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U.S. NUCLEAR REGULATORY COMMISSION

DOCKET NUMBER 50-261

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TO:
Mr. Robert W. Reid

FROM:
Carolina Pwr. & Light Company
Raleigh, North Carolina
B. J. Furr

DATE OF DOCUMENT 10/19/77

DATE RECEIVED 10/25/77

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DESCRIPTION

Re our 5-18-77 ltr

ENCLOSURE

Consists of requested info. covering both the vessel & the material surveillance program.....

PLANT NAME: H. B. Robinson Unit No. 2
RJL 10/25/77

(1-P) (1-P)+(6-P)

DISTRIBUTION FOR REACTOR VESSEL SUPPORT INFO FOR OPERATING REACTORS PER MR. TRAMMELL 7-12-76

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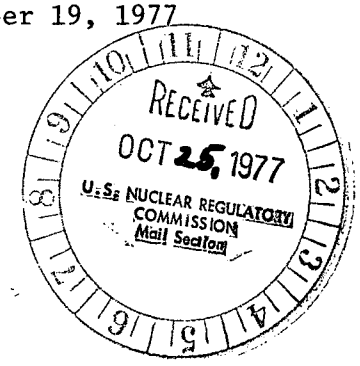

NG 3514 (R)

SERIAL: NG-77-1202

Office of Nuclear Reactor Regulation
ATTN: Robert W. Reid, Chief
Operating Reactors Branch #4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
REACTOR VESSEL MATERIAL SURVEILLANCE PROGRAM DATA

Dear Mr. Reid:

In response to your request for data dated May 18, 1977, you will find attached the available information. The attachment covers both the vessel and the material surveillance program and provides all of the requested data which is available. We trust that this information is adequate for your review.

Yours very truly,

B. J. Furr - Manager
Generation

CSB/gsm

772980043

336 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

B. Robinson Unit No. 2

Reactor Vessel Material Surveillance Program

1.) The estimated maximum fluence (E > 1 Mev) at the inner surface of the reactor vessel wall as of March 31, 1977 is 8.57×10^{18} n/cm^2.

2.) The effective full power years (EFPY) of operation accumulated as of March 31, 1977 is 4.35 EFPH.

3.) Fabrication of the reactor vessel was performed by Combustion Engineering Inc.

4.) a.) Sketch of the reactor vessel showing the materials in the beltline region is shown in Figure 1.

b.) Information on welds in the vessel beltline region is shown in Tables 1 through 4.

c.) Information on each of the plates in the vessel beltline region is shown in Tables 4 through 7.

5.) Information relative to weld and plate material included in the material surveillance program is shown in Tables 1 through 3 and 5 through 7.

