



DEC 02 2009

SERIAL: BSEP 09-0125

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Renewed Facility Operating License Nos. DPR-71 and DPR-62
Docket Nos. 50-325 and 50-324
Response to Request for Additional Information Regarding Third 10-Year
Inservice Inspection Interval Request for Relief RR-46 (NRC TAC
Nos. ME1249 and ME1250)

Reference: Letter from Phyllis N. Mentel to U.S. Nuclear Regulatory Commission,
Proposed Alternative for the Third 10-Year Inservice Inspection Program,
dated May 8, 2009 (ADAMS Accession Number ML091340100)

Ladies and Gentlemen:

By letter dated May 8, 2009, Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., submitted a 10 CFR 50.55a request for the Brunswick Steam Electric Plant, Unit Nos. 1 and 2. On October 21, 2009, the NRC provided an electronic version of a request for additional information (RAI) concerning the proposed Inservice Inspection Program alternatives. The response to this RAI is enclosed.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Ms. Annette Pope, Supervisor - Licensing/Regulatory Programs, at (910) 457-2184.

Sincerely,

A handwritten signature in black ink that reads "Phyllis N. Mentel".

Phyllis N. Mentel
Manager - Support Services
Brunswick Steam Electric Plant

Document Control Desk
BSEP 09-0125 / Page 2

WRM/wrm

Enclosure: Response to Request for Additional Information Regarding Third 10-Year
Inservice Inspection Interval Request for Relief RR-46

cc (with enclosure):

U. S. Nuclear Regulatory Commission, Region II
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Atlanta, GA 30303-8931

U. S. Nuclear Regulatory Commission
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8470 River Road
Southport, NC 28461-8869

U. S. Nuclear Regulatory Commission **(Electronic Copy Only)**
ATTN: Mrs. Farideh E. Saba (Mail Stop OWFN 8G9A)
11555 Rockville Pike
Rockville, MD 20852-2738

Chair - North Carolina Utilities Commission
P.O. Box 29510
Raleigh, NC 27626-0510

Mr. Jack M. Given, Jr., Bureau Chief
North Carolina Department of Labor
Boiler Safety Bureau
1101 Mail Service Center
Raleigh, NC 27699-1101

Response to Request for Additional Information Regarding Third 10-Year Inservice Inspection Interval Request for Relief RR-46

Background

By letter dated May 8, 2009, Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., submitted a 10 CFR 50.55a request for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. On October 21, 2009, the NRC provided an electronic version of a request for additional information (RAI) concerning the proposed Inservice Inspection Program alternative (i.e., Relief Request RR-46). The response to this RAI follows.

NRC Question 1

Provide copies of Attachments 1, 2, and 3 to Relief Request No. RR-46 which are more legible. If necessary provide enlarged copies of these Attachments.

Response to NRC Question 1

Enlarged copies of the requested plant drawings, which were previously provided in Attachments 1, 2, and 3 CP&L's letter dated May 8, 2009, are provided in Attachment 1.

NRC Question 2

On Attachments 2 and 3 to Relief Request No. RR-46, indicate, i.e., circle, all of the relevant (control rod drive) CRD housings.

Response to NRC Question 2

The drawings provided in Attachments 2 and 3 were functionally equivalent, with Attachment 2 being a Unit 1 drawing and Attachment 3 being a Unit 2 drawing. As a result, only the drawing previously provided in Attachment 3 of CP&L's letter dated May 8, 2009, has been annotated to indicate the relevant CRD housing features. The annotated figure is provided in Attachment 2.

NRC Question 3

On Attachment 1 to Relief Request No. RR-46, clearly identify both the housing-to-flange weld and the housing tube-to-tube weld.

Response to NRC Question 3

A portion of a different drawing is provided in Attachment 3 and depicts the same CRD feature-of-interest as shown in the previously submitted Attachment 1. The drawing in Attachment 3 has been annotated to identify both the housing tube-to-tube weld and the housing-to-flange weld.

NRC Question 4

For Figures 1 and 2 in Attachment 4, clearly identify one housing-to-flange weld and one housing tube-to-tube weld on each photo. Provide enlarged photos, if necessary.

Response to NRC Question 4

The welds are not visible in the Figure 1 contained in CP&L's letter dated May 8, 2009. Figure 1 shows the general under-vessel area with various instrumentation cabling. The CRD flanges are located in the shoot out steel above this cabling. Figure 2 in CP&L's letter dated May 8, 2009, depicts the CRD flanges looking up from under vessel. It was provided to show the obstructions and interferences that are limiting our access. Photographs are provided in Attachment 4 of this letter. These photos are annotated to indicate applicable features of interest.

NRC Question 5

Is it possible to examine any portion of the lower housing-to-flange weld on any peripheral CRD housing? If not please provide specific details as to why this is not possible.

Response to NRC Question 5

As can be seen from the photograph provided in response to Question 4 above, a partial examination is not possible due to the limited access and obstructions.

NRC Question 6

Provide specific details as to why this equipment was not designed for Inservice Inspection (ISI) as required by 10 CFR 50.55a(g)(2).

Response to NRC Question 6

BSEP's piping systems and associated components were designed and fabricated before the examination requirements of American Society of Mechanical Engineers (ASME) Code, Section XI were formalized and published. Since the plant was not specifically designed to meet the requirements of the ASME Code, Section XI, literal compliance is not feasible or practical within the limits of the current plant design.

NRC Question 7

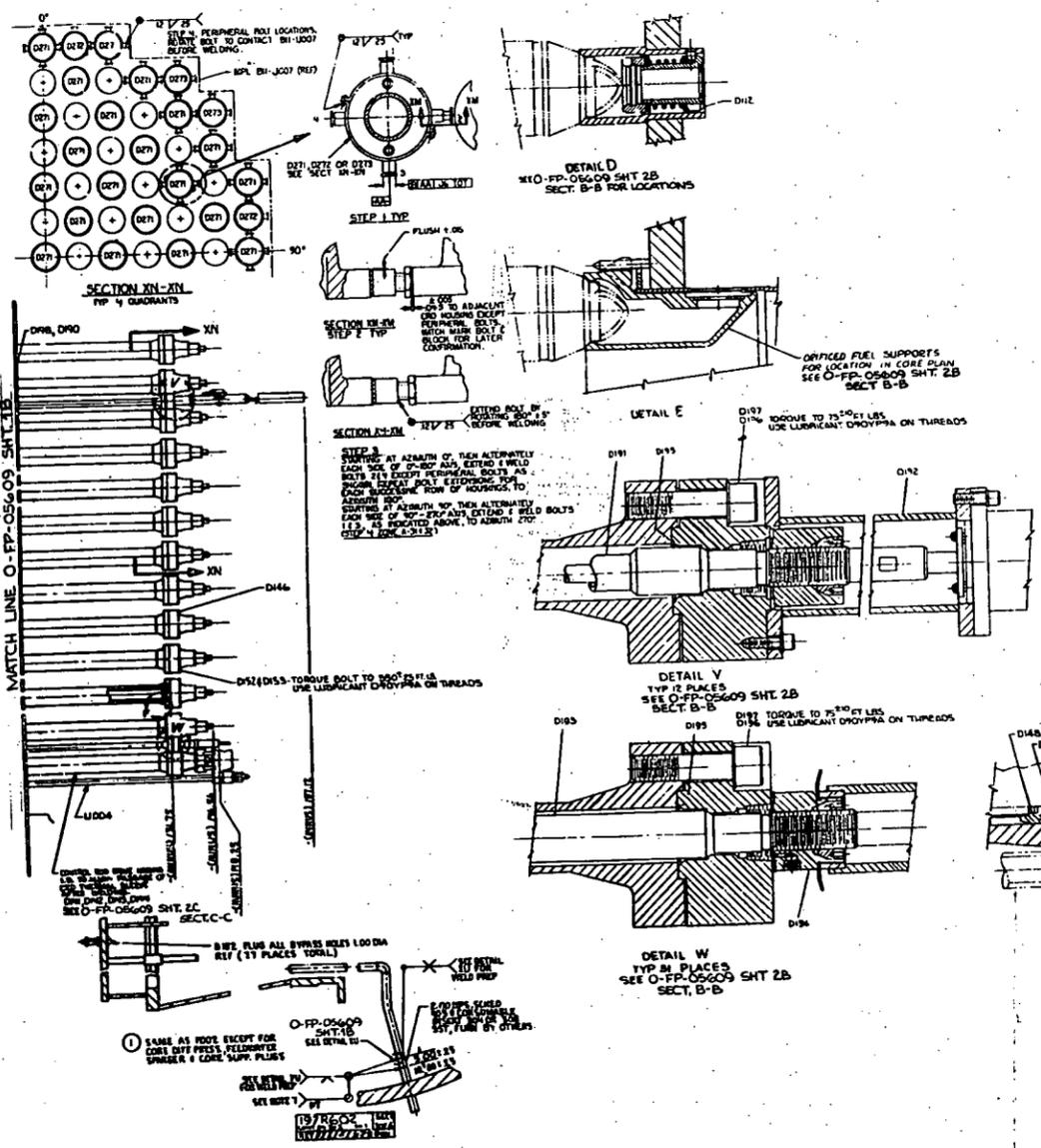
The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no Addenda, Sub-article IWB-2500, Table IWB-2500-1, Examination Category B-O, Item No. B14.10 requires 100 percent volumetric or surface examination of 10 percent of the peripheral control rod drive (CRD) housing welds. On page 1 of Relief Request No. RR-46 in Section, 1, "ASME Code Components Affected" under the subsection titled, "Description," the request states "Volumetric Examination Coverage," yet as stated above "volumetric or surface examination" is required. Please address this discrepancy.

