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 HAMPTON, J.W.      Duke Power Co.  
 RECIPIENT NAME      RECIPIENT AFFILIATION  
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SUBJECT: Forwards second 10-yr inservice insp interval Request for Relief 93-01 for Class 1 or 2 welds on reactor vessels. Due to actual physical barriers, coverage on at least 90% of weld vol not possible.

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**DUKE POWER**

February 3, 1993

U.S. Nuclear Regulatory Commission  
Attention Document Control Desk  
Washington, DC 20555

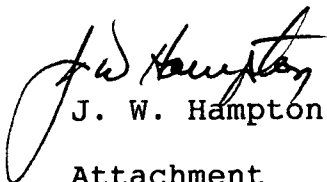
Subject: Duke Power Company  
Oconee Nuclear Station  
Docket No. 50-269  
Second Ten Year Inservice Inspection Interval  
Request for Relief No. 93-01

Pursuant to 10CFR50, 50.55a, please find the subject Request for Relief from ASME Section XI, 1980 Edition through the Winter 1980 Addenda. This relief is needed due to the impracticality of meeting the code requirements concerning required examination coverage for Ultrasonic Examination on two items on the Unit 1 Reactor Vessel identified in the request.

Code Case N-460 states, in part, " When the entire examination volume or area cannot be examined due to interference by another component or part geometry, a reduction in examination coverage on any Class 1 or 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%." We have reviewed this Code Case and find it's applicability to Oconee to be acceptable. This code Case has been referenced in the Oconee Inservice Inspection Plan. The attached request identifies the two items examined during the Unit 1 EOC 14 refueling outage which did not meet the less than 10% criteria given in Code Case N-460.

Please review and approve this request prior to the completion of Oconee's Second Ten-Year Inservice Inspection Interval, ending on February 28, 1994.

Very truly yours,

  
J. W. Hampton

Attachment

120106

9302160220 930203  
PDR ADOCK 05000269  
Q PDR

AD 7 11

U. S. Nuclear Regulatory Commission  
Page 2

xc: Mr. L. A. Wiens  
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U. S. Nuclear Regulatory Commission  
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Senior NRC Resident Inspector  
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SC Dept. of Health & Environmental Control  
2600 Bull St.  
Columbia, SC 29201

DUKE POWER COMPANY  
Request for Relief From  
Inservice Inspection Requirement

Station: Oconee

Unit: 1

Requesting Department: Nuclear Generation Department

Reference Code: ASME Boiler and Pressure Vessel Code, Section XI 1980 Edition  
through Winter 1980 Addenda

I. Component for which exemption is requested:

- a. Name and Identification Number: See Attachment 1
- b. Function: See Attachment 1
- c. ASME Section XI Code Class: 1
- d. Construction Code and Class (If Applicable): ASME Section III Class  
1
- e. Valve Category (If Applicable): NA

II. Reference Code Requirement that has been determined to be impractical:

See Attachment 1

III. Basis for Requesting Relief:

The Construction Permit for Oconee was issued on November 6, 1967. 10 CFR 50.55a(g) allows for plants whose Construction Permit was issued prior to January 1, 1971 to meet the requirements of ASME Section XI to the extent practical within the limitations of design, geometry and materials of construction of the components.

Due to part geometry and actual physical barriers, obtaining examination coverage on at least 90% of the weld volume as required by ASME Section XI, 1980 Edition as modified by Code Case N-460 was not possible.

Taking credit for the design requirements specified in Chapter 3 of Oconee's Final Safety Analysis Report, the Reactor Coolant System is designed and constructed so as to have an exceedingly low probability of a gross rupture or significant leakage throughout its design life. Additionally, the reactor containment building is designed to sustain the initial effects of gross equipment failure. Technical Specification 3.1.6 limits the amount of acceptable leakage in the reactor building. Specifically, Technical Specification 3.1.6.2 limits unidentified reactor coolant leakage to 1 gallon per minute, if that value is exceeded, then the reactor shall be shutdown within 24 hours of detection.

All of the welds contained in this request are located within the reactor building. The reactor building is designed to contain any leakage, so if these were to fail any release would be contained within the reactor building. Section 15.14 of the FSAR addresses the loss of coolant accident and documents that any releases that would occur due to this type of accident are within the limits of 10 CFR 100.

