



STRUCTURAL
INTEGRITY
ASSOCIATES, INC.

CALCULATION PACKAGE

FILE NO: *CA-160-305*

PROJECT NO: *CA-160*

PROJECT NAME: *OUTAGE SUPPORT FOR BSEP, UNIT 8*

CLIENT: *CAROLINA POWER & LIGHT COMPANY*

CALCULATION TITLE: *SUMMARY OF STRESS FOR PLAIN
EVALUATION*

PROBLEM STATEMENT OR OBJECTIVE OF THE CALCULATION: *SEE
"PURPOSE" ON PAGE 2.*

Document Revision	Affected Pages	Revision Description	Proj. Mgr. Approval /Date	Signature, Initials and Date of Preparer and Checkers
<i>0</i>	<i>1-4</i>	<i>INITIAL ISSUE</i>		<i>[Signature]</i> <i>4/7/91</i> <i>Walter L. K. M.</i> <i>1-11-91</i>


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PURPOSE: THE PURPOSE OF THIS CALCULATION IS TO DOCUMENT THE STRESSES TO BE USED FOR THE FLAW EVALUATION BASED UPON THE STRESS ANALYSIS RESULTS DOCUMENTED IN [1].

RESULTS: BASED UPON INFORMATION PROVIDED IN THE FOGOR FINAL UT REPORT, PAGE 7, OF [2], THE DEEPEST FLAW IS 1.10" DEEP, AND STOPS 0.5" FROM THE O.D. OF THE WELD TO THE RHT TEE. THE FLAW IS ALSO 1/2" LONG AT THIS DEPTH, AND THEN REDUCES DEPTH. PER FIGURE 1 NODES 211 - 217 REPRESENT A SECTION THRU THE AXIAL CENTER OF THE DEEPEST FLAW.

TABLE I PRESENTS STRESS DATA TO BE USED FOR EVALUATION OF THE DEEPEST FLAW, AS WELL AS DATA FOR TWO OTHER SECTIONS OF INTEREST.

- REFERENCES:**
1. S.I. CALCULATION CPL-168-304, DATED JANUARY 16, 1991
 2. G.E. UT REPORT N. 2-111 FOR VALVE FOGOR, DATED JANUARY 9, 1991.