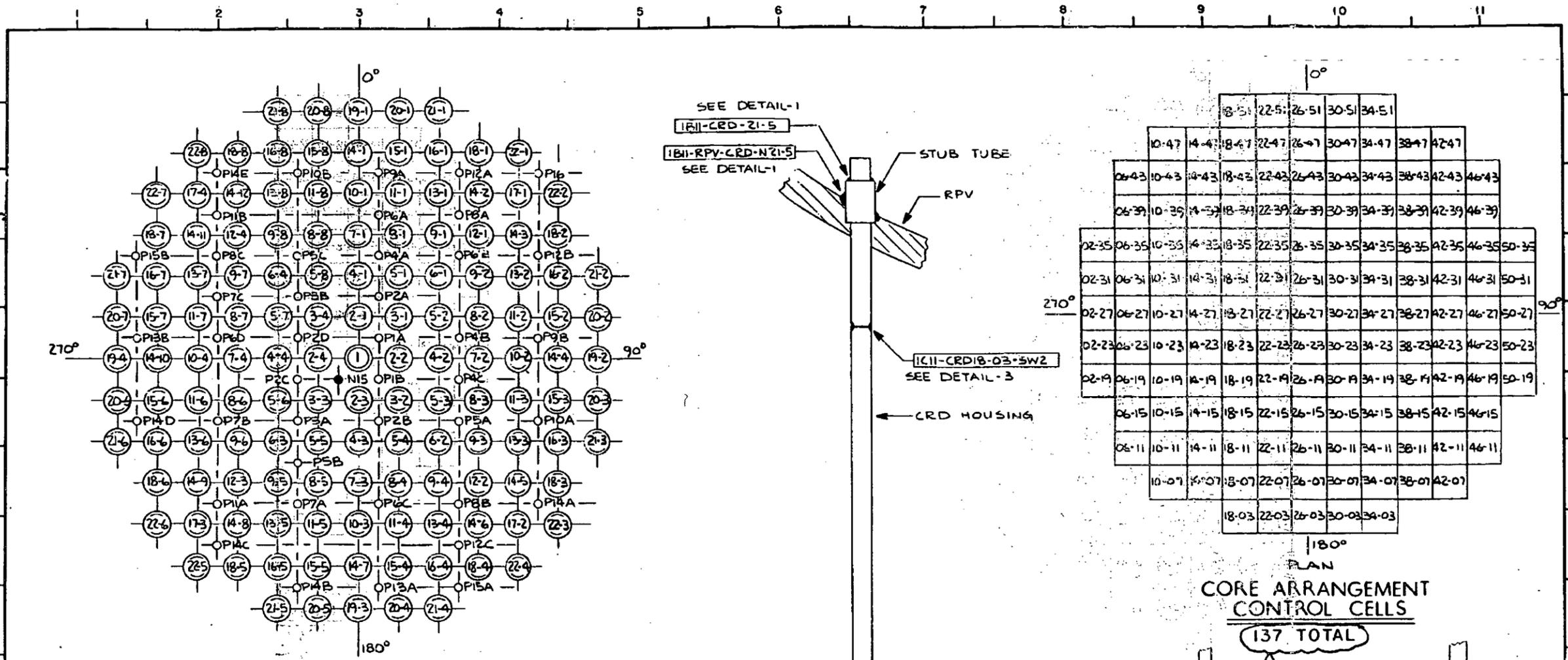
Response to NRC Question 7

A revised copy of Relief Request RR-46 is provided in Attachment 5 to address the change to the "Description" title.

Attachment 1
(Supporting the Response to NRC Question 1)

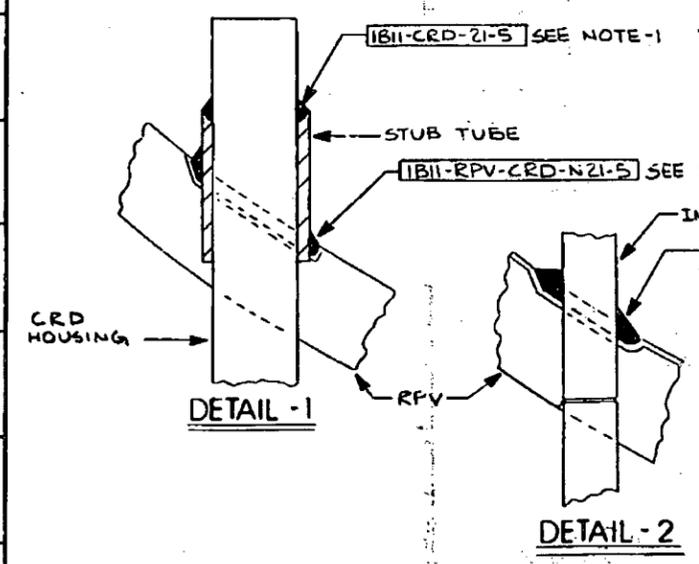
GENERAL NOTES
 REACTOR
 UNIT
 FCP 2384143(011-2010)



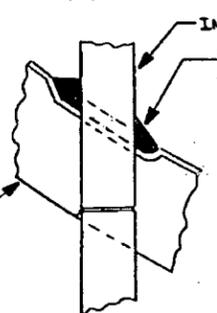


PLAN
CRD & IN CORE PENETRATIONS

137 TOTAL



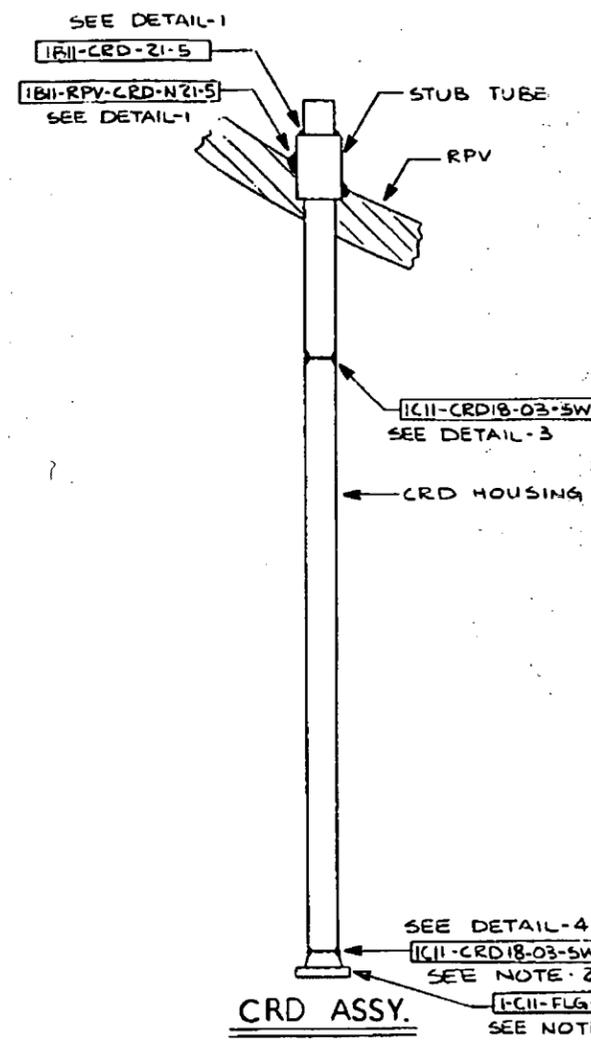
DETAIL - 1



DETAIL - 2

NOTES:

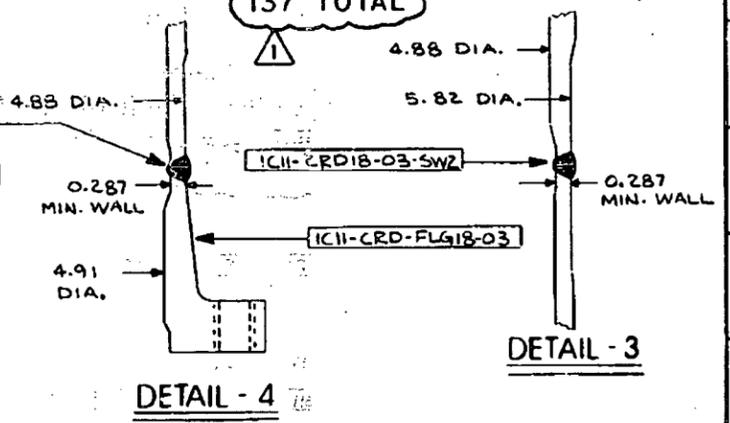
1. IB11-CRD- , IB11-RPV-CRD-N , IB11-RPV-INCORE- THESE NO.'S , COME FROM THE CRD & IN CORE PENT. DWG. ABOVE LEFT EX: IB11-CRD-21-4, IB11-RPV-CRD-N21-4, IB11-RPV-INCORE-PM4B.
2. IC11-CRD- -SW1, IC11-CRD- -SW2, IC11-FLG- THESE NO.'S COME FROM THE CORE ARRANGEMENT DWG. ABOVE RIGHT EX: IC11-CRD34-03-SW1, 34-03, IC11-CRD34-03-SW2, IC11-FLG-34-03.



18-51	22-51	26-51	30-51	34-51
10-47	14-47	18-47	22-47	26-47
06-43	10-43	14-43	18-43	22-43
06-39	10-39	14-39	18-39	22-39
02-35	06-35	10-35	14-35	18-35
02-31	06-31	10-31	14-31	18-31
02-27	06-27	10-27	14-27	18-27
02-23	06-23	10-23	14-23	18-23
02-19	06-19	10-19	14-19	18-19
06-15	10-15	14-15	18-15	22-15
06-11	10-11	14-11	18-11	22-11
10-07	14-07	18-07	22-07	26-07
18-03	22-03	26-03	30-03	34-03