The welds identified in this request have been examined from the ID by use of angle beam transducers during the 10 year reactor vessel examination by automated ultrasonic equipment (ARIS II). No reportable indications were identified with this examination.

Based on the above evaluations, not meeting the requirements of ASME Section XI while performing these examinations will not endanger the health and safety of the general public. No additional examinations are required.

#### IV. Alternate Examination:

Use of radiography as an alternate volumetric examination method is not possible on pressure vessel welds, due to the impracticality of using double wall technique, no location to place film, etc.).

Ultrasonic examinations will continued to be performed to the maximum extent possible during future inservice inspections.

V. Implementation Schedule:

Refueling Outage 14 (current outage December 1992).

Evaluated By:	<u>R. Rouse</u>	Date:	<u>1/27/93</u>
Engineering Review:	<sup>KR</sup> <u>Basil W. Carney</u>	Date:	<u>2/3/93</u>
NDE Level III Review:	<u>James J. Mc Ardle</u>	Date:	<u>1/27/93</u>
Reviewed By:	<u>G. Barlow</u>	Date:	<u>1/27/93</u>

ASME Class 1 and 2 Components NDE Inservice Inspection Request For Relief  
 For Oconee Unit 1 Based On ASME Section XI - 1980 Code Through Winter 1980 Addenda

Serial No. 93-1  
 Attachment 1  
 Page 1 of 1

Item No.	Exam Category /Figure No.	System Or Component	Function	Area To Be Examined	Reason For Request <sup>1</sup>	Licensee Proposed Alternate Examination
B01.030.001B	B-A IWB2500-4	Reactor Vessel	Contains the fission process	Flange to Shell	Limited scan due to location of holes in Reactor Vessel Flange. Actual coverage = 55.8%	None
B06.040.001A	B-G-1 IWB-2500-12	Reactor Vessel	Contains the fission process	Threads in Reactor Vessel Flange	Limited scan due to part geometry and location of holes to clad area. Actual coverage obtained = 84.5%.	None

<sup>1</sup> See Attachment 2 for specific information on each individual Item Number. The information shown here is for a quick overview of the limitations.

Station OCONEE NUCLEAR STATION Unit 1 Sheet 1 Of 2

Subject LIMITED EXAM DATA FOR THE RPV FLANGE TO SHELL WELD

Item # B01.030.001B By ABill Date 1-26-93  
Checked By DJ Moss Date 1-26-93

**SUMMATION**

**90% OR GREATER COVERAGE**

YES  NO

**ACTUAL COVERAGE** 55.8%

INSPECTION AREA=3340.5 sq. in.

AREA NOT COVERED= 1477.5sq. in.

$$\frac{1477.5}{3340.5} \times 100 = 44.2 \%$$

ONLY 0° SCAN REQUIRED



AREA NOT  
SCANNED NOTCH A  
= 159.95 IN<sup>2</sup>

AREA NOT SCANNED  
NOTCH B = 163.05 IN<sup>2</sup>

SURFACE 2 ← SURFACE 1

AREA OF CIRCLE =  $\pi R^2$

I.D. AREA =  $\pi(84.2^2)$   
= 22272.8 IN<sup>2</sup>

O.D. AREA =  $\pi(96^2)$   
= 28952.9 IN<sup>2</sup>

AREA OF WELD = 28952.9  
(0° - 360°) - 22272.8  
= 6680.1

AREA OF <sup>1/2</sup>WELD  
(180° - 360°) =  $2\sqrt{6680.1}$   
= 3340.1 IN<sup>2</sup>

