED AS MINIMUM. ACTUAL THICKNESS MUST BE DETERMINED PRIOR TO PERFORMING ULTRASONIC EXAMINATIONS PER ASME CODE SECTION XI.

REFERENCE DRAWINGS:

- | | |
|--------------------------|---|
| 12050-COH-0738-2 SHEET 1 | ISI CLASSIFICATION BOUNDARY DRAWING INTERVAL 2 |
| 12050-FY-19A | VESSEL DRAWING (PRESSURIZER SUPPORT - SHEET 1) |
| 12050-FY-19B | VESSEL DRAWING (PRESSURIZER SUPPORT - SHEET 2) |
| 12050-FY-19C | VESSEL DRAWING (PRESSURIZER SUPPORT - SHEET 3) |
| 12050-FY-19D | VESSEL DRAWING (PRESSURIZER SUPPORT - SHEET 4) |
| 12050-FY-67A | VESSEL DRAWING (PRESSURIZER SAFETY VALVE RESTRAINT) |
| 12050-4-15-7C | PRESSURIZER OUTLINE |
| 12050-4-15-8A | PRESSURIZER #5 BUILT DIMENSIONS |
| W08-1-2189 | WESTINGHOUSE ISI COMPONENT SKETCH |

ANSTEC APERTURE CARD

Also Available on Aperture Card

9602120219-02

VIRGINIA POWER NORTH CAROLINA POWER	
NUCLEAR ENGINEERING SERVICES RICHMOND, VIRGINIA	
INSERVICE INSPECTION DETAIL DRAWING PRESSURIZER: 2-RC-E-2 NORTH ANNA POWER STATION UNIT 2 VIRGINIA POWER	
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SCALE: NONE UNLESS OTHERWISE NOTED SH 1 OF 1	

REDRAWN TO SUIT SINGLE SHEET FORMAT PER OUR 94-266 AND REVISED PER ISI REVIEW. THIS DWG. SUPERSEDES REV. 2 ORIGINAL.										INITIAL ISSUE														
REV	DATE	BY	CHKD	APPV	REASON	REV	DATE	BY	CHKD	APPV	REASON	REV	DATE	BY	CHKD	APPV	REASON	REV	DATE	BY	CHKD	APPV	REASON	
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