PLAN
CORE ARRANGEMENT
CONTROL CELLS

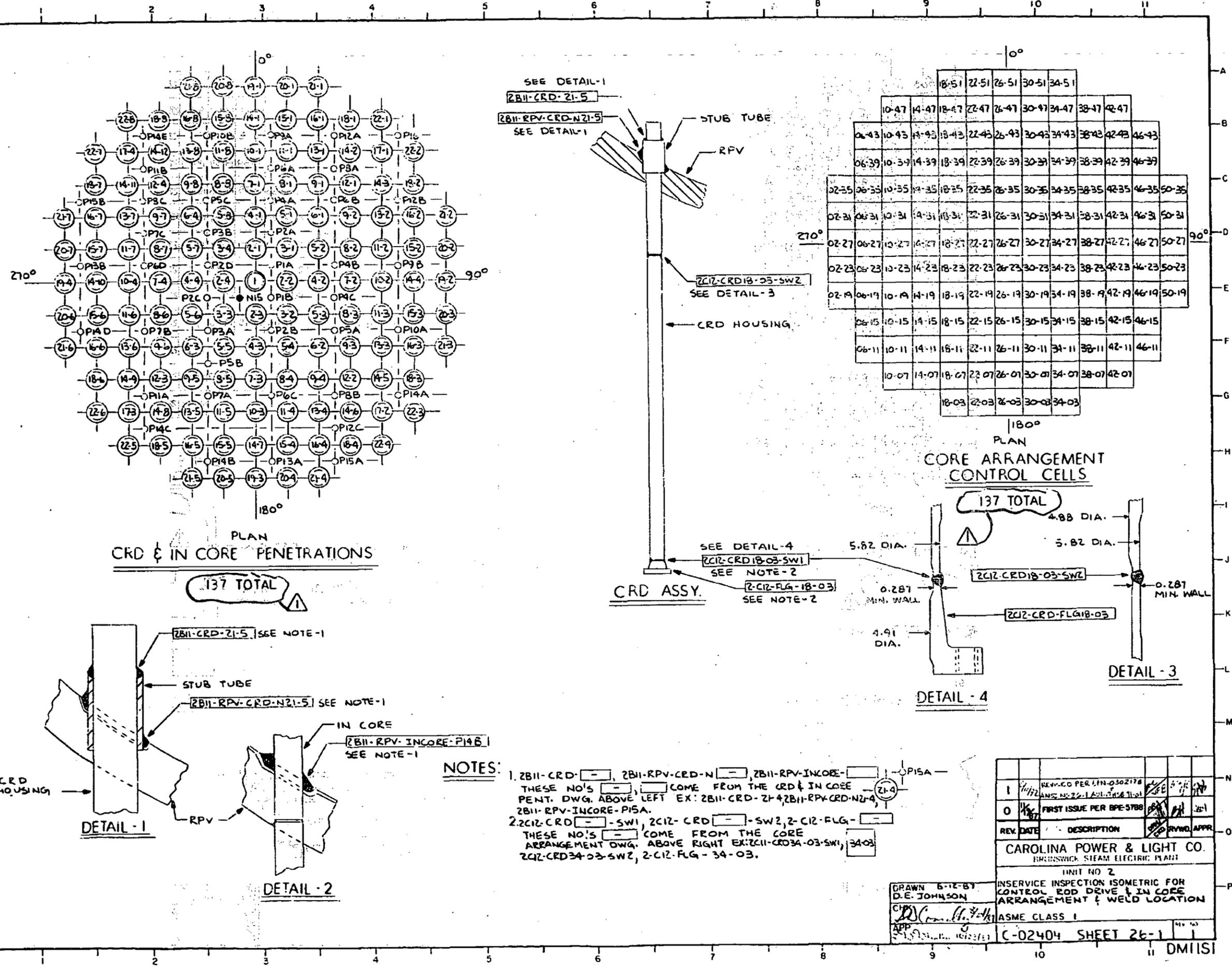
137 TOTAL



DETAIL - 3

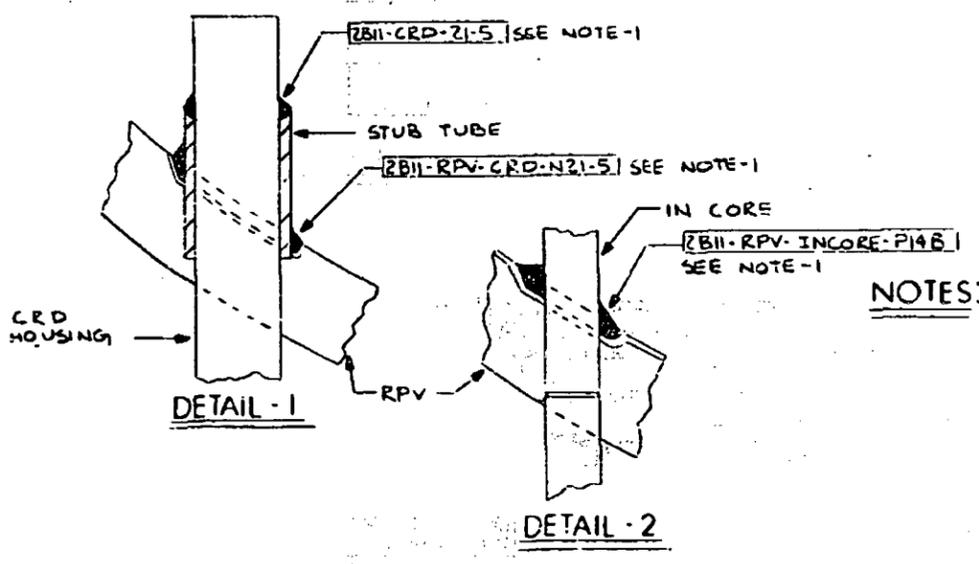
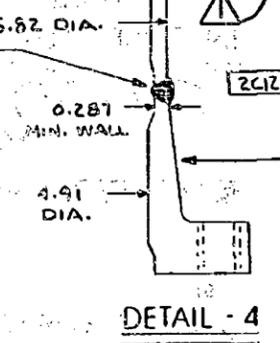
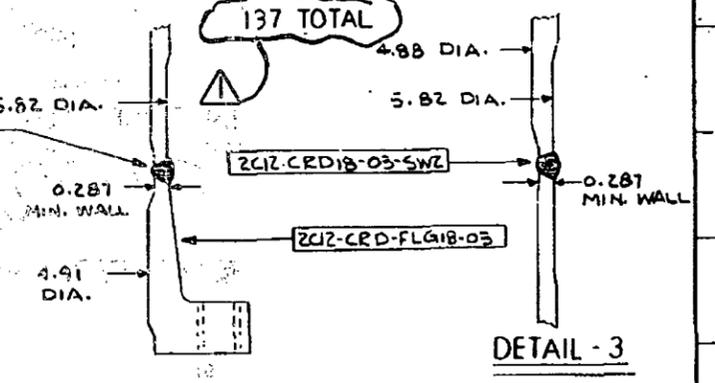
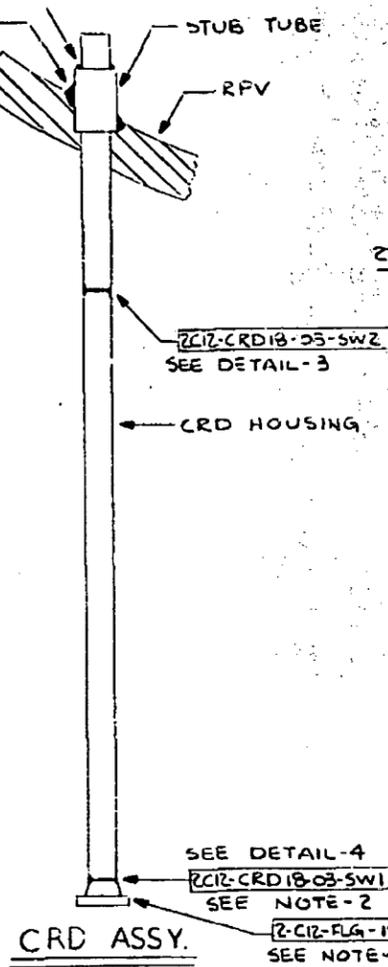
1	REVISED PER EPN-030214 ANSI N626.1 ADDIT#458 91-01			
0	FIRST ISSUE PER EPE-5788			
REV DATE	DESCRIPTION	BY	APPROV	APPR
CAROLINA POWER & LIGHT CO. BRUNSWICK STEAM ELECTRIC PLANT				
UNIT NO. 1				
INSERVICE INSPECTION ISOMETRIC FOR CONTROL ROD DRIVE & IN CORE ARRANGEMENT & WELD LOCATION				
ASME CLASS 1				
C-24004 SHEET 26-1				REV NO. 1

DRAWN 7-1-87
D.E. JOHNSON
CHK'D
APP'D
M.S. 2/1/87



			18-51	22-51	26-51	30-51	34-51					
	10-47	14-47	18-47	22-47	26-47	30-47	34-47	38-47	42-47			
06-43	10-43	14-43	18-43	22-43	26-43	30-43	34-43	38-43	42-43	46-43		
06-39	10-39	14-39	18-39	22-39	26-39	30-39	34-39	38-39	42-39	46-39		
02-35	06-35	10-35	14-35	18-35	22-35	26-35	30-35	34-35	38-35	42-35	46-35	50-35
02-31	06-31	10-31	14-31	18-31	22-31	26-31	30-31	34-31	38-31	42-31	46-31	50-31
02-27	06-27	10-27	14-27	18-27	22-27	26-27	30-27	34-27	38-27	42-27	46-27	50-27
02-23	06-23	10-23	14-23	18-23	22-23	26-23	30-23	34-23	38-23	42-23	46-23	50-23
02-19	06-19	10-19	14-19	18-19	22-19	26-19	30-19	34-19	38-19	42-19	46-19	50-19
02-15	06-15	10-15	14-15	18-15	22-15	26-15	30-15	34-15	38-15	42-15	46-15	
02-11	06-11	10-11	14-11	18-11	22-11	26-11	30-11	34-11	38-11	42-11	46-11	
10-07	14-07	18-07	22-07	26-07	30-07	34-07	38-07	42-07				
			18-03	22-03	26-03	30-03	34-03					

PLAN
CORE ARRANGEMENT
CONTROL CELLS

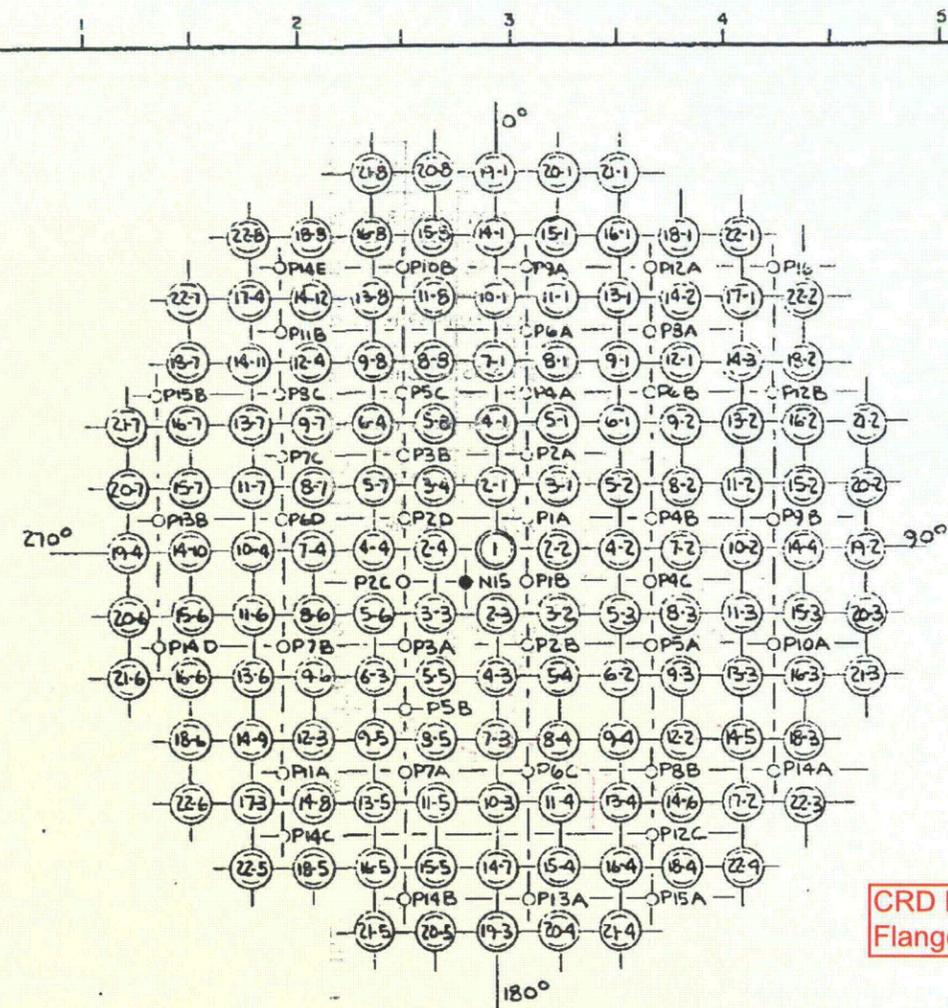


NOTES:
 1. 2B11-CRD- , 2B11-RPV-CRD-N , 2B11-RPV-INCORE- ,
 THESE NO'S COME FROM THE CRD & IN CORE
 PENT. DWG. ABOVE LEFT EX: 2B11-CRD-21-4, 2B11-RPV-CRD-N21-4,
 2B11-RPV-INCORE-P14B.
 2. 2C12-CRD- -SWI, 2C12-CRD- -SWZ, 2-C12-FLG- - ,
 THESE NO'S COME FROM THE CORE
 ARRANGEMENT DWG. ABOVE RIGHT EX: 2C12-CRD-34-03-SW1, 34-03,
 2C12-CRD-34-03-SWZ, 2-C12-FLG-34-03.