AREA NOT INSPECTED

= NOTCH A + NOTCH B + 30 HOLES  
= 159.95 + 163.05 + 1154.5  
= 1477.5 IN<sup>2</sup> AREA OF INTEREST

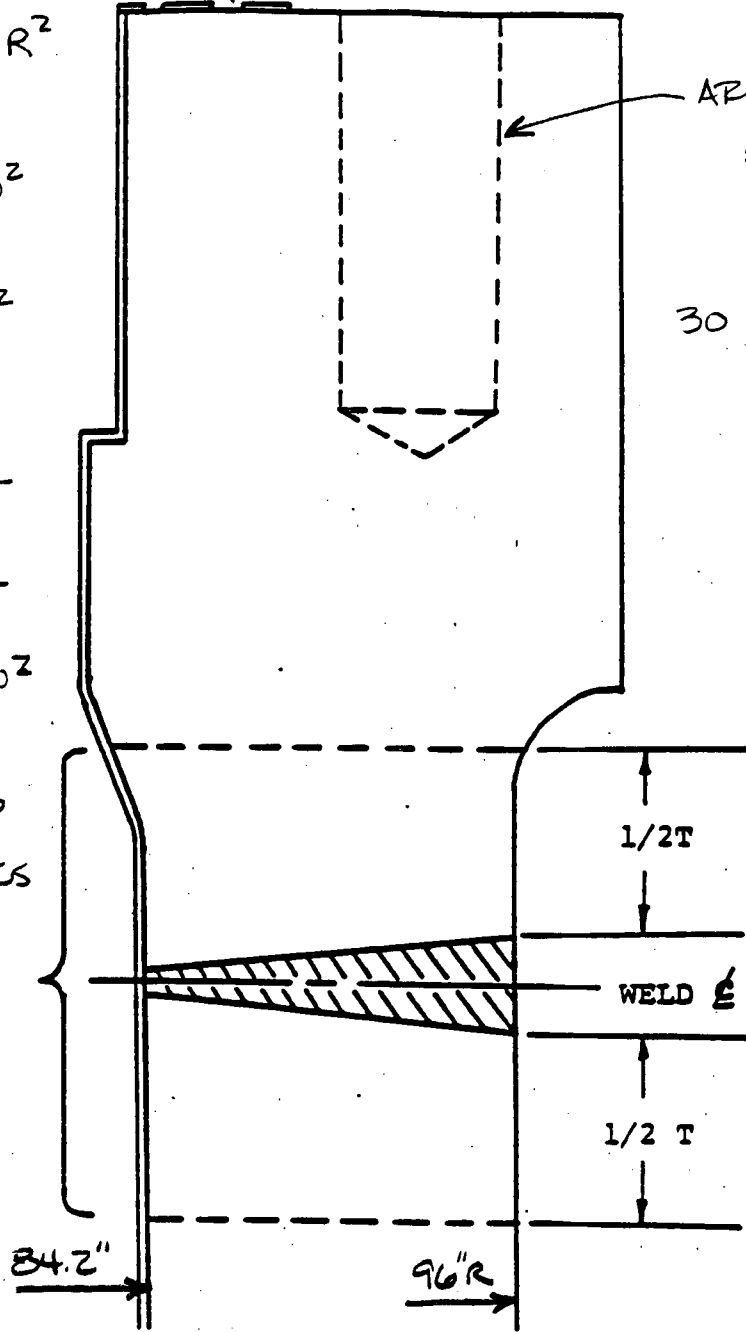
$\frac{1477.5}{3340.5} \times 100 = 44.2\%$