FIGURE 1

IDENTIFICATION AND LOCATION OF BELTLINE REGION
MATERIAL FOR THE H. B. ROBINSON UNIT NO. 2 REACTOR VESSEL

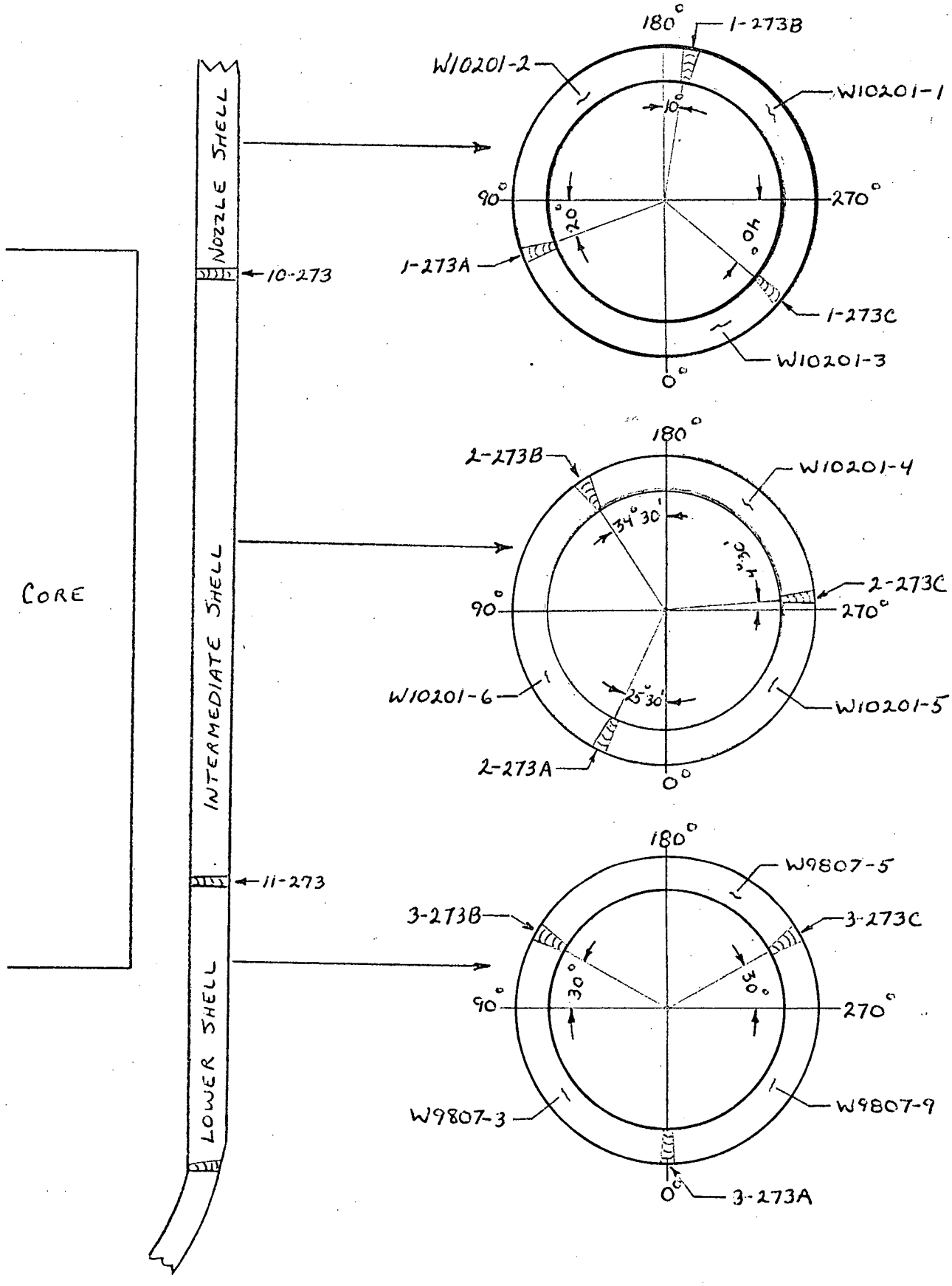

TABLE 1

IDENTIFICATION OF H. B. ROBINSON UNIT NO. 2 REACTOR VESSEL BELTLINE REGION WELD METAL

Weld Location	Welding Process	Weld Control No.	Weld Wire		Flux		Post Weld Heat Treatment
			Type	Heat No.	Type	Lot No.	
Nozzle Shell Vertical Seams	Records Unavailable						
Nozzle Shell to Inter. Shell Circle Seam 10-273	Submerged Arc	M2.01	RACO 3 +Ni 200	W5214 N7753A	Linde 1092	3617	1150°F ± 25°F - 40 HR-FC
Inter. Shell Vertical Seams	Records Unavailable						
Inter. Shell to Lower Shell Circle Seam 11-273	Submerged Arc	M1.03	RACO 3	34B009	Linde 1092	3724	1150°F ± 25°F - 40 HR-FC
Lower Shell Vertical Seams	Records Unavailable						
Surveillance Weld	Submerged Arc		RACO 3 +Ni 200	W5214 N7753A	Linde 1092	3617	1150°F ± 25°F - 30 HR-FC

TABLE 2

CHEMICAL COMPOSITION OF VESSEL BELTLINE REGION WELD METAL

Weld Wire		Flux		Weight Percent								
Type	Heat No.	Type	Lot No.	C	Mn	P	S	Si	Mo	Ni	Cu	V
RACO 3	W5214	Linde 1092	3617	.077	1.05	.021	.012	.26	.50	1.20	----	----
RACO 3	34B009	Linde 1092	3724	.14	2.01	.010	.017	.040	.51	----	----	----*
Surveillance Weld				.16	.98	.021	.014	.34	.46	----	.34	.001

*Wire Analysis

TABLE 3

MECHANICAL PROPERTIES OF VESSEL BELTLINE REGION WELD METAL

Weld Wire		Flux		T_{NDT}*	Energy at 10°F	RT_{NDT}*	Upper Shelf	YS	UTS	Elong.	RA
Type	Heat No.	Type	Lot No.	°F	ft-lbs	°F	ft-lbs	ksi	ksi	%	%
RACO 3	W5214	Linde 1092	3617	0	35,39,48	0	---	65.3	80.4	28.0	69.5
RACO 3	34B009	Linde 1092	3724	0	55,75,84	0	---	65.8	82.9	28.5	70.4
Surveillance Weld				0	73.5,68.65.5	0	113	64.1	79.8	28.2	73.3