REV.	DATE	DESCRIPTION	BY	APP.
1		REVISED PER LIN-0302178		
0		FIRST ISSUE PER BPE5788		
CAROLINA POWER & LIGHT CO. BRUNSWICK STEAM ELECTRIC PLANT UNIT NO 2 INSERVICE INSPECTION ISOMETRIC FOR CONTROL ROD DRIVE & IN CORE ARRANGEMENT & WELD LOCATION ASME CLASS I C-02404 SHEET 26-1				

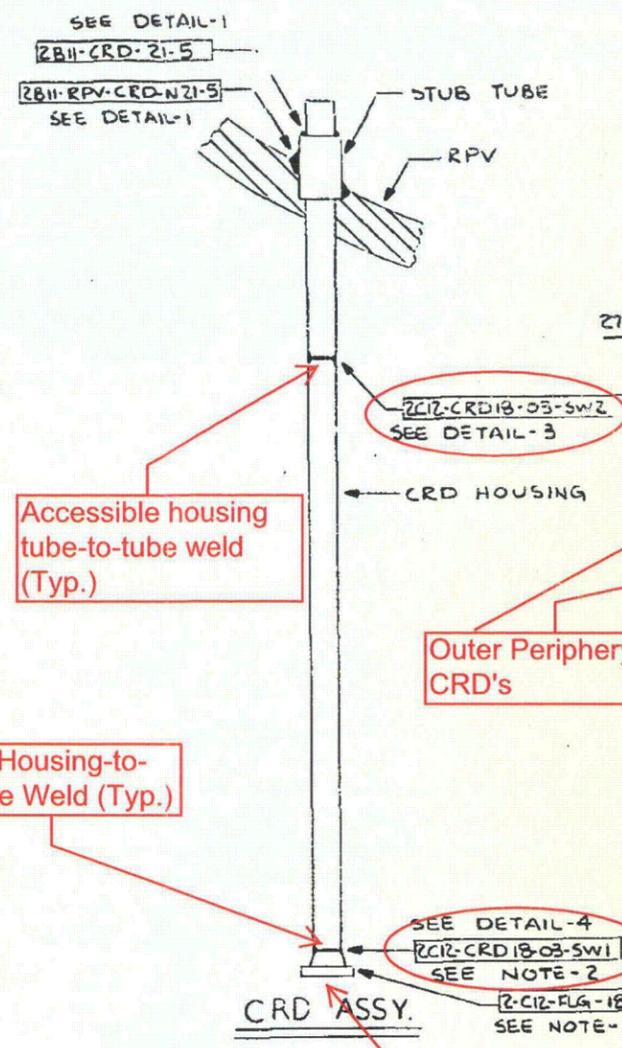
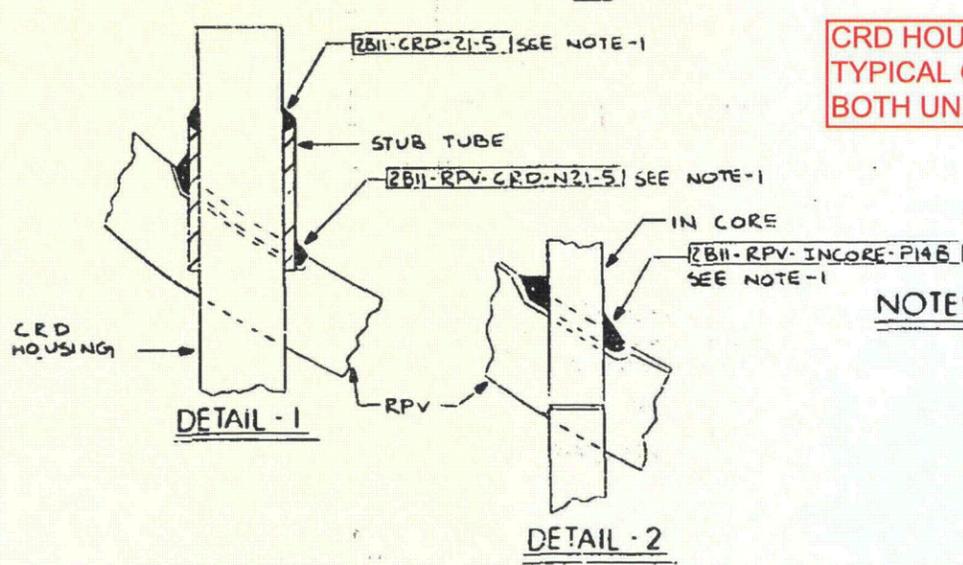
DRAWN 5-12-87
D.E. JOHNSON
APP. [Signature]
DATE 10/23/87

Attachment 2
(Supporting the Response to NRC Question 2)

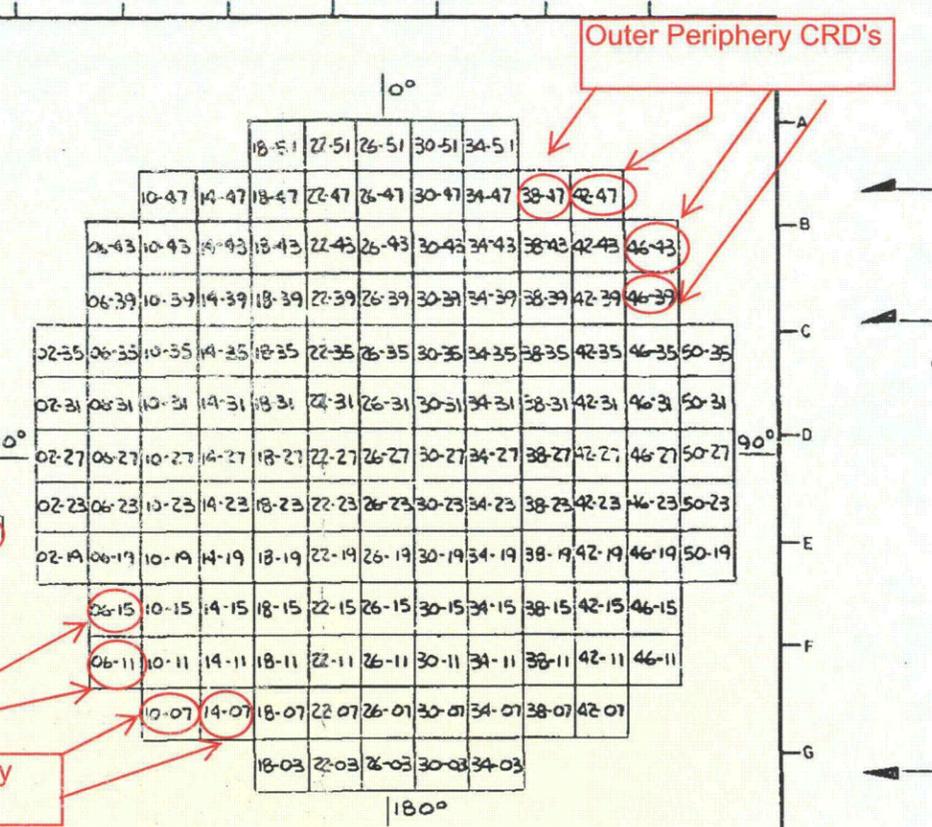


PLAN
CRD & IN CORE PENETRATIONS

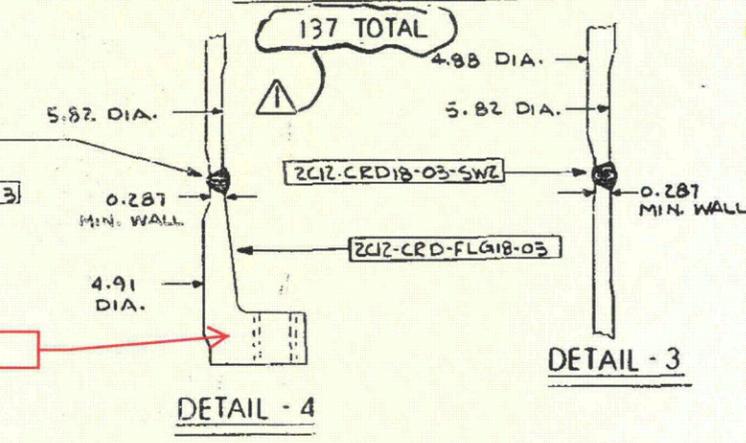
137 TOTAL



CRD HOUSINGS
TYPICAL OF
BOTH UNITS



PLAN
CORE ARRANGEMENT
CONTROL CELLS



NOTES:

- 2B11-CRD-[-], 2B11-RPV-CRD-N[-], 2B11-RPV-INCORE-[-], 2B11-RPV-INCORE-PISA, 2B11-RPV-INCORE-PISA. THESE NO'S [-] COME FROM THE CRD & IN CORE PENT. DWG. ABOVE LEFT EX: 2B11-CRD-21-4, 2B11-RPV-CRD-N21-5.
- 2C12-CRD-[-]-SW1, 2C12-CRD-[-]-SW2, 2C12-FLG-[-]. THESE NO'S [-] COME FROM THE CORE ARRANGEMENT DWG. ABOVE RIGHT EX: 2C12-CRD34-03-SW1, 34-03, 2C12-CRD34-03-SW2, 2C12-FLG-34-03.

REV	DATE	DESCRIPTION	BY	CHKD	APPD
1	11/22	REVISED PER 11N-0302178			
0		FIRST ISSUE PER BPE-5788			

CAROLINA POWER & LIGHT CO.
BRUNSWICK STEAM ELECTRIC PLANT

UNIT NO 2
INSERVICE INSPECTION ISOMETRIC FOR
CONTROL ROD DRIVE & IN CORE
ARRANGEMENT & WELD LOCATION
ASME CLASS 1

C-02404 SHEET 26-1

DRAWN 5-12-87
D.E. JOHNSON
CHKD
APPD

Attachment 3
(Supporting the Response to NRC Question 3)

Reactor Vessel Bottom Head and CRD Housings

Accessible housing tube-to-tube weld on outer periphery. See Photo "Upper CRD Welds"

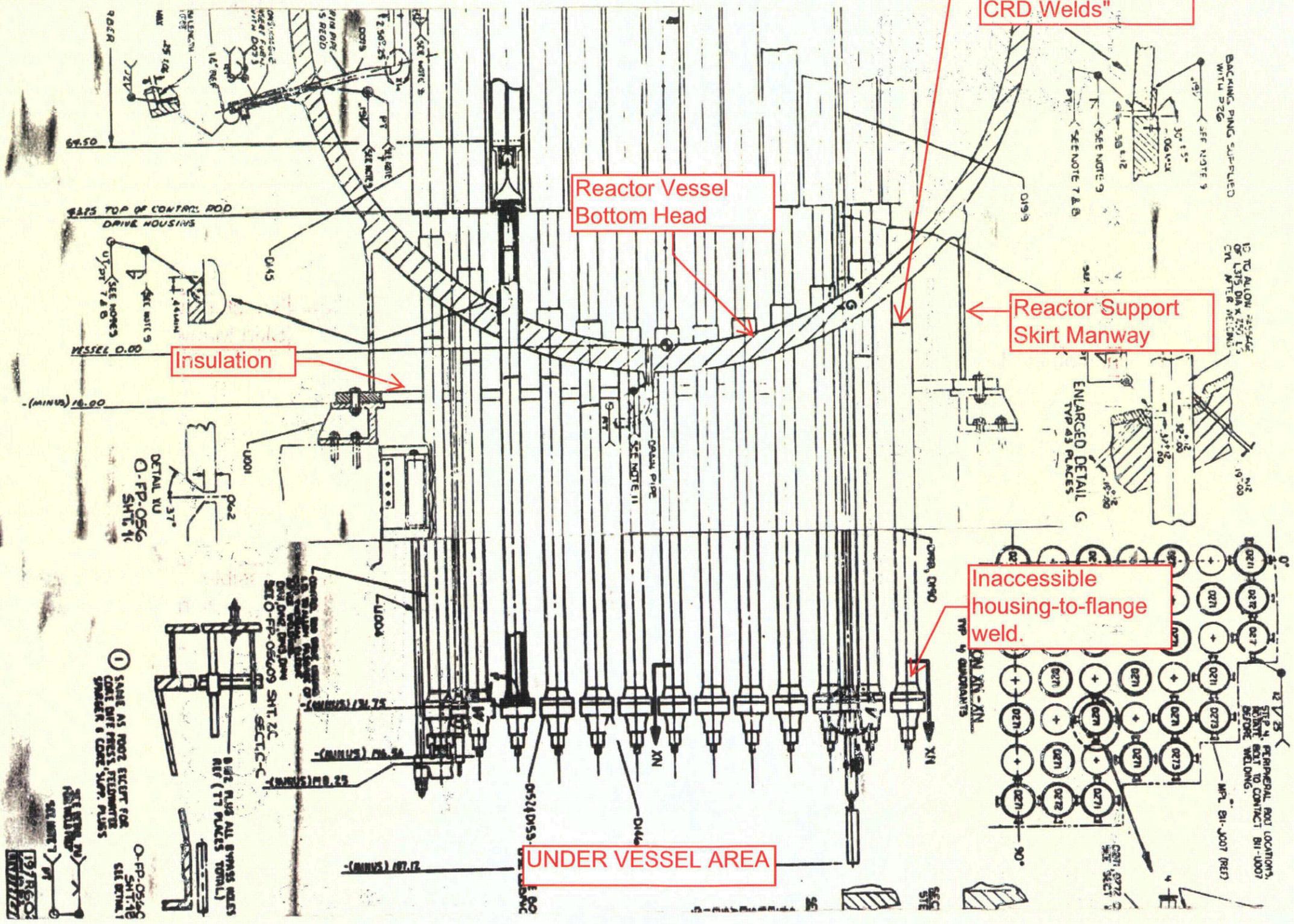
Reactor Vessel Bottom Head

Reactor Support Skirt Manway

Insulation

Inaccessible housing-to-flange weld.

UNDER VESSEL AREA



Attachment 4
(Supporting the Response to NRC Question 4)

Approximately 6"

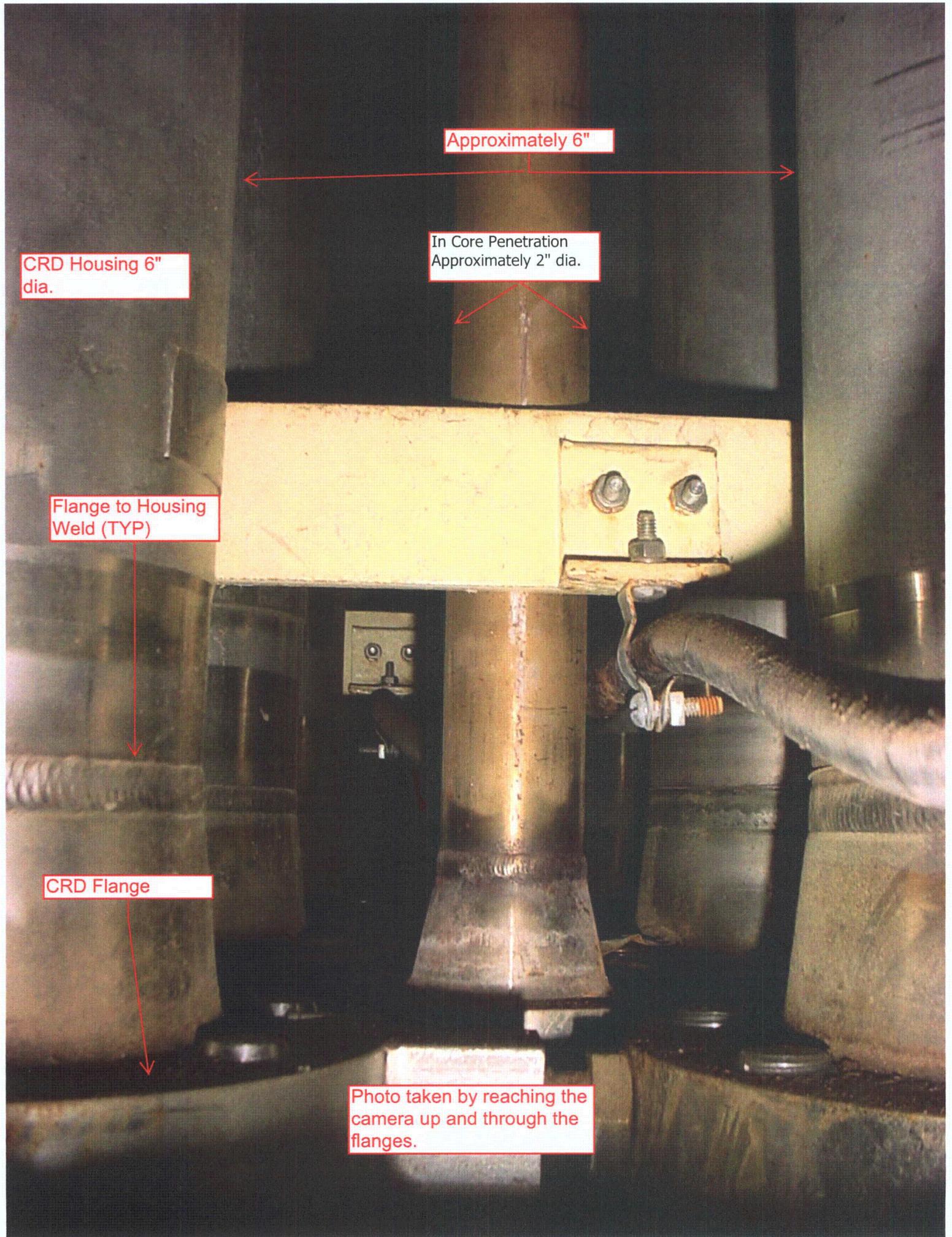
CRD Housing 6"
dia.

In Core Penetration
Approximately 2" dia.

Flange to Housing
Weld (TYP)

CRD Flange

Photo taken by reaching the
camera up and through the
flanges.





Upper CRD welds
at the manway. RV
can be seen in the
background.
Insulation support
can be seen below.

MAR 4 2009

Attachment 5
(Supporting the Response to NRC Question 7)

10 CFR 50.55a Request Number RR-46

Proposed Alternative In Accordance with 10 CFR 50.55a(g)(5)(iii)

- Inservice Inspection Impracticality -

1. ASME Code Components Affected

Code Class: 1
References: Subarticle IWB-2500, Table IWB-2500-1
Examination Categories: B-O, "Pressure Retaining Welds in Control Rod Housings"
Item Numbers: B14.10, "Welds in CRD Housing"
Description: Volumetric or Surface Examination Coverage
Component Numbers: 1C11-CRD06-11-SW1 CRD Housing Weld
1C11-CRD06-15-SW1 CRD Housing Weld
1C11-CRD10-07-SW1 CRD Housing Weld
1C11-CRD14-07-SW1 CRD Housing Weld
2C11-CRD38-47-SW1 CRD Housing Weld
2C11-CRD42-47-SW1 CRD Housing Weld
2C11-CRD46-39-SW1 CRD Housing Weld
2C11-CRD46-43-SW1 CRD Housing Weld

2. Applicable Code Edition and Addenda

The Inservice Inspection Program for the third 10-year inservice inspection interval was based on the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no Addenda.

3. Applicable Code Requirement

Sub-article IWB-2500, Table IWB-2500-1, requires essentially 100 percent volumetric or surface examination of 10 percent of the peripheral control rod drive (CRD) housing welds (Examination Category B-O, Item No. B14.10, as defined by Figure IWB-2500-18). Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., elected to perform surface examinations on the selected CRD housing welds.

4. Impracticality of Compliance

In accordance with 10 CFR 50.55a(g)(5)(iii), relief is requested from the requirement of the ASME Code, Section XI, Sub-article IWB-2500, Table IWB-2500-1 (Volumetric or Surface Examination Category B-O, "Pressure Retaining Welds in Control Rod Drive Housings"),

Examination Item Number B14.10, "Welds in CRD Housing." Limited accessibility for the 36 peripheral CRD housing welds is due to the close proximity of adjacent CRD housing flanges, neutron monitoring instrumentation and associated cabling, and horizontal beams, support bars and grids.

5. Burden Caused by Compliance

Compliance with the examination coverage requirements of the ASME Code, Section XI, would require modification, redesign, or replacement of components where geometry is inherent to the component design.

6. Proposed Alternative and Basis for Use

Proposed Alternative

In accordance with 10 CFR 50.55a(g)(5)(iii), CP&L is requesting relief for the components listed above on the basis that the required examination coverage of "essentially 100 percent" is impractical due to physical obstructions and severely limited access in the work area. As an alternative, CP&L proposes selecting the four additional upper CRD housing welds, listed below, in lieu of the four lower housing-to-flange welds. This would provide the same total number of CRD housing welds for examination (i.e., eight welds) and will be an equivalent 100 percent inspection of 10 percent of the peripheral housings.

Unit 1 Additional CRD Housing Weld Examinations	Unit 2 Additional CRD Housing Weld Examinations
1C11-CRD38-47-SW2	2C11-CRD06-11-SW2
1C11-CRD42-47-SW2	2C11-CRD06-15-SW2
1C11-CRD46-39-SW2	2C11-CRD10-07-SW2
1C11-CRD46-43-SW2	2C11-CRD14-07-SW2

Basis for Use

The ASME Code, Section XI, Sub-article IWB-2500, Table IWB-2500-1, requires essentially 100 percent volumetric or surface examination of 10 percent of the peripheral CRD housing welds (Examination Category B-O, Item No. B14.10, as defined by Figure IWB-2500-18). Each CRD housing contains two pressure retraining welds. Table IWB-2500-1 requires both the upper and lower welds of each of the selected CRD housings to be examined.

BSEP has 36 peripheral CRD housings; therefore, this requires four CRD housings (i.e., a total of eight CRD housing welds) to be examined. As previously stated, each CRD housing contains two pressure retaining welds: the housing-to-flange weld and the housing tube-to-tube weld. The housing-to-flange weld is located in the inaccessible lower section of the CRD housing, whereas the housing tube-to-housing tube weld is located in the accessible upper section of the CRD housing (i.e., shown on Drawings 0-FP-05609; C-24004, Sheet 26-1; and C-02404, Sheet 26-1; provided in Attachments 1, 2, and 3, respectively).

Limited access for the 36 peripheral CRD housing-to-flange weld welds is due to the work area under the reactor vessel being highly congested, as shown in the photographs in Attachment 4. Physical obstructions imposed by design, geometry, and materials of construction include vessel appurtenances, insulation support rings, structural and component supports, adjacent CRD housing flanges, and neutron monitoring instrumentation and associated cabling. These obstructions are not practical to remove or replace to achieve 100 percent volumetric or surface coverage of the welds in the CRD housings. The upper housing welds are without obstruction and can be completely examined.

Therefore, as an alternative, CP&L proposes selecting four additional upper CRD housing welds in lieu of the four lower housing-to-flange welds. This would provide the same total number of CRD housing welds for examination (i.e., eight welds).

CP&L performed qualified surface examinations that achieved the maximum, practical amount of coverage obtainable within the limitations imposed by the design of the components. The examinations conducted confirmed satisfactory results, with no unacceptable flaws being identified and no evidence of degradation mechanisms.

Percent of Code-Required Volume Achieved			
Original Sample		Additional Sample	
1C11-CRD06-11-SW2	100% Coverage Achieved	1C11-CRD38-47-SW2	100% Coverage Achieved
1C11-CRD06-15-SW2	100% Coverage Achieved	1C11-CRD42-47-SW2	100% Coverage Achieved
1C11-CRD10-07-SW2	100% Coverage Achieved	1C11-CRD46-39-SW2	100% Coverage Achieved
1C11-CRD14-07-SW2	100% Coverage Achieved	1C11-CRD46-43-SW2	100% Coverage Achieved
2C11-CRD38-47-SW2	100% Coverage Achieved	2C11-CRD06-11-SW2	100% Coverage Achieved
2C11-CRD42-47-SW2	100% Coverage Achieved	2C11-CRD06-15-SW2	100% Coverage Achieved
2C11-CRD46-39-SW2	100% Coverage Achieved	2C11-CRD10-07-SW2	100% Coverage Achieved
2C11-CRD46-43-SW2	100% Coverage Achieved	2C11-CRD14-07-SW2	100% Coverage Achieved

As Class 1 Examination Category B-O components, a visual (VT-2) examination is also performed on these components during system pressure tests each refueling outage. This was completed during the Unit 1 2008 refueling outage (i.e., the B117R1 outage) and Unit 2 2009 refueling outage (i.e., the B219R1 outage), and no evidence of leakage was identified for these components. Reactor coolant system leak rate limitations and atmospheric particulate radioactivity monitoring also ensure that any leakage would be detected prior to gross failure.

7. Duration of the Proposed Alternative

Use of the proposed alternative is applicable to the third 10-year inservice inspection interval at BSEP, Units 1 and 2. The third 10-year interval began on May 11, 1998, and ended on May 10, 2008, for Unit 1 and will end on May 10, 2009, for Unit 2.

8. Precedents

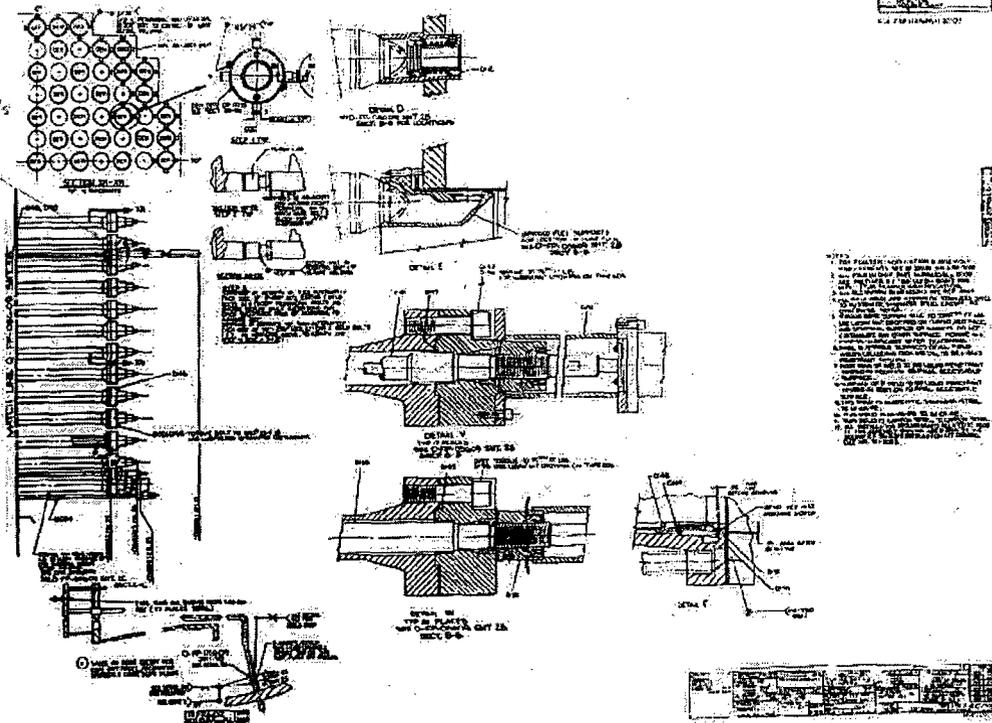
Similar relief request was granted for the Pilgrim Nuclear Power Station, as listed in Reference 1.

9. References

1. Letter from U.S. Nuclear Regulatory Commission (USNRC) to Entergy Nuclear Operations, Inc., Third 10-Year Interval Inservice Inspection Program Plan Request for Relief Request No. PRR-42, Revision 1 – Pilgrim Nuclear Power Station (TAC No. MD6767), dated June 27, 2008, ADAMS Accession Number ML081300415.

ATTACHMENT 1

Housing to flange welds
at lower end of tube

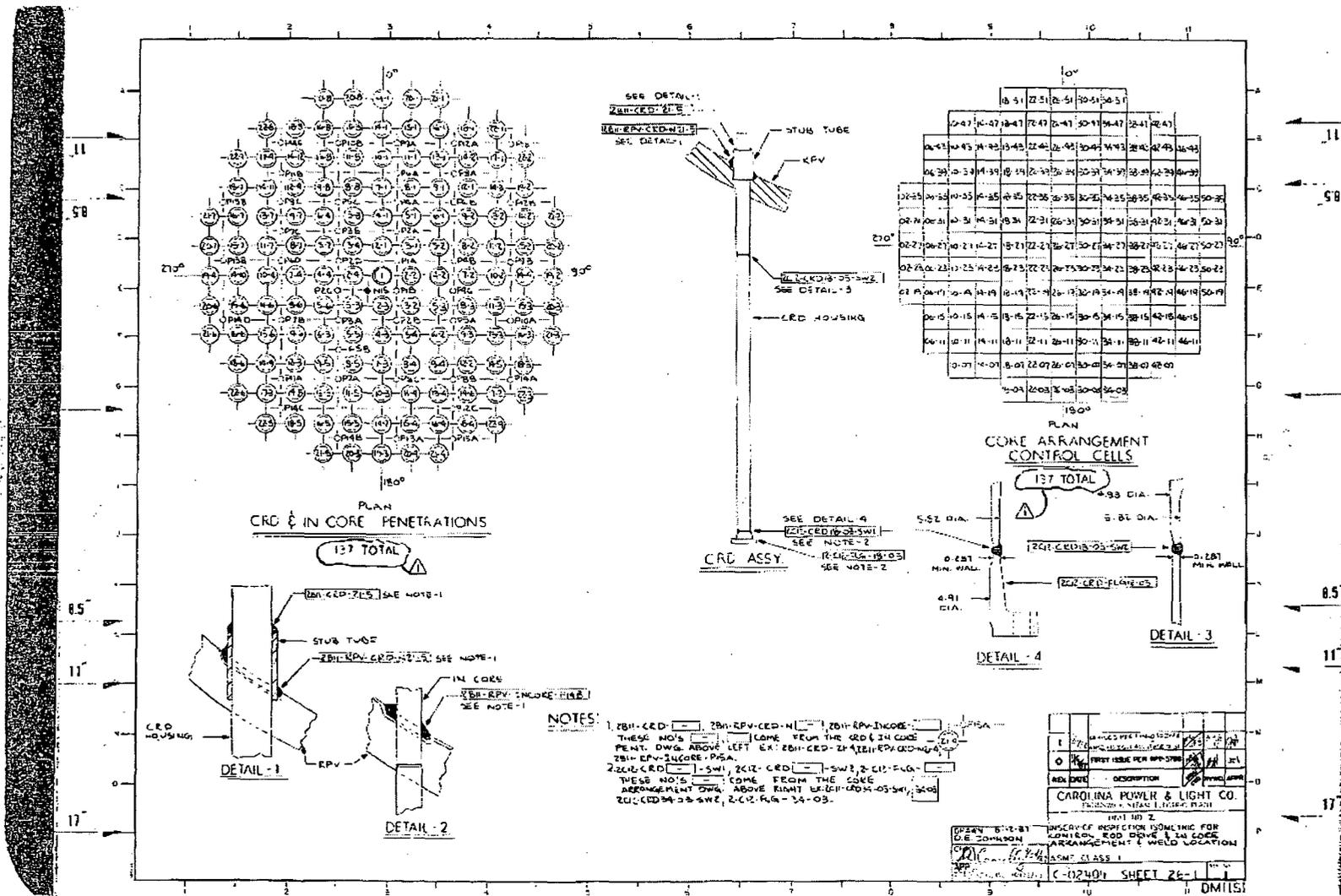


REF DWGS.
O-PP-05609 SHEET 815
O-PP-05609 SHEET 816

REV	DATE	BY	CHK	APP
A	05/27/73	J. J. HARRIS		
UNIT 142 REACTOR ASSEMBLY B11-2010				
O-PP-05609				

DVM/KSC

ATTACHMENT 3



ATTACHMENT 4



Figure 1 - Under-Vessel Area



Figure 2 - Under-Vessel Area, Looking Upwards