100% - 44.2% =

55.8% =  
AREA INSPECTED

AREA OF HOLE  
=  $\pi(3.5^2)$   
= 38.48 IN<sup>2</sup>

30 HOLES = 38.48 x 30  
= 1154.5 IN<sup>2</sup>

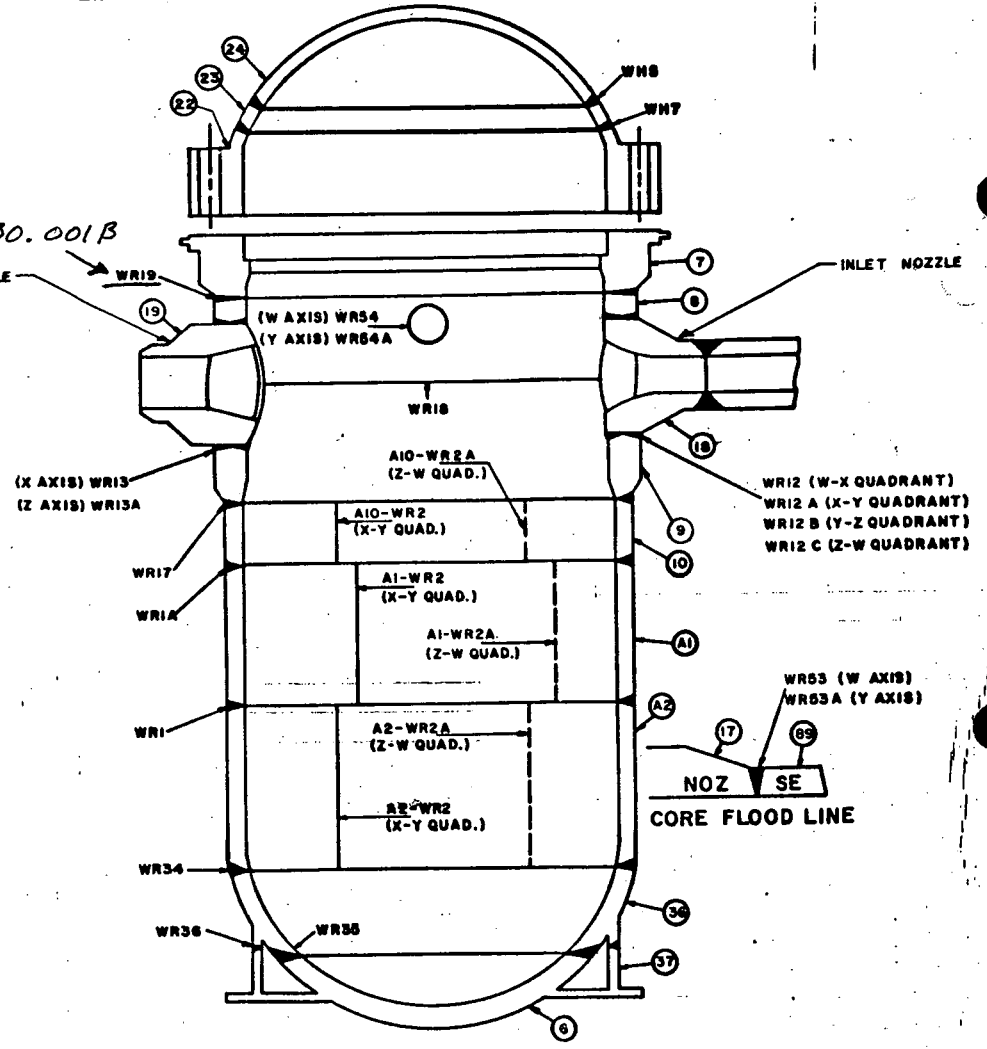


OCONEE FLANGE-TO-SHELL WELD

WELD LIST				BILL OF MATERIAL			
IDENT NO.	PIECE NO.	DIAM.	THICK.	PC NO	QTY	DESCRIPTION	MATL.
WR1	A1 TO A2	171" I.D.	9.500	A1	1	LOWER SHELL ASS'Y. UPPER COURSE	SA 533 GR. B
WR1A	10 TO A1	171" I.D.	9.500	A2	1	LOWER SHELL ASS'Y. LOWER COURSE	SA 533 GR. B
A1 - WR2	A1 TO A1	N/A	9.500	6	1	LOWER HEAD ASS'Y. CAP SECTION	SA 533 GR. B
A1 - WR2A	A1 TO A1	N/A	9.500	7	1	REACTOR VESSEL FLANGE	SA 508 CL. 2
A2 - WR2	A2 TO A2	N/A	9.500	8	1	NOZZLE BELT UPPER COURSE	SA 508 CL. 2
A2 - WR2A	A2 TO A2	N/A	9.500	9	1	NOZZLE BELT LOWER COURSE	SA 508 CL. 2
A10-WR2	A10 TO A10	N/A	9.500	10	1	UPPER SHELL ASS'Y. LOWER COURSE	SA 533 GR. B
A10-WR2A	A10 TO A10	N/A	9.500	17	2	CORE FLOOD NOZZLE	SA 508 CL. 2
WR12	18 TO 8 8 9	48" O.D.	12.000	18	4	INLET NOZZLE	SA 508 CL. 2
WR12A	18 TO 8 8 9	48" O.D.	12.000	19	2	OUTLET NOZZLE	SA 508 CL. 2
WR12B	18 TO 8 8 9	48" O.D.	12.000	22	1	UPPER HEAD FLANGE	SA 508 CL. 2
WR12C	18 TO 8 8 9	48" O.D.	12.000	23	1	UPPER HEAD RING SECTION	SA 508 CL. 2
WR13	19 TO 8 8 9	60" O.D.	12.000	24	1	UPPER HEAD CAP SECTION	SA 533 GR. B
WR13A	19 TO 8 8 9	60" O.D.	12.000	36	1	LOWER HEAD RING SECTION	SA 508 CL. 2
WR17	9 TO 10	171" I.D.	9.500	37	1	REACTOR VESSEL SUPPORT SKIRT	SA 516 GR. 70
WR18	8 TO 9	168" I.D.	12.000	89	2	CORE FLOOD NOZZLE SAFE END	SA 336-65A-FRM
WR19	7 TO 8	171" I.D.	12.000				
WR34	A2 TO 36	170" I.D.	8.500				
WR35	36 TO 6	143" I.D.	5.375				
WR36	36 TO 37	175" I.D.	2.000				
WR53	89 TO 17	15.625" O.D.	1.688				
WR53A	89 TO 17	15.625" O.D.	1.688				
WR54	17 TO 8	25.0"	12.000				
WR54A	17 TO 8	25.0"	12.000				
WH5	24 TO 23		6.825				
WH7	23 TO 22	147" I.D.	6.825				