*Estimated per NRC Standard Review Plan Section 5.3.2

TABLE 4

MAXIMUM END-OF-LIFE FLUENCE AT VESSEL INNER WALL LOCATIONS

Plate or Plate Location	Seam No.	Fluence n/cm^2
Nozzle Shell Vertical Seam	1-273A	9.8×10^{18}
" "	1-273B	1.8×10^{19}
" "	1-273C	4.1×10^{18}
Nozzle Shell to Inter. Shell Circle Seam	10-273	2.5×10^{19}
Inter. Shell Vertical Seam	2-273A	1.5×10^{19}
" "	2-273B	1.0×10^{19}
" "	2-273C	5.1×10^{19}
Inter. Shell to Lower Shell Circle Seam	11-273	5.5×10^{19}
Lower Shell Vertical Seam	3-273A	5.5×10^{19}
" "	3-273B	1.2×10^{19}
" "	3-273C	1.2×10^{19}
Nozzle Shell Plates		2.5×10^{19}
Inter. Shell Plates		6.3×10^{19}
Lower Shell Plates		5.5×10^{19}

TABLE 5

IDENTIFICATION OF VESSEL BELTLINE REGION PLATE MATERIAL

Component	Plate No.	Heat No.	Matl. Spec. No.	Supplier	Heat Treatment		
					Austenitize	Temper	Stress Relief
Nozzle Shell	W10201-1	A6623-1	A302B	Lukens	1550-1600°F-4 HRS-WQ	1200-1250°F-4 HR-AC	1125-1175°F-30 HR-FC
" "	W10201-2	A6520-1	"	"	"	"	"
" "	W10201-3	B1255-1	"	"	"	"	"
Inter. Shell	W10201-4	A6604-1	"	"	"	"	"
" "	W10401-5	B1256-1	"	"	"	"	"
" "	W10201-6	B1250-1	"	"	"	"	"
Lower Shell	W9807-3	B0650-1	"	"	"	"	1125-1175°F-24 HR-FC
" "	W9807-5	A5891-1	"	"	"	"	"
" "	W9807-9	P1444-1	"	"	"	"	"
Surveillance Plates - Three Plates from the Intermediate Shell Course as Above.							1125-1175°F-15-1/2 HR-FC

TABLE 6

CHEMICAL COMPOSITION OF VESSEL BELTLINE REGION PLATE MATERIAL

Plate No.	Weight Percent						
	C	Mn	P	S	Si	Mo	Cu
W10201-1	.20	1.40	.010	.017	.20	.47	.13
W10201-2	.20	1.37	.009	.017	.19	.48	.15
W10201-3	.20	1.40	.006	.019	.23	.48	.11
W10201-4*	.19	1.35	.007	.019	.23	.48	.12
W10201-5*	.20	1.29	.010	.021	.22	.46	.10
W10201-6*	.19	1.32	.010	.015	.19	.49	.09
W9807-3	.19	1.43	.012	.020	.25	.48	.12
W9807-5	.19	1.41	.012	.014	.20	.46	.15
W9807-9	.20	1.27	.015	.020	.18	.48	.14

*Surveillance Plates - No Analyses Performed Other That Performed Above by Lukens.

TABLE 7

MECHANICAL PROPERTIES OF VESSEL BELTLINE REGION PLATE MATERIAL

Plate No.	T_{NDT} °F	RT_{NDT}* °F	Upper Shelf Energy* ft/lbs	YS ksi	UTS ksi	Elong. %	RA %	
W10201-1	-30	17	54	62.5	85.0	28.5	63.5	
W10201-2	-10	6	80.5	58.7	81.6	32.0	67.1	
W10201-3	-10	0	61.5	60.9	83.6	29.0	63.0	
W10201-4	-30	46	58.5	55.0	77.5	33.0	62.7	
W10201-5	-20	37	50	58.8	81.5	29.2	64.3	
W10201-6	-30	20	69.5	53.5	77.6	32.0	65.0	
W9807-3	-20	20	78	64.0	83.5	26.0	63.5	
W9807-5	-20	8	74	67.0	85.0	29.0	69.5	
W9807-9	-30	15	77.5	59.8	81.5	24.0	66.0	
W10201-4	---	5	61.5	66.0	87.4	25.7	66.0	Surveillance Test Results
W10201-5	---	15	64.5	56.3	78.4	27.9	66.0	
W10201-6	---	30	74.5	57.8	80.4	27.4	66.0	