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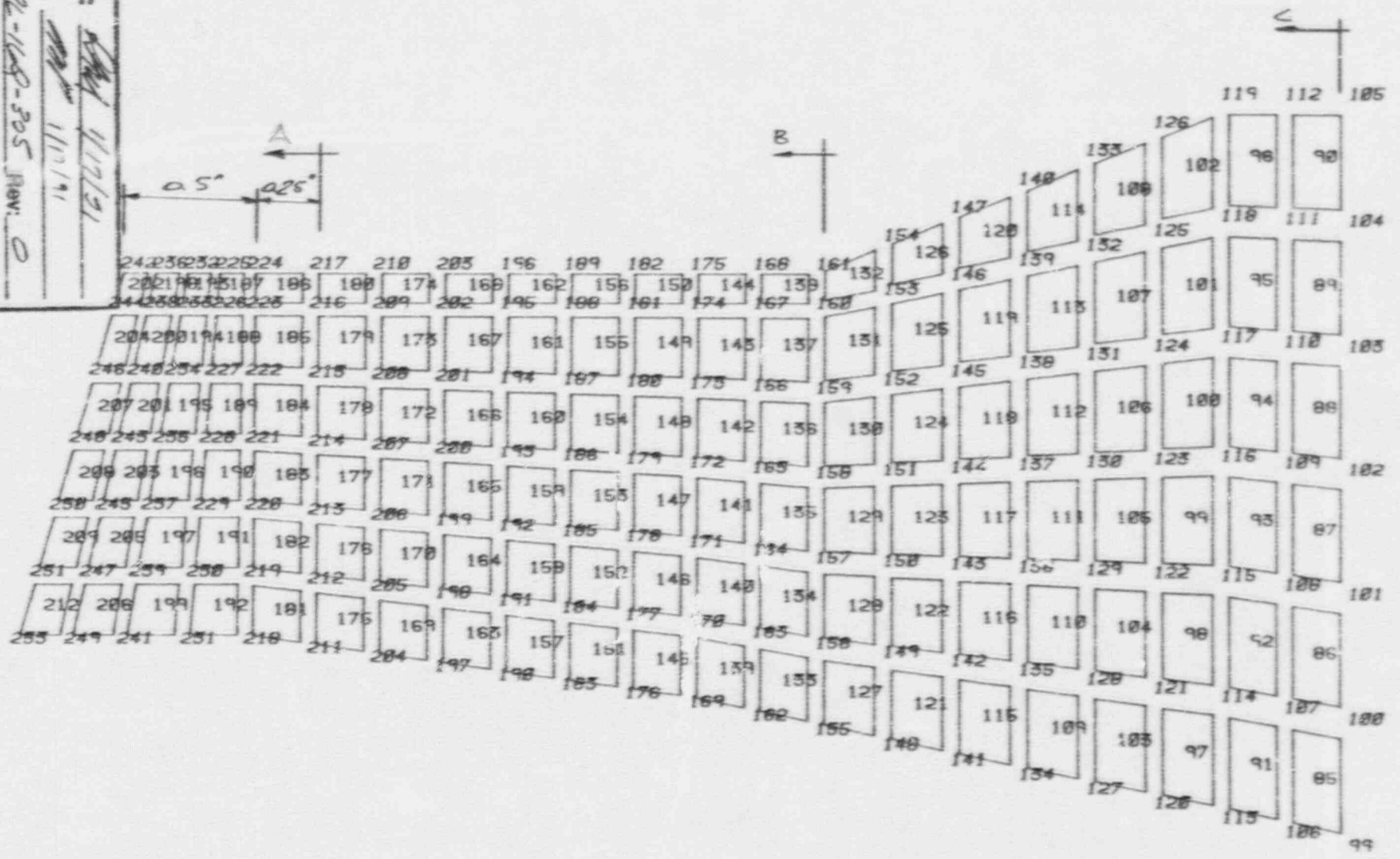



FIGURE 1

TABLE 4
HOOP STRESSES

	NODE	RADIUS (IN.)	T_p^1	T_r^2
SECTION A ³	217	12.29°	10.34 ksi	5.82
	216	12.14°	10.51 ksi	6.5°
	215	11.86°	10.74 ksi	6
	214	11.59°	10.96 ksi	14
	213	11.31°	11.21 ksi	11
	212	11.03°	11.50 ksi	12.2 ksi
	211	10.76°	11.93 ksi	13.22 ksi
SECTION B ³	161	12.29°	5.79 ksi	(-) 0.86
	160	12.14°	6.20 ksi	0.70 ksi
	159	11.80°	6.86 ksi	2.37 ksi
	158	11.46°	7.50 ksi	3.75 ksi
	157	11.12°	8.15 ksi	5.0 ksi
	156	10.78°	8.85 ksi	6.44 ksi
	155	10.44°	9.60 ksi	7.78 ksi
SECTION C ³	105	12.97°	3.76 ksi	0.39 ksi
	104	12.47°	4.15 ksi	0.58 ksi
	103	11.97°	4.62 ksi	0.80 ksi
	102	11.48°	5.15 ksi	1.05 ksi
	101	10.98°	5.71 ksi	2.04 ksi
	100	10.48°	6.30 ksi	2.64 ksi
	99	9.98°	6.68 ksi	2.99 ksi

- NOTES:
1. For 1000 psig INTERNAL PRESSURE.
 2. For 532°F STEADY STATE TEMPERATURE, WITH A 70°F SPECIFIC FREE TEMPERATURE.
 3. SEE FIGURE 1.

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APPENDIX B

Summary of Stresses for Flaw Evaluation

SIR-91-003

APPENDIX C

Flaw Evaluation - RHR Valve to Recirculation System Tee

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