Item #  
B01.030.001B

OUTLET NOZZLE → WR19



REFERENCE DWGS.  
OM 201-1877  
OM 201-1122

NOTES:  
1. ALL I.D. NUMBERS SHALL BE PRECEDED BY "IRPV-"  
2. PIECE NUMBERS ARE SHOWN IN CIRCLES.

NO.	REVISION	DATE	DRWN	RVWD	APPD	DATE	DATE	DATE	TITLE	DWG NO.	REV.
0	ORIGINAL	AW5	TMH	CRC	6/23/81	7/2/81	7/2/81	7/2/81			

Station OCONEE NUCLEAR STATION Unit 1 Sheet 1 Of 2

Subject LIMITED EXAM DATA FOR THE RPV LIGAMENT AREA

Item # B06.040.001A By ASB Date 1-26-93  
Checked By ISJM Date 1-26-93

**SUMMATION**

**90% OR GREATER COVERAGE**

YES  NO

**ACTUAL COVERAGE** 84.5%

INSPECTION AREA= 25.2 sq. in.

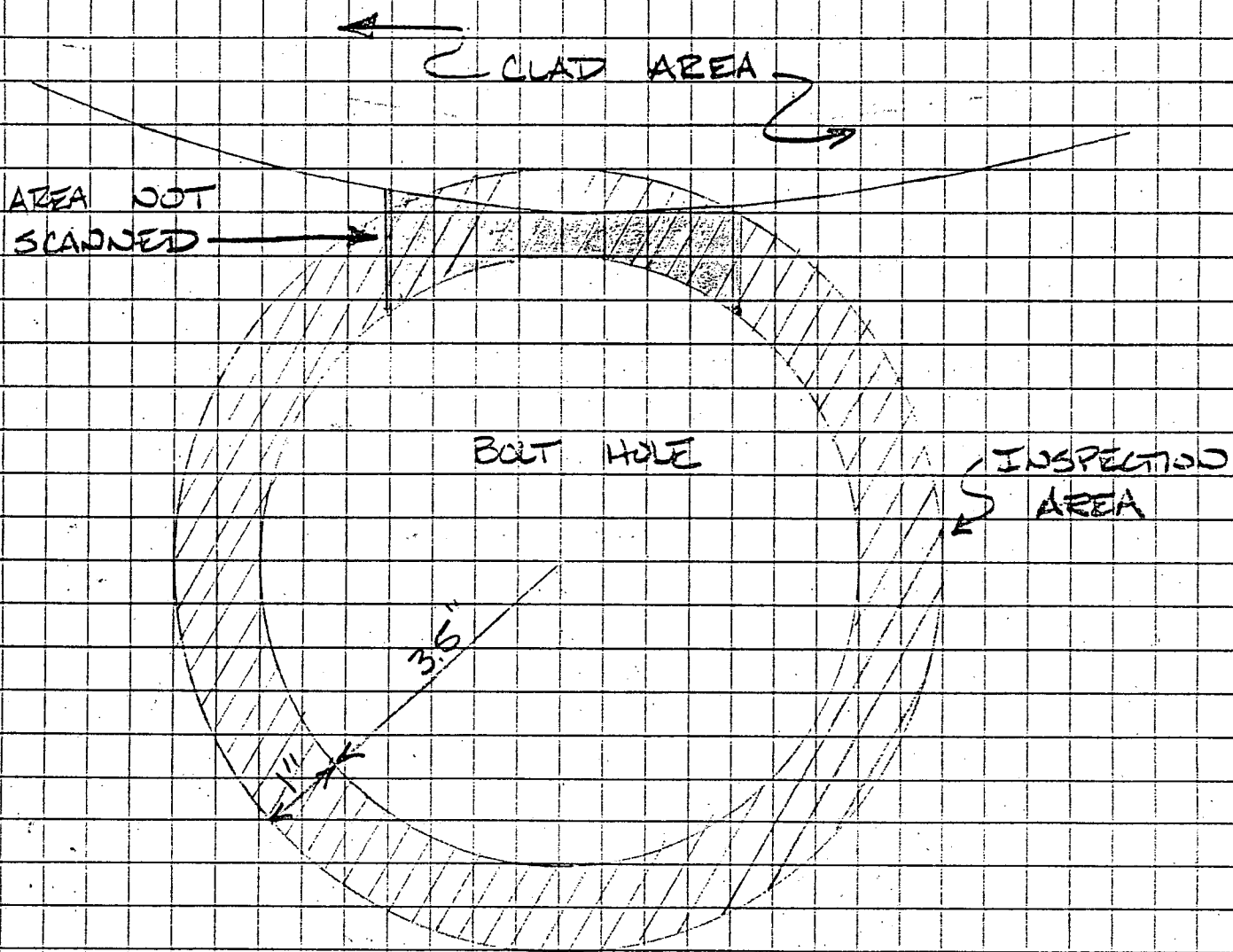
AREA NOT COVERED= 3.9 sq. in.

$$\frac{3.9}{25.2} \times 100 = 15.5\%$$

ONLY 0° SCAN REQUIRED

Station OLNJE Unit 1 Rev. \_\_\_\_\_ File No. \_\_\_\_\_ Sheet 3 Of 3  
 Subject LRPV - LIGAMENTS  
 ITEM # B06.040.001A By [Signature] Date 12/14/92  
 Prob No. \_\_\_\_\_ Checked By [Signature] Date 12-15-92

ATTACHMENT TO  
B06.040.001A



$$\begin{aligned} \text{INSPECTED AREA} &= \pi(4.5^2) - \pi(3.5^2) \\ &= 63.6 - 38.4 \\ &= 25.2 \text{ in}^2 \end{aligned}$$

$$\begin{aligned} \% \text{ AREA NOT INSP.} &= \frac{3.9}{25.2} = 15.5\% \\ \text{AREA INSP.} &= 100 - 15.5 \\ &= 84.5\% \end{aligned}$$

$$\begin{aligned} \text{AREA NOT INSP.} &= 2.1 + 1.6 + 1.2 = 3.9 \text{ in}^2 \end{aligned}$$

$$\begin{aligned} .5 \times 4.2 &= 2.1 \text{ in}^2 \\ A &= \frac{1}{2}(2) \times 1.6 = 1.6 \\ 1.6 \times 2 &= 3.2 \\ A &= \frac{1}{2}(2) \times .3 = .3 \\ .3 \times 2 &= .6 \end{aligned}$$

SUBJECT: ULTRASONIC EXAMINATION OF REACTOR VESSEL  
FLANGE TO SHELL WELD FROM FLANGE  
TOP SURFACE

Procedure No.  
ISI-187, Rev. 0  
PQ NO.: PQ-187-1

Figure 1. Flange Layout

- NOTE: (1) Measurements shall be recorded from the radial lines at the indication distance from surface 2. The stud hole numbers shall be used for position reference.
- (2) Clad and unclad area to be scanned with straight beam. Unclad area to be scanned with angel beam to characterize straight beam indications recorded under clad.