*Estimated from Longitudinal Data per NRC Standard Review Plan Section 5.3.2

10/14

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Docket No.: 50-261

Carolina Power & Light Company
ATTN: Mr. J. A. Jones
Senior Vice President
336 Fayetteville Street
Raleigh, North Carolina 27602

Gentlemen:

RE: H. B. ROBINSON UNIT NO. 2

By letter dated August 5, 1977, you submitted a proposed inservice inspection and testing program description and a request for relief from selected ASME Code requirements pursuant to 10 CFR 50.55a(g). Although we have not completed our detailed review of your submittal, our preliminary review makes clear to us that your proposed program to implement those ASME Code requirements that you have found to be practical would increase the scope of inservice inspection and testing for your facility beyond that currently required by your Technical Specifications. We have concluded that this upgrading of your inservice inspection and testing program will further enhance safety.

Based on our preliminary review, we agree with your determination that it is impractical within the limitations of design, geometry and materials of construction of components, for you to meet certain of the specified ASME Code requirements and that imposition of those requirements would result in hardships or unusual difficulties without a compensating increase in the level of quality or safety. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), we hereby grant relief, on an interim basis, pending completion of our detailed review, from those inservice inspection and testing requirements of the ASME Code that you have requested. Moreover, since the scope of the inservice inspection and testing will be increased by your proposed program, and the granting of this relief is based only on the impracticality of selected ASME Code requirements, we have determined that the relief granted neither increases the probability or consequences of accidents previously considered nor decreases safety margins and that, therefore, it does not involve a significant hazards consideration. Therefore, you are authorized to, and should proceed to, implement your proposed program (except where your current Technical Specifications are more restrictive).

OFFICE➤						
SURNAME➤						
DATE➤						

on November 7, 1977, which is the date that the requirements of 10 CFR 50.55a(g) become effective for your facility.

During the period between now and the date we complete our detailed review of your submittal, you must comply with both your existing Technical Specifications and your proposed inservice inspection and testing program. In the event conflicting requirements arise for some components, you must comply with the more restrictive requirements (e.g., shorter inspection intervals, increased number of parameters measured). In other words, the granting of this relief from ASME Code requirements should not be interpreted to give you relief from any of the requirements in your existing Technical Specifications.

When our detailed review of your August 5, 1977 submittal is complete we will: (1) issue final approval of your program (which may contain modifications resulting from the staff's review), (2) grant relief from any ASME Code requirements that are determined to be impractical for your facility for the duration of the inspection interval and (3) issue appropriate changes to your Technical Specifications.

A copy of the Federal Register Notice related to this action is enclosed.

Sincerely,

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosure:
Federal Register Notice

cc w/enclosure:
See next page

OFFICE	ORB#4:DOR	STS	EB	OELD	C-ORB#4:DOR	
SURNAME	GZwetzig:dn	JWetmore	CCheng	CUTCHIN	RWReid	
DATE	10/13/77	10/13/77	10/13/77	10/14/77	10/14/77	

Carolina Power & Light Company

cc: G. F. Trowbridge, Esquire
Shaw, Pittman, Potts & Trowbridge
1800 M Street, N. W.
Washington, D. C. 20036

Hartsville Memorial Library
Home and Fifth Avenue
Hartsville, South Carolina 29550

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-261

CAROLINA POWER & LIGHT COMPANY

NOTICE OF GRANTING OF RELIEF FROM ASME SECTION XI INSERVICE INSPECTION (TESTING) REQUIREMENTS

The U. S. Nuclear Regulatory Commission (the Commission) has granted relief from certain requirements of the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components" to Carolina Power and Light Company. The relief relates to the inservice inspection (testing) program for the H. B. Robinson Steam Electric Plant, Unit No. 2 (the facility) located in Darlington County, South Carolina. The ASME Code requirements are incorporated by reference into the Commission's rules and regulations in 10 CFR Part 50. The relief is effective as of its date of issuance.

The relief consists of deleting certain ASME Code Section XI Inservice requirements determined to be impractical for the facility.

The request for relief complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the letter granting relief. Prior public notice of this action was not required since the granting of this relief from ASME Code requirements does not involve a significant hazards consideration.

The Commission has determined that the granting of this relief will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this action.

For further details with respect to this action, see (1) the request for relief dated August 5, 1977, (2) the Commission's letter to the licensee dated

These items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Hartsville Memorial Library, Hartsville, South Carolina. A copy of item (2) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 14th day of October 1977.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors