



STRUCTURAL
INTEGRITY
ASSOCIATES, INC.

CALCULATION PACKAGE

FILE NO: 304

PROJECT NO:
CPL-16Q

PROJECT NAME: Outage Support for BSEP, Unit 1

CLIENT: Carolina Power and Light

CALCULATION TITLE:

stress analysis of RHR Valve to Recirc Tee

PROBLEM STATEMENT OR OBJECTIVE OF THE CALCULATION:

The stress due to a pressure load will be found using SSAP04 [1] for the geometry of the RHR valve to Recirc. Tee. In addition a uniform steady state thermal stress analysis at 572°F will be run.

Document Revision	Affected Pages	Revision Description	Proj. Mgr. Approval /Date	Signature, Initials and Date of Preparers and Checkers
0	1-16 A0-A14 B0-B5	Initial Issue	CJ [Signature] 1-17-91	Mark [Signature] 1-16-91 [Signature] 1/16/91

Introduction: Axial flows have been found in a section that connects the RHR valve to the Recirc Tee forgings. To do a flow evaluation, stress, particularly Hoop because the flows are axial, need to be determined with relative accuracy.

Objective: Construct a FEM based on measured dimensions to run a pressure loading case using SASAPM.

Approach: Use pertinent input to establish the geometry to be modeled.

Generate the FEM and a dimensioned drawing that documents the modeled geometry.

Input the material property data.

Impose the load case one Pressure = 1000PSI with end forces representing the cap load


Impose load case two static thermal analysis with 70°F stress free temp and a uniform temperature of 532°F

Document Results.

Analysis: The drawing used for the geometry is shown on page 4 [2]. A spherical shell with a radius equal to the pipe diameter was used to represent the connecting Tee so hoop stress values would result that are comparable to those in the non-axisymmetric geometry. Dimensions of the final model are shown on page 6. The FEM is plotted out in Appendix B with the Node coordinates and element definitions printed out in Appendix A.

Material Properties @ 550

Type	$E \times 10^6$ psi	$\alpha \times 10^{-6}$ in/in/°F	ν in/in	ν in/in
Stainless Steel	25.55	9.45	0.283	0.3
Carbon Steel	27.0	7.18	0.283	0.3

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Analysis : CAP load calc.
(cont.)

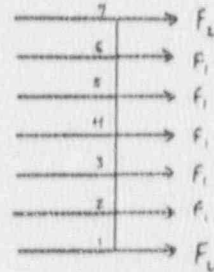
$$A = \pi R^2 = \pi (9.867)^2 = 305.858 \text{ in}^2$$

$$F = PA = 1000 \cdot 305.858 = 305.858 \text{ kips}$$

$$F' = \frac{F}{2\pi} = 48.678 \frac{\text{kips}}{\text{rad}}$$

$$F_1 = \frac{F'}{6} = 8.113 \frac{\text{kips}}{\text{rad}}$$

$$F_2 = \frac{F_1}{2} = 4.057 \frac{\text{kips}}{\text{rad}}$$



Results : Hoop stress plots for L.C. 1 (Pressure) and L.C. 2 (Thermal) are on pages 7-8 & Pages 12-13 respectively

Stress output for nodes 99-253 are on pages 9-11 for LC 1 and pages 14-16 for LC 2. These nodes are inclusive to the area shown by the plots on page 8, 13 & 15.

- References :
1. SSAPDH, linear elastic FEA Developed By Alger interactive Co. Version 9.00/38c
 2. Telecopy from Terry Pitchford Dated 1-9-91



Revision

0

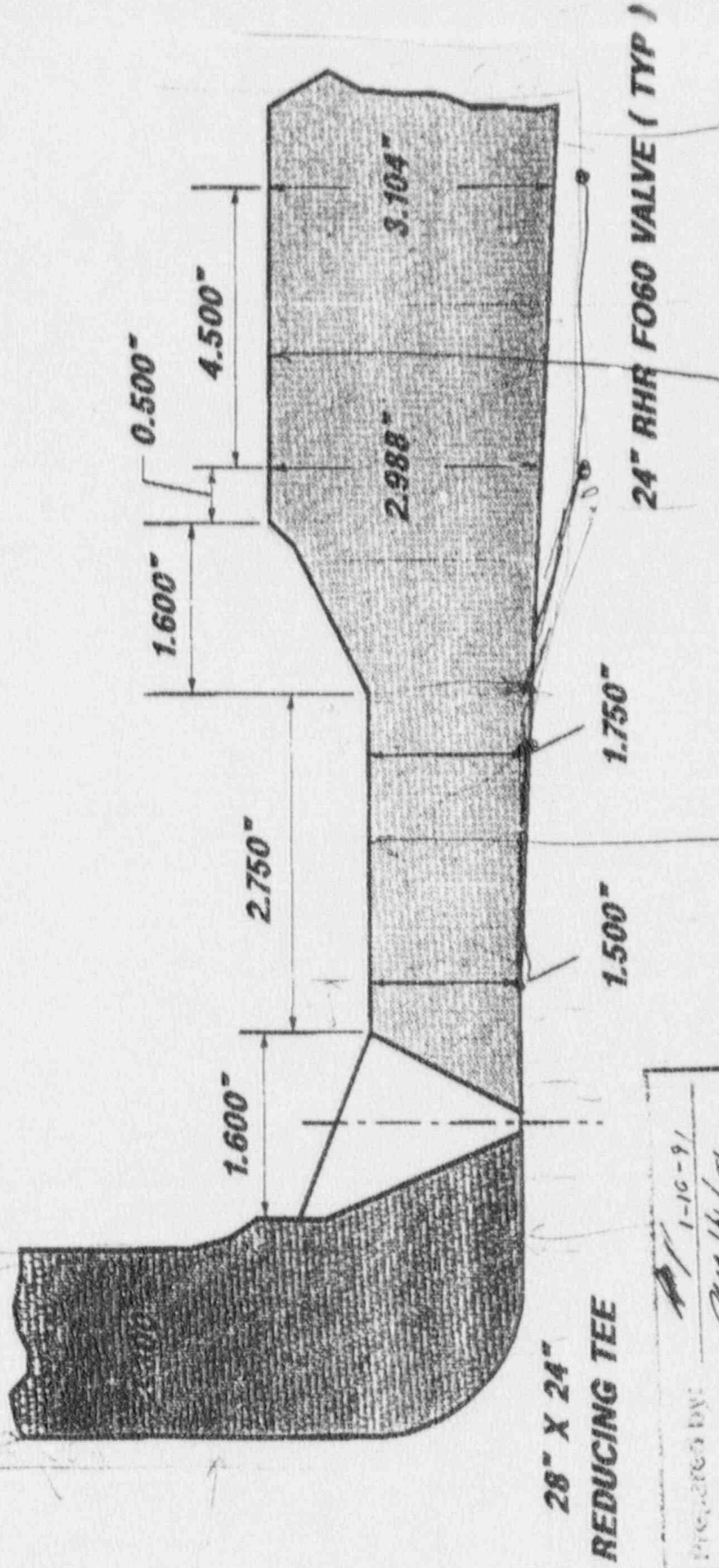
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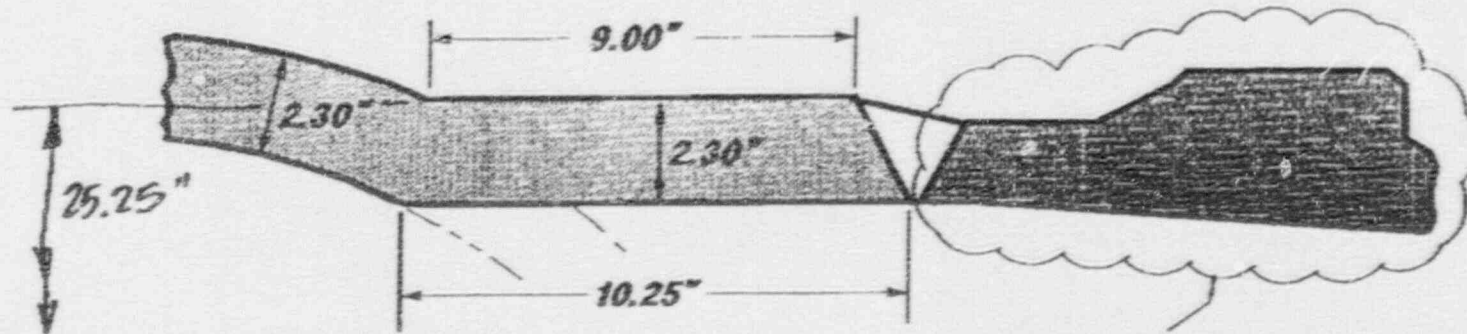
**RHR VALVE TO RECIRC TEE CONFIGURATION
(TYPICAL AT 0° AND 180°)**



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81.5
 12-12-77
 77.35
 12-29-77

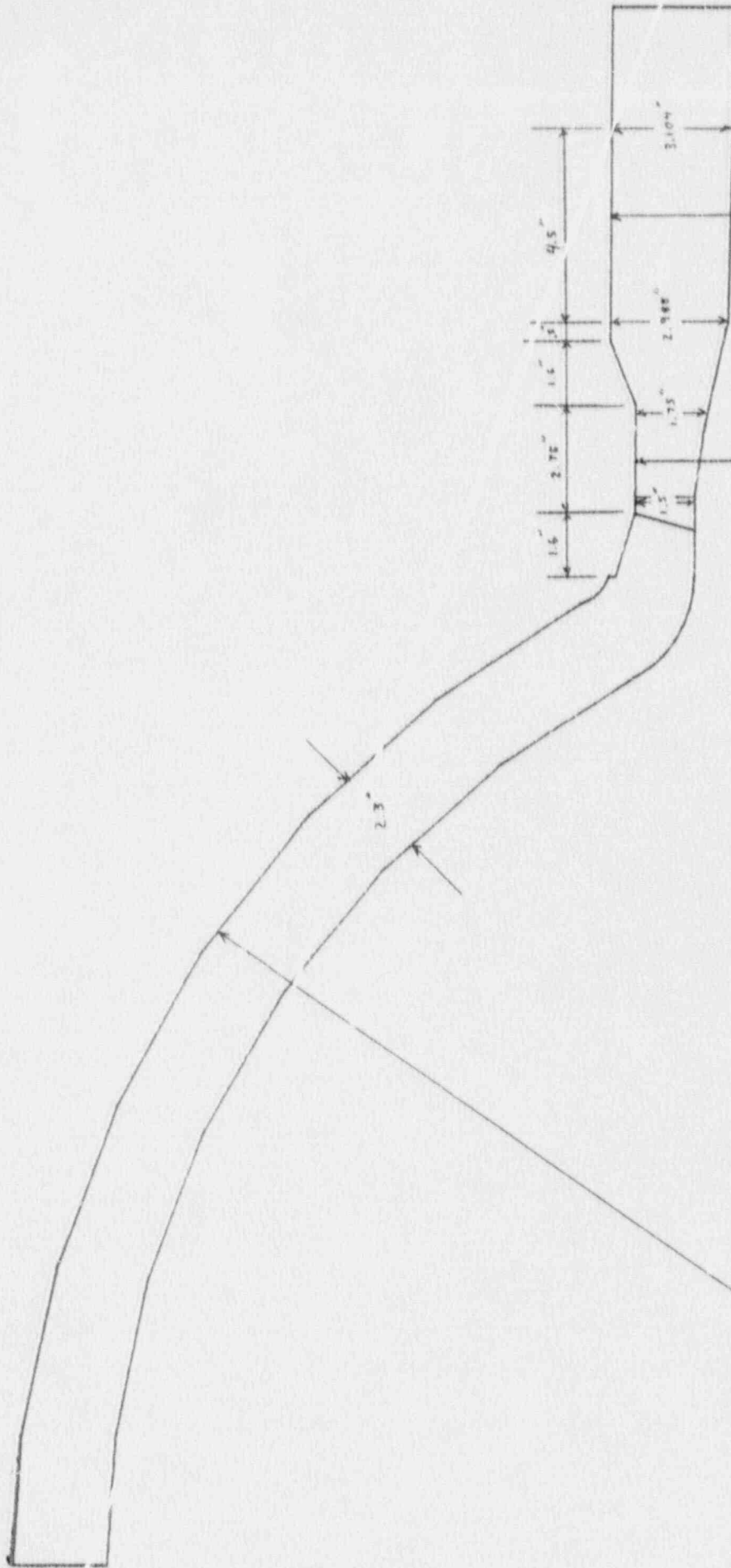
**RHR VALVE TO RECIRC TEE CONFIGURATION
(TYPICAL AT 90° AND 270°)**



**VALVE DIMENSIONS
SAME AS 0° AND 180°
CONFIGURATION DRWG.**

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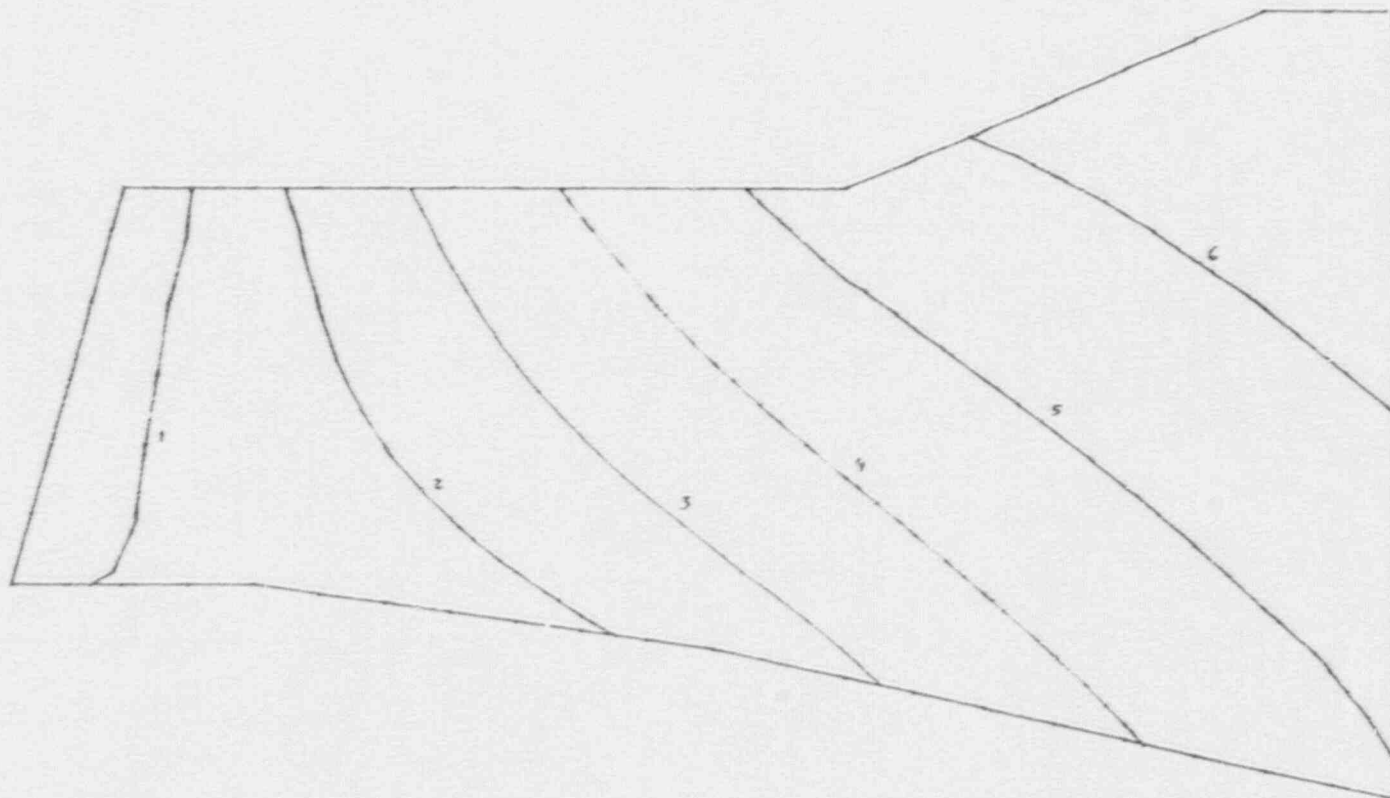
12.295 12.971

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d

Tensor Stress S33 L.C. 1

H	13574.
1	12173.
2	10772.
3	9370.1
4	7968.6
5	6567.2
6	5165.7
L	3764.2



Prepared by: MM 1-16-91
Checked by: RMM 1/16/91
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SVIEW 3.04 File:cpl16pz 91/01/15 13:08 LC 1/ 2

Pressure load of 1000 psi
Output of Tensor Stress S33.

Node : Information	Y(in)	Z(in)
99: Val= 6.675e+003	9.983E+00	-3.155E+01
100: Val= 6.303e+003	1.048E+01	-3.155E+01
101: Val= 5.707e+003	1.098E+01	-3.155E+01
102: Val= 5.147e+003	1.148E+01	-3.155E+01
103: Val= 4.620e+003	1.197E+01	-3.155E+01
104: Val= 4.152e+003	1.247E+01	-3.155E+01
105: Val= 3.764e+003	1.297E+01	-3.155E+01
106: Val= 6.972e+003	1.004E+01	-3.130E+01
107: Val= 6.514e+003	1.053E+01	-3.130E+01
108: Val= 5.909e+003	1.102E+01	-3.130E+01
109: Val= 5.337e+003	1.150E+01	-3.130E+01
110: Val= 4.802e+003	1.199E+01	-3.130E+01
111: Val= 4.320e+003	1.248E+01	-3.130E+01
112: Val= 3.959e+003	1.297E+01	-3.130E+01
113: Val= 7.324e+003	1.009E+01	-3.105E+01
114: Val= 6.738e+003	1.057E+01	-3.105E+01
115: Val= 6.126e+003	1.105E+01	-3.105E+01
116: Val= 5.532e+003	1.153E+01	-3.105E+01
117: Val= 4.985e+003	1.201E+01	-3.105E+01
118: Val= 4.492e+003	1.249E+01	-3.105E+01
119: Val= 4.163e+003	1.297E+01	-3.105E+01
120: Val= 7.707e+003	1.015E+01	-3.079E+01
121: Val= 7.047e+003	1.061E+01	-3.079E+01
122: Val= 6.411e+003	1.106E+01	-3.079E+01
123: Val= 5.798e+003	1.152E+01	-3.079E+01
124: Val= 5.225e+003	1.198E+01	-3.079E+01
125: Val= 4.705e+003	1.243E+01	-3.079E+01
126: Val= 4.337e+003	1.286E+01	-3.079E+01
127: Val= 8.063e+003	1.021E+01	-3.052E+01
128: Val= 7.368e+003	1.064E+01	-3.052E+01
129: Val= 6.713e+003	1.107E+01	-3.052E+01
130: Val= 6.085e+003	1.151E+01	-3.052E+01
131: Val= 5.490e+003	1.194E+01	-3.052E+01
132: Val= 4.947e+003	1.237E+01	-3.052E+01
133: Val= 4.538e+003	1.275E+01	-3.052E+01
134: Val= 8.421e+003	1.026E+01	-3.025E+01
135: Val= 7.706e+003	1.067E+01	-3.025E+01
136: Val= 7.034e+003	1.108E+01	-3.025E+01
137: Val= 6.393e+003	1.149E+01	-3.025E+01
138: Val= 5.779e+003	1.190E+01	-3.025E+01
139: Val= 5.204e+003	1.232E+01	-3.025E+01
140: Val= 4.789e+003	1.263E+01	-3.025E+01
141: Val= 8.788e+003	1.032E+01	-2.999E+01
142: Val= 8.063e+003	1.071E+01	-2.999E+01
143: Val= 7.379e+003	1.110E+01	-2.999E+01
144: Val= 6.727e+003	1.148E+01	-2.999E+01
145: Val= 6.100e+003	1.187E+01	-2.999E+01
146: Val= 5.486e+003	1.226E+01	-2.999E+01
147: Val= 5.088e+003	1.252E+01	-2.999E+01
148: Val= 9.169e+003	1.038E+01	-2.972E+01
149: Val= 8.437e+003	1.074E+01	-2.972E+01
150: Val= 7.749e+003	1.111E+01	-2.972E+01
151: Val= 7.093e+003	1.147E+01	-2.972E+01
152: Val= 6.459e+003	1.183E+01	-2.972E+01
153: Val= 5.814e+003	1.220E+01	-2.972E+01
154: Val= 5.414e+003	1.241E+01	-2.972E+01
155: Val= 9.596e+003	1.044E+01	-2.945E+01
156: Val= 8.848e+003	1.078E+01	-2.945E+01
157: Val= 8.148e+003	1.112E+01	-2.945E+01
158: Val= 7.497e+003	1.146E+01	-2.945E+01
159: Val= 6.860e+003	1.180E+01	-2.945E+01
160: Val= 6.198e+003	1.214E+01	-2.945E+01
161: Val= 5.785e+003	1.229E+01	-2.945E+01
162: Val= 9.987e+003	1.049E+01	-2.920E+01
163: Val= 9.177e+003	1.082E+01	-2.920E+01
164: Val= 8.489e+003	1.115E+01	-2.920E+01

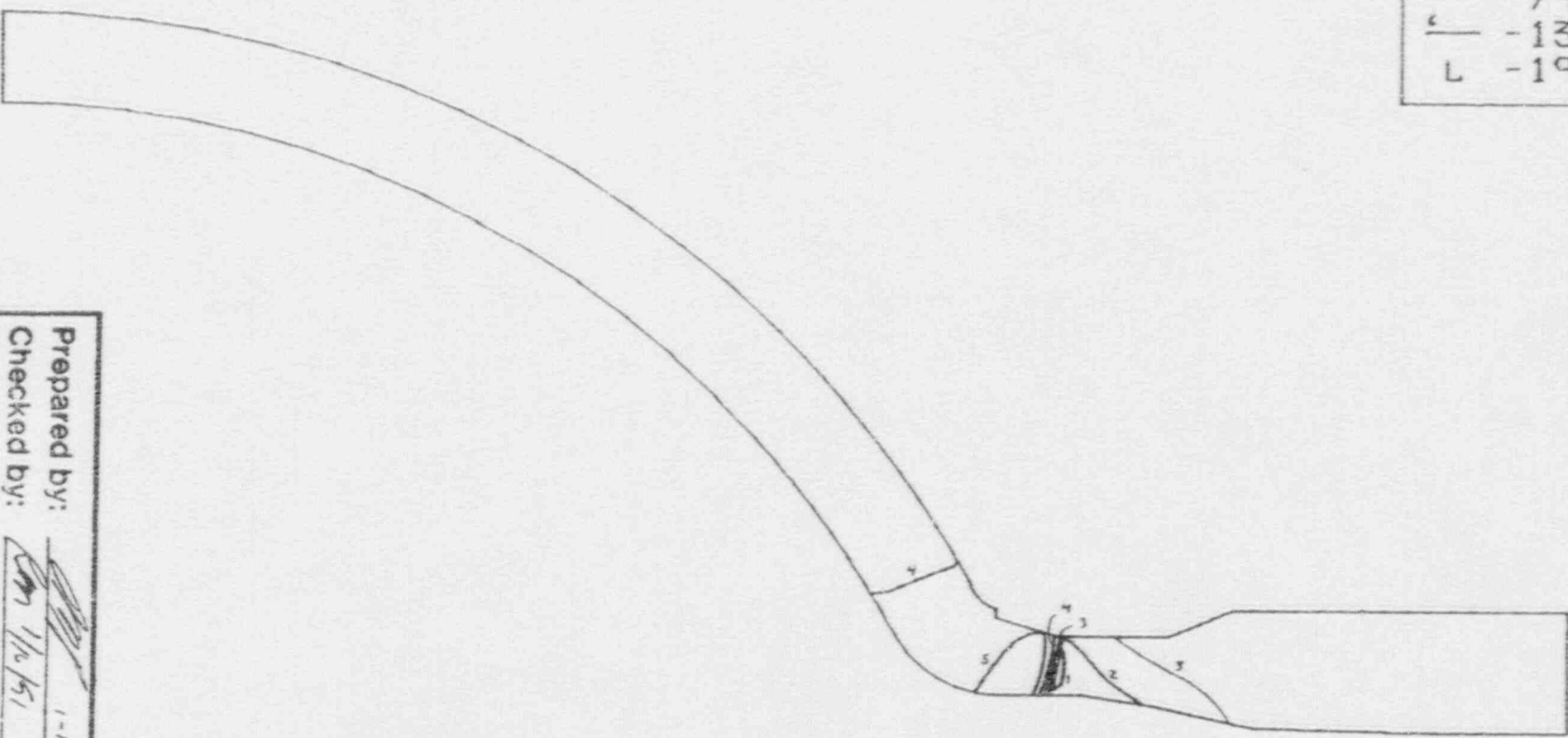
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165:	Val=	7.852e+003	1.148E+01	-2.920E+01
166:	Val=	7.243e+003	1.181E+01	-2.920E+01
167:	Val=	6.626e+003	1.214E+01	-2.920E+01
168:	Val=	6.314e+003	1.229E+01	-2.920E+01
169:	Val=	1.039e+004	1.054E+01	-2.895E+01
170:	Val=	9.521e+003	1.086E+01	-2.895E+01
171:	Val=	8.853e+003	1.118E+01	-2.895E+01
172:	Val=	8.233e+003	1.150E+01	-2.895E+01
173:	Val=	7.645e+003	1.182E+01	-2.895E+01
174:	Val=	7.057e+003	1.214E+01	-2.895E+01
175:	Val=	6.783e+003	1.229E+01	-2.895E+01
176:	Val=	1.065e+004	1.058E+01	-2.870E+01
177:	Val=	9.864e+003	1.089E+01	-2.870E+01
178:	Val=	9.223e+003	1.120E+01	-2.870E+01
179:	Val=	8.636e+003	1.152E+01	-2.870E+01
180:	Val=	8.076e+003	1.183E+01	-2.870E+01
181:	Val=	7.527e+003	1.214E+01	-2.870E+01
182:	Val=	7.249e+003	1.229E+01	-2.870E+01
183:	Val=	1.090e+004	1.062E+01	-2.845E+01
184:	Val=	1.021e+004	1.092E+01	-2.845E+01
185:	Val=	9.609e+003	1.123E+01	-2.845E+01
186:	Val=	9.064e+003	1.153E+01	-2.845E+01
187:	Val=	8.545e+003	1.183E+01	-2.845E+01
188:	Val=	8.032e+003	1.214E+01	-2.845E+01
189:	Val=	7.759e+003	1.229E+01	-2.845E+01
190:	Val=	1.118e+004	1.065E+01	-2.820E+01
191:	Val=	1.055e+004	1.095E+01	-2.820E+01
192:	Val=	1.001e+004	1.125E+01	-2.820E+01
193:	Val=	9.512e+003	1.154E+01	-2.820E+01
194:	Val=	9.045e+003	1.184E+01	-2.820E+01
195:	Val=	8.579e+003	1.214E+01	-2.820E+01
196:	Val=	8.322e+003	1.229E+01	-2.820E+01
197:	Val=	1.145e+004	1.069E+01	-2.795E+01
198:	Val=	1.089e+004	1.098E+01	-2.795E+01
199:	Val=	1.041e+004	1.127E+01	-2.795E+01
200:	Val=	9.980e+003	1.156E+01	-2.795E+01
201:	Val=	9.578e+003	1.185E+01	-2.795E+01
202:	Val=	9.171e+003	1.214E+01	-2.795E+01
203:	Val=	8.937e+003	1.229E+01	-2.795E+01
204:	Val=	1.170e+004	1.072E+01	-2.770E+01
205:	Val=	1.121e+004	1.101E+01	-2.770E+01
206:	Val=	1.081e+004	1.129E+01	-2.770E+01
207:	Val=	1.046e+004	1.157E+01	-2.770E+01
208:	Val=	1.014e+004	1.186E+01	-2.770E+01
209:	Val=	9.814e+003	1.214E+01	-2.770E+01
210:	Val=	9.608e+003	1.229E+01	-2.770E+01
211:	Val=	1.193e+004	1.076E+01	-2.745E+01
212:	Val=	1.150e+004	1.103E+01	-2.745E+01
213:	Val=	1.121e+004	1.131E+01	-2.745E+01
214:	Val=	1.096e+004	1.159E+01	-2.745E+01
215:	Val=	1.074e+004	1.186E+01	-2.745E+01
216:	Val=	1.051e+004	1.214E+01	-2.745E+01
217:	Val=	1.034e+004	1.229E+01	-2.745E+01
218:	Val=	1.208e+004	1.079E+01	-2.720E+01
219:	Val=	1.177e+004	1.106E+01	-2.720E+01
220:	Val=	1.161e+004	1.133E+01	-2.720E+01
221:	Val=	1.148e+004	1.160E+01	-2.720E+01
222:	Val=	1.137e+004	1.187E+01	-2.720E+01
223:	Val=	1.125e+004	1.214E+01	-2.720E+01
224:	Val=	1.112e+004	1.229E+01	-2.720E+01
225:	Val=	1.163e+004	1.229E+01	-2.708E+01
226:	Val=	1.175e+004	1.214E+01	-2.707E+01
227:	Val=	1.177e+004	1.187E+01	-2.704E+01
228:	Val=	1.182e+004	1.160E+01	-2.702E+01
229:	Val=	1.189e+004	1.133E+01	-2.700E+01
230:	Val=	1.197e+004	1.106E+01	-2.698E+01
231:	Val=	1.211e+004	1.079E+01	-2.695E+01
232:	Val=	1.221e+004	1.229E+01	-2.695E+01
233:	Val=	1.223e+004	1.214E+01	-2.693E+01
234:	Val=	1.216e+004	1.187E+01	-2.688E+01
235:	Val=	1.217e+004	1.160E+01	-2.684E+01
236:	Val=	1.305e+004	1.229E+01	-2.663E+01

237:	Val=	1.217e+004	1.133E+01	-2.679E+01
238:	Val=	1.267e+004	1.214E+01	-2.579E+01
239:	Val=	1.218e+004	1.106E+01	-2.675E+01
240:	Val=	1.251e+004	1.187E+01	-2.673E+01
241:	Val=	1.215e+004	1.079E+01	-2.670E+01
242:	Val=	1.357e+004	1.229E+01	-2.670E+01
243:	Val=	1.245e+004	1.160E+01	-2.667E+01
244:	Val=	1.290e+004	1.214E+01	-2.666E+01
245:	Val=	1.240e+004	1.133E+01	-2.661E+01
246:	Val=	1.279e+004	1.187E+01	-2.659E+01
247:	Val=	1.232e+004	1.106E+01	-2.655E+01
248:	Val=	1.273e+004	1.160E+01	-2.651E+01
249:	Val=	1.219e+004	1.079E+01	-2.649E+01
250:	Val=	1.268e+004	1.133E+01	-2.644E+01
251:	Val=	1.260e+004	1.106E+01	-2.636E+01
253:	Val=	1.245e+004	1.079E+01	-2.629E+01

Tensor Stress S33 L.C. 2

H	21806.
1	15852.
2	9897.7
3	3943.8
4	-2010.1
5	-7964.
6	-13918.
L	-19972.

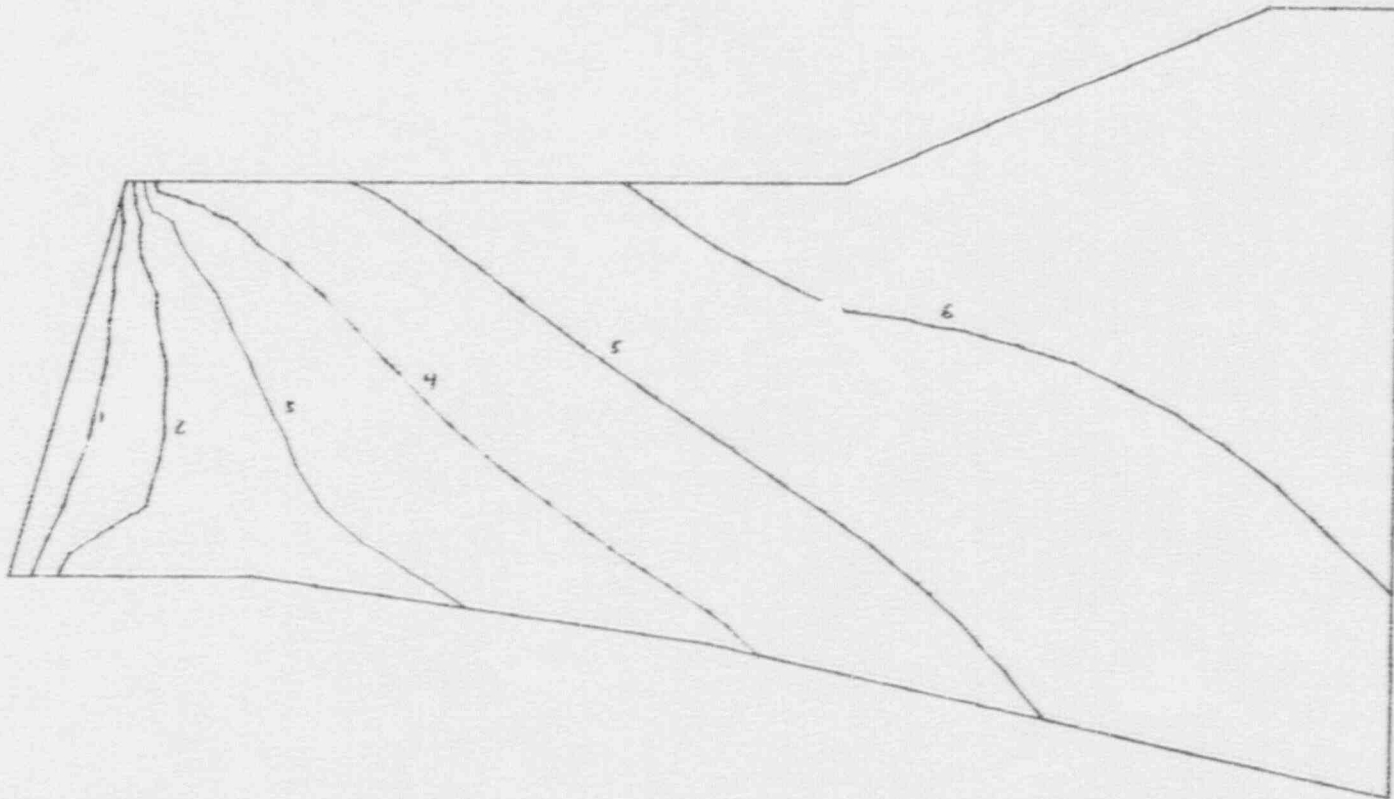


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Y

Tensor Stress S33 L.C. 2

H	21806.
1	18558.
2	15311.
3	12064.
4	8817.
5	5569.8
6	2322.7
L	-924.48



Prepared by: MI 1-16-91
Checked by: AM 1/16/91
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Thermal load of 532 F with 70 F as stress free
Output of Tensor Stress S33.

Node	Information	Y(in)	Z(in)
99	Val= 2.992e+003	9.983E+00	-3.155E+01
100	Val= 2.642e+003	1.048E+01	-3.155E+01
101	Val= 2.038e+003	1.098E+01	-3.155E+01
102	Val= 1.454e+003	1.148E+01	-3.155E+01
103	Val= 9.406e+002	1.197E+01	-3.155E+01
104	Val= 5.834e+002	1.247E+01	-3.155E+01
105	Val= 3.906e+002	1.297E+01	-3.155E+01
106	Val= 3.353e+003	1.004E+01	-3.130E+01
107	Val= 2.904e+003	1.053E+01	-3.130E+01
108	Val= 2.269e+003	1.102E+01	-3.130E+01
109	Val= 1.661e+003	1.150E+01	-3.130E+01
110	Val= 1.137e+003	1.199E+01	-3.130E+01
111	Val= 7.582e+002	1.248E+01	-3.130E+01
112	Val= 6.818e+002	1.297E+01	-3.130E+01
113	Val= 3.807e+003	1.009E+01	-3.105E+01
114	Val= 5.213e+003	1.057E+01	-3.105E+01
115	Val= 2.529e+003	1.105E+01	-3.105E+01
116	Val= 1.861e+003	1.153E+01	-3.105E+01
117	Val= 1.297e+003	1.201E+01	-3.105E+01
118	Val= 8.939e+002	1.249E+01	-3.105E+01
119	Val= 9.537e+002	1.297E+01	-3.105E+01
120	Val= 4.346e+003	1.015E+01	-3.079E+01
121	Val= 3.625e+003	1.061E+01	-3.079E+01
122	Val= 2.849e+003	1.106E+01	-3.079E+01
123	Val= 2.094e+003	1.152E+01	-3.079E+01
124	Val= 1.441e+003	1.198E+01	-3.079E+01
125	Val= 9.770e+002	1.243E+01	-3.079E+01
126	Val= 9.296e+002	1.286E+01	-3.079E+01
127	Val= 4.904e+003	1.021E+01	-3.052E+01
128	Val= 4.074e+003	1.064E+01	-3.052E+01
129	Val= 3.203e+003	1.107E+01	-3.052E+01
130	Val= 2.350e+003	1.151E+01	-3.052E+01
131	Val= 1.586e+003	1.194E+01	-3.052E+01
132	Val= 1.048e+003	1.237E+01	-3.052E+01
133	Val= 8.276e+002	1.275E+01	-3.052E+01
134	Val= 5.512e+003	1.026E+01	-3.025E+01
135	Val= 4.571e+003	1.067E+01	-3.025E+01
136	Val= 3.589e+003	1.108E+01	-3.025E+01
137	Val= 2.630e+003	1.149E+01	-3.025E+01
138	Val= 1.727e+003	1.190E+01	-3.025E+01
139	Val= 1.059e+003	1.232E+01	-3.025E+01
140	Val= 7.829e+002	1.263E+01	-3.025E+01
141	Val= 6.180e+003	1.032E+01	-2.999E+01
142	Val= 5.122e+003	1.071E+01	-2.999E+01
143	Val= 4.021e+003	1.110E+01	-2.999E+01
144	Val= 2.936e+003	1.148E+01	-2.999E+01
145	Val= 1.899e+003	1.187E+01	-2.999E+01
146	Val= 9.736e+002	1.226E+01	-2.999E+01
147	Val= 7.192e+002	1.252E+01	-2.999E+01
148	Val= 6.916e+003	1.038E+01	-2.972E+01
149	Val= 5.733e+003	1.074E+01	-2.972E+01
150	Val= 4.521e+003	1.111E+01	-2.972E+01
151	Val= 3.302e+003	1.147E+01	-2.972E+01
152	Val= 2.104e+003	1.183E+01	-2.972E+01
153	Val= 8.489e+002	1.220E+01	-2.972E+01
154	Val= 2.226e+002	1.241E+01	-2.972E+01
155	Val= 7.778e+003	1.044E+01	-2.945E+01
156	Val= 6.435e+003	1.078E+01	-2.945E+01
157	Val= 5.085e+003	1.112E+01	-2.945E+01
158	Val= 3.752e+003	1.146E+01	-2.945E+01
159	Val= 2.365e+003	1.180E+01	-2.945E+01
160	Val= 6.998e+002	1.214E+01	-2.945E+01
161	Val=-8.637e+002	1.229E+01	-2.945E+01
162	Val= 8.613e+003	1.049E+01	-2.920E+01
163	Val= 7.054e+003	1.082E+01	-2.920E+01
164	Val= 5.631e+003	1.115E+01	-2.920E+01


Prepared by:	<i>[Signature]</i>	1-16-91
Checked by:	<i>[Signature]</i>	
File No.	CPL-160-704	Rev: 0
Page	14-16	of 16

165:	Val=	4.239e+003	1.148E+01	-2.920E+01
166:	Val=	2.857e+003	1.181E+01	-2.920E+01
167:	Val=	1.324e+003	1.214E+01	-2.920E+01
168:	Val=	3.383e+002	1.229E+01	-2.920E+01
169:	Val=	9.500e+003	1.054E+01	-2.895E+01
170:	Val=	7.730e+003	1.086E+01	-2.895E+01
171:	Val=	6.244e+003	1.118E+01	-2.895E+01
172:	Val=	4.812e+003	1.150E+01	-2.895E+01
173:	Val=	3.413e+003	1.182E+01	-2.895E+01
174:	Val=	1.925e+003	1.214E+01	-2.895E+01
175:	Val=	1.336e+003	1.229E+01	-2.895E+01
176:	Val=	1.018e+004	1.058E+01	-2.870E+01
177:	Val=	8.429e+003	1.089E+01	-2.870E+01
178:	Val=	6.914e+003	1.120E+01	-2.870E+01
179:	Val=	5.474e+003	1.152E+01	-2.870E+01
180:	Val=	4.053e+003	1.183E+01	-2.870E+01
181:	Val=	2.662e+003	1.214E+01	-2.870E+01
182:	Val=	2.010e+003	1.229E+01	-2.870E+01
183:	Val=	1.087e+004	1.062E+01	-2.845E+01
184:	Val=	9.179e+003	1.092E+01	-2.845E+01
185:	Val=	7.651e+003	1.123E+01	-2.845E+01
186:	Val=	6.211e+003	1.153E+01	-2.845E+01
187:	Val=	4.796e+003	1.183E+01	-2.845E+01
188:	Val=	3.413e+003	1.214E+01	-2.845E+01
189:	Val=	2.723e+003	1.229E+01	-2.845E+01
190:	Val=	1.159e+004	1.065E+01	-2.820E+01
191:	Val=	9.931e+003	1.095E+01	-2.820E+01
192:	Val=	8.447e+003	1.125E+01	-2.820E+01
193:	Val=	7.033e+003	1.154E+01	-2.820E+01
194:	Val=	5.621e+003	1.184E+01	-2.820E+01
195:	Val=	4.224e+003	1.214E+01	-2.820E+01
196:	Val=	3.518e+003	1.229E+01	-2.820E+01
197:	Val=	1.228e+004	1.069E+01	-2.795E+01
198:	Val=	1.069e+004	1.098E+01	-2.795E+01
199:	Val=	9.307e+003	1.127E+01	-2.795E+01
200:	Val=	7.957e+003	1.156E+01	-2.795E+01
201:	Val=	6.541e+003	1.185E+01	-2.795E+01
202:	Val=	5.087e+003	1.214E+01	-2.795E+01
203:	Val=	4.356e+003	1.229E+01	-2.795E+01
204:	Val=	1.286e+004	1.072E+01	-2.770E+01
205:	Val=	1.144e+004	1.101E+01	-2.770E+01
206:	Val=	1.026e+004	1.129E+01	-2.770E+01
207:	Val=	9.021e+003	1.157E+01	-2.770E+01
208:	Val=	7.590e+003	1.186E+01	-2.770E+01
209:	Val=	5.988e+003	1.214E+01	-2.770E+01
210:	Val=	5.171e+003	1.229E+01	-2.770E+01
211:	Val=	1.322e+004	1.076E+01	-2.745E+01
212:	Val=	1.220e+004	1.103E+01	-2.745E+01
213:	Val=	1.138e+004	1.131E+01	-2.745E+01
214:	Val=	1.029e+004	1.159E+01	-2.745E+01
215:	Val=	8.856e+003	1.186E+01	-2.745E+01
216:	Val=	6.957e+003	1.214E+01	-2.745E+01
217:	Val=	5.816e+003	1.229E+01	-2.745E+01
218:	Val=	1.320e+004	1.079E+01	-2.720E+01
219:	Val=	1.308e+004	1.106E+01	-2.720E+01
220:	Val=	1.277e+004	1.133E+01	-2.720E+01
221:	Val=	1.195e+004	1.160E+01	-2.720E+01
222:	Val=	1.053e+004	1.187E+01	-2.720E+01
223:	Val=	8.146e+003	1.214E+01	-2.720E+01
224:	Val=	6.334e+003	1.229E+01	-2.720E+01
225:	Val=	6.182e+003	1.229E+01	-2.708E+01
226:	Val=	9.253e+003	1.214E+01	-2.707E+01
227:	Val=	1.218e+004	1.187E+01	-2.704E+01
228:	Val=	1.352e+004	1.160E+01	-2.702E+01
229:	Val=	1.420e+004	1.133E+01	-2.700E+01
230:	Val=	1.409e+004	1.106E+01	-2.698E+01
231:	Val=	1.282e+004	1.079E+01	-2.695E+01
232:	Val=	6.543e+003	1.229E+01	-2.695E+01
233:	Val=	1.118e+004	1.214E+01	-2.693E+01
234:	Val=	1.422e+004	1.187E+01	-2.688E+01
235:	Val=	1.568e+004	1.160E+01	-2.684E+01
236:	Val=	7.432e+003	1.229E+01	-2.683E+01

237:	Val=	1.596e+004	1.133E+01	-2.679E+01
238:	Val=	1.373e+004	1.214E+01	-2.679E+01
239:	Val=	1.569e+004	1.106E+01	-2.675E+01
240:	Val=	1.698e+004	1.187E+01	-2.673E+01
241:	Val=	1.299e+004	1.079E+01	-2.670E+01
242:	Val=	1.725e+004	1.229E+01	-2.670E+01
243:	Val=	1.803e+004	1.160E+01	-2.667E+01
244:	Val=	2.037e+004	1.214E+01	-2.666E+01
245:	Val=	1.803e+004	1.133E+01	-2.661E+01
246:	Val=	2.045e+004	1.187E+01	-2.659E+01
247:	Val=	1.704e+004	1.106E+01	-2.655E+01
248:	Val=	2.073e+004	1.160E+01	-2.651E+01
249:	Val=	1.455e+004	1.079E+01	-2.649E+01
250:	Val=	2.110e+004	1.133E+01	-2.644E+01
251:	Val=	2.172e+004	1.106E+01	-2.636E+01
253:	Val=	2.131e+004	1.079E+01	-2.629E+01

Appendix A

FEM Model File

	Revision	0				
	Preparer/Date	<i>[Signature]</i> 1-10-91				
	Checker/Date	<i>[Signature]</i> 1/12/91				
File No. CPL-16Q-301			Page <u>A0</u> of <u>A14</u>			

1**** Algor (c) Linear Stress Analysis - SSAPOH 7/18/89, Ver. 9.000/387

DATE: JANUARY 15, 1991
TIME: 1:02 PM
INPUT FILE.....cpl16pz

CPL-16Q Model of RHR valve to recirc Tee P=1000 psi T= 550 F

1**** CONTROL INFORMATION

number of node points (NUMNP) = 459
number of element types (NELTYP) = 1
number of load cases (LL) = 2
number of frequencies (NF) = 0
geometric stiffness flag (GEOSTF) = 0
analysis type code (NDYN) = 0
solution mode (MODEX) = 0
equations per block (KEQB) = 0
weight and c.g. flag (IWTCG) = 0
bandwidth minimization flag (MINBND) = 0
gravitational constant (GRAV) = 3.8610E+02

bandwidth minimization specified

1**** NODAL DATA

NODE NO.	BOUNDARY CONDITION CODES						MODAL POINT COORDINATES			
	DX	DY	DZ	RX	RY	RZ	X	Y	Z	T
1	1	0	0	1	1	1	0.000E+00	9.867E+00	-3.951E+01	5.320E+02
2	1	0	0	1	1	1	0.000E+00	1.038E+01	-3.951E+01	5.320E+02
3	1	0	0	1	1	1	0.000E+00	1.090E+01	-3.951E+01	5.320E+02
4	1	0	0	1	1	1	0.000E+00	1.142E+01	-3.951E+01	5.320E+02
5	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.951E+01	5.320E+02
6	1	0	0	1	1	1	0.000E+00	1.245E+01	-3.951E+01	5.320E+02
7	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.951E+01	5.320E+02
8	1	0	0	1	1	1	0.000E+00	9.867E+00	-3.894E+01	5.320E+02
9	1	0	0	1	1	1	0.000E+00	1.038E+01	-3.894E+01	5.320E+02
10	1	0	0	1	1	1	0.000E+00	1.090E+01	-3.894E+01	5.320E+02
11	1	0	0	1	1	1	0.000E+00	1.142E+01	-3.894E+01	5.320E+02
12	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.894E+01	5.320E+02
13	1	0	0	1	1	1	0.000E+00	1.245E+01	-3.894E+01	5.320E+02
14	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.894E+01	5.320E+02
15	1	0	0	1	1	1	0.000E+00	9.867E+00	-3.836E+01	5.320E+02
16	1	0	0	1	1	1	0.000E+00	1.038E+01	-3.836E+01	5.320E+02
17	1	0	0	1	1	1	0.000E+00	1.090E+01	-3.836E+01	5.320E+02
18	1	0	0	1	1	1	0.000E+00	1.142E+01	-3.836E+01	5.320E+02
19	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.836E+01	5.320E+02
20	1	0	0	1	1	1	0.000E+00	1.245E+01	-3.836E+01	5.320E+02
21	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.836E+01	5.320E+02
22	1	0	0	1	1	1	0.000E+00	9.867E+00	-3.778E+01	5.320E+02
23	1	0	0	1	1	1	0.000E+00	1.038E+01	-3.778E+01	5.320E+02
24	1	0	0	1	1	1	0.000E+00	1.090E+01	-3.778E+01	5.320E+02
25	1	0	0	1	1	1	0.000E+00	1.142E+01	-3.778E+01	5.320E+02
26	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.778E+01	5.320E+02
27	1	0	0	1	1	1	0.000E+00	1.245E+01	-3.778E+01	5.320E+02
28	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.778E+01	5.320E+02
29	1	0	0	1	1	1	0.000E+00	9.867E+00	-3.721E+01	5.320E+02
30	1	0	0	1	1	1	0.000E+00	1.038E+01	-3.721E+01	5.320E+02
31	1	0	0	1	1	1	0.000E+00	1.090E+01	-3.721E+01	5.320E+02
32	1	0	0	1	1	1	0.000E+00	1.142E+01	-3.721E+01	5.320E+02
33	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.721E+01	5.320E+02
34	1	0	0	1	1	1	0.000E+00	1.245E+01	-3.721E+01	5.320E+02
35	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.721E+01	5.320E+02
36	1	0	0	1	1	1	0.000E+00	9.867E+00	-3.663E+01	5.320E+02
37	1	0	0	1	1	1	0.000E+00	1.038E+01	-3.663E+01	5.320E+02
38	1	0	0	1	1	1	0.000E+00	1.090E+01	-3.663E+01	5.320E+02
39	1	0	0	1	1	1	0.000E+00	1.142E+01	-3.663E+01	5.320E+02

Prepared by: *MP 1-16-91*
Checked by: *AM 1/16/91*
File No. *CPL-16Q-304* Rev: *0*
Page *A1-A14* C. A.H

40	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.663E+01	5.320E+02
41	1	0	0	1	1	1	0.000E+00	1.245E+01	-3.663E+01	5.320E+02
42	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.663E+01	5.320E+02
43	1	0	0	1	1	1	0.000E+00	9.867E+00	-3.605E+01	5.320E+02
44	1	0	0	1	1	1	0.000E+00	1.038E+01	-3.605E+01	5.320E+02
45	1	0	0	1	1	1	0.000E+00	1.090E+01	-3.605E+01	5.320E+02
46	1	0	0	1	1	1	0.000E+00	1.142E+01	-3.605E+01	5.320E+02
47	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.605E+01	5.320E+02
48	1	0	0	1	1	1	0.000E+00	1.245E+01	-3.605E+01	5.320E+02
49	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.605E+01	5.320E+02
50	1	0	0	1	1	1	0.000E+00	9.882E+00	-3.549E+01	5.320E+02
51	1	0	0	1	1	1	0.000E+00	1.040E+01	-3.549E+01	5.320E+02
52	1	0	0	1	1	1	0.000E+00	1.091E+01	-3.549E+01	5.320E+02
53	1	0	0	1	1	1	0.000E+00	1.143E+01	-3.549E+01	5.320E+02
54	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.549E+01	5.320E+02
55	1	0	0	1	1	1	0.000E+00	1.246E+01	-3.549E+01	5.320E+02
56	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.549E+01	5.320E+02
57	1	0	0	1	1	1	0.000E+00	9.896E+00	-3.493E+01	5.320E+02
58	1	0	0	1	1	1	0.000E+00	1.041E+01	-3.493E+01	5.320E+02
59	1	0	0	1	1	1	0.000E+00	1.092E+01	-3.493E+01	5.320E+02
60	1	0	0	1	1	1	0.000E+00	1.143E+01	-3.493E+01	5.320E+02
61	1	0	0	1	1	1	0.000E+00	1.195E+01	-3.493E+01	5.320E+02
62	1	0	0	1	1	1	0.000E+00	1.246E+01	-3.493E+01	5.320E+02
63	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.493E+01	5.320E+02
64	1	0	0	1	1	1	0.000E+00	9.911E+00	-3.437E+01	5.320E+02
65	1	0	0	1	1	1	0.000E+00	1.042E+01	-3.437E+01	5.320E+02
66	1	0	0	1	1	1	0.000E+00	1.093E+01	-3.437E+01	5.320E+02
67	1	0	0	1	1	1	0.000E+00	1.144E+01	-3.437E+01	5.320E+02
68	1	0	0	1	1	1	0.000E+00	1.195E+01	-3.437E+01	5.320E+02
69	1	0	0	1	1	1	0.000E+00	1.246E+01	-3.437E+01	5.320E+02
70	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.437E+01	5.320E+02
71	1	0	0	1	1	1	0.000E+00	9.925E+00	-3.380E+01	5.320E+02
72	1	0	0	1	1	1	0.000E+00	1.043E+01	-3.380E+01	5.320E+02
73	1	0	0	1	1	1	0.000E+00	1.094E+01	-3.380E+01	5.320E+02
74	1	0	0	1	1	1	0.000E+00	1.145E+01	-3.380E+01	5.320E+02
75	1	0	0	1	1	1	0.000E+00	1.196E+01	-3.380E+01	5.320E+02
76	1	0	0	1	1	1	0.000E+00	1.246E+01	-3.380E+01	5.320E+02
77	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.380E+01	5.320E+02
78	1	0	0	1	1	1	0.000E+00	9.940E+00	-3.324E+01	5.320E+02
79	1	0	0	1	1	1	0.000E+00	1.044E+01	-3.324E+01	5.320E+02
80	1	0	0	1	1	1	0.000E+00	1.095E+01	-3.324E+01	5.320E+02
81	1	0	0	1	1	1	0.000E+00	1.146E+01	-3.324E+01	5.320E+02
82	1	0	0	1	1	1	0.000E+00	1.196E+01	-3.324E+01	5.320E+02
83	1	0	0	1	1	1	0.000E+00	1.247E+01	-3.324E+01	5.320E+02
84	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.324E+01	5.320E+02
85	1	0	0	1	1	1	0.000E+00	9.954E+00	-3.268E+01	5.320E+02
86	1	0	0	1	1	1	0.000E+00	1.046E+01	-3.268E+01	5.320E+02
87	1	0	0	1	1	1	0.000E+00	1.096E+01	-3.268E+01	5.320E+02
88	1	0	0	1	1	1	0.000E+00	1.146E+01	-3.268E+01	5.320E+02
89	1	0	0	1	1	1	0.000E+00	1.197E+01	-3.268E+01	5.320E+02
90	1	0	0	1	1	1	0.000E+00	1.247E+01	-3.268E+01	5.320E+02
91	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.268E+01	5.320E+02
92	1	0	0	1	1	1	0.000E+00	9.969E+00	-3.212E+01	5.320E+02
93	1	0	0	1	1	1	0.000E+00	1.047E+01	-3.212E+01	5.320E+02
94	1	0	0	1	1	1	0.000E+00	1.097E+01	-3.212E+01	5.320E+02
95	1	0	0	1	1	1	0.000E+00	1.147E+01	-3.212E+01	5.320E+02
96	1	0	0	1	1	1	0.000E+00	1.197E+01	-3.212E+01	5.320E+02
97	1	0	0	1	1	1	0.000E+00	1.247E+01	-3.212E+01	5.320E+02
98	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.212E+01	5.320E+02
99	1	0	0	1	1	1	0.000E+00	9.983E+00	-3.155E+01	5.320E+02
100	1	0	0	1	1	1	0.000E+00	1.048E+01	-3.155E+01	5.320E+02
101	1	0	0	1	1	1	0.000E+00	1.098E+01	-3.155E+01	5.320E+02
102	1	0	0	1	1	1	0.000E+00	1.148E+01	-3.155E+01	5.320E+02
103	1	0	0	1	1	1	0.000E+00	1.197E+01	-3.155E+01	5.320E+02
104	1	0	0	1	1	1	0.000E+00	1.247E+01	-3.155E+01	5.320E+02
105	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.155E+01	5.320E+02
106	1	0	0	1	1	1	0.000E+00	1.004E+01	-3.130E+01	5.320E+02
107	1	0	0	1	1	1	0.000E+00	1.053E+01	-3.130E+01	5.320E+02
108	1	0	0	1	1	1	0.000E+00	1.102E+01	-3.130E+01	5.320E+02
109	1	0	0	1	1	1	0.000E+00	1.150E+01	-3.130E+01	5.320E+02
110	1	0	0	1	1	1	0.000E+00	1.199E+01	-3.130E+01	5.320E+02
111	1	0	0	1	1	1	0.000E+00	1.248E+01	-3.130E+01	5.320E+02

112	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.130E+01	5.320E+02
113	1	0	0	1	1	1	0.000E+00	1.009E+01	-3.105E+01	5.320E+02
114	1	0	0	1	1	1	0.000E+00	1.057E+01	-3.105E+01	5.320E+02
115	1	0	0	1	1	1	0.000E+00	1.105E+01	-3.105E+01	5.320E+02
116	1	0	0	1	1	1	0.000E+00	1.153E+01	-3.105E+01	5.320E+02
117	1	0	0	1	1	1	0.000E+00	1.201E+01	-3.105E+01	5.320E+02
118	1	0	0	1	1	1	0.000E+00	1.249E+01	-3.105E+01	5.320E+02
119	1	0	0	1	1	1	0.000E+00	1.297E+01	-3.105E+01	5.320E+02
120	1	0	0	1	1	1	0.000E+00	1.015E+01	-3.079E+01	5.320E+02
121	1	0	0	1	1	1	0.000E+00	1.061E+01	-3.079E+01	5.320E+02
122	1	0	0	1	1	1	0.000E+00	1.106E+01	-3.079E+01	5.320E+02
123	1	0	0	1	1	1	0.000E+00	1.152E+01	-3.079E+01	5.320E+02
124	1	0	0	1	1	1	0.000E+00	1.198E+01	-3.079E+01	5.320E+02
125	1	0	0	1	1	1	0.000E+00	1.243E+01	-3.079E+01	5.320E+02
126	1	0	0	1	1	1	0.000E+00	1.286E+01	-3.079E+01	5.320E+02
127	1	0	0	1	1	1	0.000E+00	1.021E+01	-3.052E+01	5.320E+02
128	1	0	0	1	1	1	0.000E+00	1.064E+01	-3.052E+01	5.320E+02
129	1	0	0	1	1	1	0.000E+00	1.107E+01	-3.052E+01	5.320E+02
130	1	0	0	1	1	1	0.000E+00	1.151E+01	-3.052E+01	5.320E+02
131	1	0	0	1	1	1	0.000E+00	1.194E+01	-3.052E+01	5.320E+02
132	1	0	0	1	1	1	0.000E+00	1.237E+01	-3.052E+01	5.320E+02
133	1	0	0	1	1	1	0.000E+00	1.275E+01	-3.052E+01	5.320E+02
134	1	0	0	1	1	1	0.000E+00	1.026E+01	-3.025E+01	5.320E+02
135	1	0	0	1	1	1	0.000E+00	1.067E+01	-3.025E+01	5.320E+02
136	1	0	0	1	1	1	0.000E+00	1.108E+01	-3.025E+01	5.320E+02
137	1	0	0	1	1	1	0.000E+00	1.149E+01	-3.025E+01	5.320E+02
138	1	0	0	1	1	1	0.000E+00	1.190E+01	-3.025E+01	5.320E+02
139	1	0	0	1	1	1	0.000E+00	1.232E+01	-3.025E+01	5.320E+02
140	1	0	0	1	1	1	0.000E+00	1.263E+01	-3.025E+01	5.320E+02
141	1	0	0	1	1	1	0.000E+00	1.032E+01	-2.999E+01	5.320E+02
142	1	0	0	1	1	1	0.000E+00	1.071E+01	-2.999E+01	5.320E+02
143	1	0	0	1	1	1	0.000E+00	1.110E+01	-2.999E+01	5.320E+02
144	1	0	0	1	1	1	0.000E+00	1.148E+01	-2.999E+01	5.320E+02
145	1	0	0	1	1	1	0.000E+00	1.187E+01	-2.999E+01	5.320E+02
146	1	0	0	1	1	1	0.000E+00	1.226E+01	-2.999E+01	5.320E+02
147	1	0	0	1	1	1	0.000E+00	1.252E+01	-2.999E+01	5.320E+02
148	1	0	0	1	1	1	0.000E+00	1.038E+01	-2.972E+01	5.320E+02
149	1	0	0	1	1	1	0.000E+00	1.074E+01	-2.972E+01	5.320E+02
150	1	0	0	1	1	1	0.000E+00	1.111E+01	-2.972E+01	5.320E+02
151	1	0	0	1	1	1	0.000E+00	1.147E+01	-2.972E+01	5.320E+02
152	1	0	0	1	1	1	0.000E+00	1.183E+01	-2.972E+01	5.320E+02
153	1	0	0	1	1	1	0.000E+00	1.220E+01	-2.972E+01	5.320E+02
154	1	0	0	1	1	1	0.000E+00	1.241E+01	-2.972E+01	5.320E+02
155	1	0	0	1	1	1	0.000E+00	1.044E+01	-2.945E+01	5.320E+02
156	1	0	0	1	1	1	0.000E+00	1.078E+01	-2.945E+01	5.320E+02
157	1	0	0	1	1	1	0.000E+00	1.112E+01	-2.945E+01	5.320E+02
158	1	0	0	1	1	1	0.000E+00	1.146E+01	-2.945E+01	5.320E+02
159	1	0	0	1	1	1	0.000E+00	1.180E+01	-2.945E+01	5.320E+02
160	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.945E+01	5.320E+02
161	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.945E+01	5.320E+02
162	1	0	0	1	1	1	0.000E+00	1.049E+01	-2.920E+01	5.320E+02
163	1	0	0	1	1	1	0.000E+00	1.082E+01	-2.920E+01	5.320E+02
164	1	0	0	1	1	1	0.000E+00	1.115E+01	-2.920E+01	5.320E+02
165	1	0	0	1	1	1	0.000E+00	1.148E+01	-2.920E+01	5.320E+02
166	1	0	0	1	1	1	0.000E+00	1.181E+01	-2.920E+01	5.320E+02
167	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.920E+01	5.320E+02
168	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.920E+01	5.320E+02
169	1	0	0	1	1	1	0.000E+00	1.054E+01	-2.895E+01	5.320E+02
170	1	0	0	1	1	1	0.000E+00	1.086E+01	-2.895E+01	5.320E+02
171	1	0	0	1	1	1	0.000E+00	1.118E+01	-2.895E+01	5.320E+02
172	1	0	0	1	1	1	0.000E+00	1.150E+01	-2.895E+01	5.320E+02
173	1	0	0	1	1	1	0.000E+00	1.182E+01	-2.895E+01	5.320E+02
174	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.895E+01	5.320E+02
175	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.895E+01	5.320E+02
176	1	0	0	1	1	1	0.000E+00	1.058E+01	-2.870E+01	5.320E+02
177	1	0	0	1	1	1	0.000E+00	1.089E+01	-2.870E+01	5.320E+02
178	1	0	0	1	1	1	0.000E+00	1.120E+01	-2.870E+01	5.320E+02
179	1	0	0	1	1	1	0.000E+00	1.152E+01	-2.870E+01	5.320E+02
180	1	0	0	1	1	1	0.000E+00	1.183E+01	-2.870E+01	5.320E+02
181	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.870E+01	5.320E+02
182	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.870E+01	5.320E+02
183	1	0	0	1	1	1	0.000E+00	1.062E+01	-2.845E+01	5.320E+02

184	1	0	0	1	1	1	0.000E+00	1.092E+01	-2.845E+01	5.320E+02
185	1	0	0	1	1	1	0.000E+00	1.123E+01	-2.845E+01	5.320E+02
186	1	0	0	1	1	1	0.000E+00	1.153E+01	-2.845E+01	5.320E+02
187	1	0	0	1	1	1	0.000E+00	1.183E+01	-2.845E+01	5.320E+02
188	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.845E+01	5.320E+02
189	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.845E+01	5.320E+02
190	1	0	0	1	1	1	0.000E+00	1.065E+01	-2.820E+01	5.320E+02
191	1	0	0	1	1	1	0.000E+00	1.095E+01	-2.820E+01	5.320E+02
192	1	0	0	1	1	1	0.000E+00	1.125E+01	-2.820E+01	5.320E+02
193	1	0	0	1	1	1	0.000E+00	1.154E+01	-2.820E+01	5.320E+02
194	1	0	0	1	1	1	0.000E+00	1.184E+01	-2.820E+01	5.320E+02
195	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.820E+01	5.320E+02
196	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.820E+01	5.320E+02
197	1	0	0	1	1	1	0.000E+00	1.069E+01	-2.795E+01	5.320E+02
198	1	0	0	1	1	1	0.000E+00	1.098E+01	-2.795E+01	5.320E+02
199	1	0	0	1	1	1	0.000E+00	1.127E+01	-2.795E+01	5.320E+02
200	1	0	0	1	1	1	0.000E+00	1.156E+01	-2.795E+01	5.320E+02
201	1	0	0	1	1	1	0.000E+00	1.185E+01	-2.795E+01	5.320E+02
202	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.795E+01	5.320E+02
203	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.795E+01	5.320E+02
204	1	0	0	1	1	1	0.000E+00	1.072E+01	-2.770E+01	5.320E+02
205	1	0	0	1	1	1	0.000E+00	1.101E+01	-2.770E+01	5.320E+02
206	1	0	0	1	1	1	0.000E+00	1.129E+01	-2.770E+01	5.320E+02
207	1	0	0	1	1	1	0.000E+00	1.157E+01	-2.770E+01	5.320E+02
208	1	0	0	1	1	1	0.000E+00	1.186E+01	-2.770E+01	5.320E+02
209	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.770E+01	5.320E+02
210	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.770E+01	5.320E+02
211	1	0	0	1	1	1	0.000E+00	1.076E+01	-2.745E+01	5.320E+02
212	1	0	0	1	1	1	0.000E+00	1.103E+01	-2.745E+01	5.320E+02
213	1	0	0	1	1	1	0.000E+00	1.131E+01	-2.745E+01	5.320E+02
214	1	0	0	1	1	1	0.000E+00	1.159E+01	-2.745E+01	5.320E+02
215	1	0	0	1	1	1	0.000E+00	1.186E+01	-2.745E+01	5.320E+02
216	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.745E+01	5.320E+02
217	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.745E+01	5.320E+02
218	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.720E+01	5.320E+02
219	1	0	0	1	1	1	0.000E+00	1.106E+01	-2.720E+01	5.320E+02
220	1	0	0	1	1	1	0.000E+00	1.133E+01	-2.720E+01	5.320E+02
221	1	0	0	1	1	1	0.000E+00	1.160E+01	-2.720E+01	5.320E+02
222	1	0	0	1	1	1	0.000E+00	1.187E+01	-2.720E+01	5.320E+02
223	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.720E+01	5.320E+02
224	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.720E+01	5.320E+02
225	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.708E+01	5.320E+02
226	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.707E+01	5.320E+02
227	1	0	0	1	1	1	0.000E+00	1.187E+01	-2.704E+01	5.320E+02
228	1	0	0	1	1	1	0.000E+00	1.160E+01	-2.702E+01	5.320E+02
229	1	0	0	1	1	1	0.000E+00	1.133E+01	-2.700E+01	5.320E+02
230	1	0	0	1	1	1	0.000E+00	1.106E+01	-2.698E+01	5.320E+02
231	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.695E+01	5.320E+02
232	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.695E+01	5.320E+02
233	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.693E+01	5.320E+02
234	1	0	0	1	1	1	0.000E+00	1.187E+01	-2.688E+01	5.320E+02
235	1	0	0	1	1	1	0.000E+00	1.160E+01	-2.684E+01	5.320E+02
236	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.683E+01	5.320E+02
237	1	0	0	1	1	1	0.000E+00	1.133E+01	-2.679E+01	5.320E+02
238	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.679E+01	5.320E+02
239	1	0	0	1	1	1	0.000E+00	1.106E+01	-2.675E+01	5.320E+02
240	1	0	0	1	1	1	0.000E+00	1.187E+01	-2.673E+01	5.320E+02
241	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.670E+01	5.320E+02
242	1	0	0	1	1	1	0.000E+00	1.229E+01	-2.670E+01	5.320E+02
243	1	0	0	1	1	1	0.000E+00	1.160E+01	-2.667E+01	5.320E+02
244	1	0	0	1	1	1	0.000E+00	1.214E+01	-2.666E+01	5.320E+02
245	1	0	0	1	1	1	0.000E+00	1.133E+01	-2.661E+01	5.320E+02
246	1	0	0	1	1	1	0.000E+00	1.187E+01	-2.659E+01	5.320E+02
247	1	0	0	1	1	1	0.000E+00	1.106E+01	-2.655E+01	5.320E+02
248	1	0	0	1	1	1	0.000E+00	1.160E+01	-2.651E+01	5.320E+02
249	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.649E+01	5.320E+02
250	1	0	0	1	1	1	0.000E+00	1.133E+01	-2.644E+01	5.320E+02
251	1	0	0	1	1	1	0.000E+00	1.106E+01	-2.636E+01	5.320E+02
252	1	0	0	1	1	1	0.000E+00	1.242E+01	-2.630E+01	5.320E+02
253	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.629E+01	5.320E+02
254	1	0	0	1	1	1	0.000E+00	1.226E+01	-2.627E+01	5.320E+02
255	1	0	0	1	1	1	0.000E+00	1.196E+01	-2.621E+01	5.320E+02

256	1	0	0	1	1	1	0.000E+00	1.167E+01	-2.616E+01	5.320E+02
257	1	0	0	1	1	1	0.000E+00	1.138E+01	-2.610E+01	5.320E+02
258	1	0	0	1	1	1	0.000E+00	1.109E+01	-2.604E+01	5.320E+02
259	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.599E+01	5.320E+02
260	1	0	0	1	1	1	0.000E+00	1.254E+01	-2.590E+01	5.320E+02
261	1	0	0	1	1	1	0.000E+00	1.237E+01	-2.588E+01	5.320E+02
262	1	0	0	1	1	1	0.000E+00	1.206E+01	-2.584E+01	5.320E+02
263	1	0	0	1	1	1	0.000E+00	1.174E+01	-2.580E+01	5.320E+02
264	1	0	0	1	1	1	0.000E+00	1.143E+01	-2.576E+01	5.320E+02
265	1	0	0	1	1	1	0.000E+00	1.111E+01	-2.573E+01	5.320E+02
266	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.569E+01	5.320E+02
267	1	0	0	1	1	1	0.000E+00	1.266E+01	-2.550E+01	5.320E+02
268	1	0	0	1	1	1	0.000E+00	1.249E+01	-2.549E+01	5.320E+02
269	1	0	0	1	1	1	0.000E+00	1.215E+01	-2.547E+01	5.320E+02
270	1	0	0	1	1	1	0.000E+00	1.181E+01	-2.545E+01	5.320E+02
271	1	0	0	1	1	1	0.000E+00	1.147E+01	-2.543E+01	5.320E+02
272	1	0	0	1	1	1	0.000E+00	1.113E+01	-2.541E+01	5.320E+02
273	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.539E+01	5.320E+02
274	1	0	0	1	1	1	0.000E+00	1.227E+01	-2.510E+01	5.320E+02
275	1	0	0	1	1	1	0.000E+00	1.264E+01	-2.510E+01	5.320E+02
276	1	0	0	1	1	1	0.000E+00	1.279E+01	-2.510E+01	5.320E+02
277	1	0	0	1	1	1	0.000E+00	1.301E+01	-2.510E+01	5.320E+02
278	1	0	0	1	1	1	0.000E+00	1.116E+01	-2.509E+01	5.320E+02
279	1	0	0	1	1	1	0.000E+00	1.133E+01	-2.509E+01	5.320E+02
280	1	0	0	1	1	1	0.000E+00	1.190E+01	-2.510E+01	5.320E+02
281	1	0	0	1	1	1	0.000E+00	1.079E+01	-2.509E+01	5.320E+02
282	1	0	0	1	1	1	0.000E+00	1.307E+01	-2.495E+01	5.320E+02
283	1	0	0	1	1	1	0.000E+00	1.287E+01	-2.491E+01	5.320E+02
284	1	0	0	1	1	1	0.000E+00	1.270E+01	-2.488E+01	5.320E+02
285	1	0	0	1	1	1	0.000E+00	1.233E+01	-2.482E+01	5.320E+02
286	1	0	0	1	1	1	0.000E+00	1.316E+01	-2.480E+01	5.320E+02
287	1	0	0	1	1	1	0.000E+00	1.196E+01	-2.476E+01	5.320E+02
288	1	0	0	1	1	1	0.000E+00	1.297E+01	-2.474E+01	5.320E+02
289	1	0	0	1	1	1	0.000E+00	1.159E+01	-2.470E+01	5.320E+02
290	1	0	0	1	1	1	0.000E+00	1.280E+01	-2.468E+01	5.320E+02
291	1	0	0	1	1	1	0.000E+00	1.328E+01	-2.467E+01	5.320E+02
292	1	0	0	1	1	1	0.000E+00	1.122E+01	-2.463E+01	5.320E+02
293	1	0	0	1	1	1	0.000E+00	1.310E+01	-2.458E+01	5.320E+02
294	1	0	0	1	1	1	0.000E+00	1.085E+01	-2.457E+01	5.320E+02
295	1	0	0	1	1	1	0.000E+00	1.244E+01	-2.456E+01	5.320E+02
296	1	0	0	1	1	1	0.000E+00	1.341E+01	-2.456E+01	5.320E+02
297	1	0	0	1	1	1	0.000E+00	1.293E+01	-2.449E+01	5.320E+02
298	1	0	0	1	1	1	0.000E+00	1.356E+01	-2.447E+01	5.320E+02
299	1	0	0	1	1	1	0.000E+00	1.325E+01	-2.445E+01	5.320E+02
300	1	0	0	1	1	1	0.000E+00	1.208E+01	-2.444E+01	5.320E+02
301	1	0	0	1	1	1	0.000E+00	1.372E+01	-2.441E+01	5.320E+02
302	1	0	0	1	1	1	0.000E+00	1.310E+01	-2.433E+01	5.320E+02
303	1	0	0	1	1	1	0.000E+00	1.342E+01	-2.434E+01	5.320E+02
304	1	0	0	1	1	1	0.000E+00	1.172E+01	-2.432E+01	5.320E+02
305	1	0	0	1	1	1	0.000E+00	1.259E+01	-2.432E+01	5.320E+02
306	1	0	0	1	1	1	0.000E+00	1.360E+01	-2.426E+01	5.320E+02
307	1	0	0	1	1	1	0.000E+00	1.136E+01	-2.420E+01	5.320E+02
308	1	0	0	1	1	1	0.000E+00	1.328E+01	-2.420E+01	5.320E+02
309	1	0	0	1	1	1	0.000E+00	1.225E+01	-2.414E+01	5.320E+02
310	1	0	0	1	1	1	0.000E+00	1.278E+01	-2.410E+01	5.320E+02
311	1	0	0	1	1	1	0.000E+00	1.349E+01	-2.410E+01	5.320E+02
312	1	0	0	1	1	1	0.000E+00	1.100E+01	-2.408E+01	5.320E+02
313	1	0	0	1	1	1	0.000E+00	1.440E+01	-2.402E+01	5.320E+02
314	1	0	0	1	1	1	0.000E+00	1.191E+01	-2.396E+01	5.320E+02
315	1	0	0	1	1	1	0.000E+00	1.301E+01	-2.393E+01	5.320E+02
316	1	0	0	1	1	1	0.000E+00	1.247E+01	-2.388E+01	5.320E+02
317	1	0	0	1	1	1	0.000E+00	1.428E+01	-2.386E+01	5.320E+02
318	1	0	0	1	1	1	0.000E+00	1.157E+01	-2.379E+01	5.320E+02
319	1	0	0	1	1	1	0.000E+00	1.326E+01	-2.379E+01	5.320E+02
320	1	0	0	1	1	1	0.000E+00	1.416E+01	-2.371E+01	5.320E+02
321	1	0	0	1	1	1	0.000E+00	1.216E+01	-2.365E+01	5.320E+02
322	1	0	0	1	1	1	0.000E+00	1.273E+01	-2.365E+01	5.320E+02
323	1	0	0	1	1	1	0.000E+00	1.123E+01	-2.361E+01	5.320E+02
324	1	0	0	1	1	1	0.000E+00	1.507E+01	-2.360E+01	5.320E+02
325	1	0	0	1	1	1	0.000E+00	1.303E+01	-2.348E+01	5.320E+02
326	1	0	0	1	1	1	0.000E+00	1.495E+01	-2.345E+01	5.320E+02
327	1	0	0	1	1	1	0.000E+00	1.185E+01	-2.342E+01	5.320E+02

328	1	0	0	1	1	1	0.000E+00	1.393E+01	-2.340E+01	5.320E+02
329	1	0	0	1	1	1	0.000E+00	1.246E+01	-2.338E+01	5.320E+02
330	1	0	0	1	1	1	0.000E+00	1.483E+01	-2.330E+01	5.320E+02
331	1	0	0	1	1	1	0.000E+00	1.153E+01	-2.319E+01	5.320E+02
332	1	0	0	1	1	1	0.000E+00	1.280E+01	-2.317E+01	5.320E+02
333	1	0	0	1	1	1	0.070E+00	1.572E+01	-2.317E+01	5.320E+02
334	1	0	0	1	1	1	0.000E+00	1.218E+01	-2.311E+01	5.320E+02
335	1	0	0	1	1	1	0.000E+00	1.370E+01	-2.309E+01	5.320E+02
336	1	0	0	1	1	1	0.000E+00	1.560E+01	-2.302E+01	5.320E+02
337	1	0	0	1	1	1	0.000E+00	1.459E+01	-2.299E+01	5.320E+02
338	1	0	0	1	1	1	0.000E+00	1.548E+01	-2.287E+01	5.320E+02
339	1	0	0	1	1	1	0.000E+00	1.257E+01	-2.286E+01	5.320E+02
340	1	0	0	1	1	1	0.000E+00	1.191E+01	-2.283E+01	5.320E+02
341	1	0	0	1	1	1	0.000E+00	1.346E+01	-2.279E+01	5.320E+02
342	1	0	0	1	1	1	0.000E+00	1.637E+01	-2.272E+01	5.320E+02
343	1	0	0	1	1	1	0.000E+00	1.436E+01	-2.269E+01	5.320E+02
344	1	0	0	1	1	1	0.000E+00	1.524E+01	-2.257E+01	5.320E+02
345	1	0	0	1	1	1	0.000E+00	1.625E+01	-2.257E+01	5.320E+02
346	1	0	0	1	1	1	0.000E+00	1.234E+01	-2.255E+01	5.320E+02
347	1	0	0	1	1	1	0.000E+00	1.323E+01	-2.248E+01	5.320E+02
348	1	0	0	1	1	1	0.000E+00	1.613E+01	-2.242E+01	5.320E+02
349	1	0	0	1	1	1	0.000E+00	1.412E+01	-2.239E+01	5.320E+02
350	1	0	0	1	1	1	0.000E+00	1.500E+01	-2.227E+01	5.320E+02
351	1	0	0	1	1	1	0.000E+00	1.700E+01	-2.225E+01	5.320E+02
352	1	0	0	1	1	1	0.000E+00	1.300E+01	-2.217E+01	5.320E+02
353	1	0	0	1	1	1	0.000E+00	1.588E+01	-2.212E+01	5.320E+02
354	1	0	0	1	1	1	0.000E+00	1.358E+01	-2.208E+01	5.320E+02
355	1	0	0	1	1	1	0.000E+00	1.476E+01	-2.197E+01	5.320E+02
356	1	0	0	1	1	1	0.000E+00	1.676E+01	-2.195E+01	5.320E+02
357	1	0	0	1	1	1	0.000E+00	1.564E+01	-2.182E+01	5.320E+02
358	1	0	0	1	1	1	0.000E+00	1.365E+01	-2.178E+01	5.320E+02
359	1	0	0	1	1	1	0.000E+00	1.742E+01	-2.176E+01	5.320E+02
360	1	0	0	1	1	1	0.000E+00	1.452E+01	-2.167E+01	5.320E+02
361	1	0	0	1	1	1	0.000E+00	1.651E+01	-2.166E+01	5.320E+02
362	1	0	0	1	1	1	0.000E+00	1.540E+01	-2.153E+01	5.320E+02
363	1	0	0	1	1	1	0.000E+00	1.737E+01	-2.147E+01	5.320E+02
364	1	0	0	1	1	1	0.000E+00	1.428E+01	-2.137E+01	5.320E+02
365	1	0	0	1	1	1	0.000E+00	1.626E+01	-2.137E+01	5.320E+02
366	1	0	0	1	1	1	0.000E+00	1.823E+01	-2.125E+01	5.320E+02
367	1	0	0	1	1	1	0.000E+00	1.515E+01	-2.123E+01	5.320E+02
368	1	0	0	1	1	1	0.000E+00	1.712E+01	-2.118E+01	5.320E+02
369	1	0	0	1	1	1	0.000E+00	1.601E+01	-2.107E+01	5.320E+02
370	1	0	0	1	1	1	0.000E+00	1.797E+01	-2.097E+01	5.320E+02
371	1	0	0	1	1	1	0.000E+00	1.491E+01	-2.093E+01	5.320E+02
372	1	0	0	1	1	1	0.000E+00	1.687E+01	-2.089E+01	5.320E+02
373	1	0	0	1	1	1	0.000E+00	1.577E+01	-2.078E+01	5.320E+02
374	1	0	0	1	1	1	0.000E+00	1.882E+01	-2.073E+01	5.320E+02
375	1	0	0	1	1	1	0.000E+00	1.772E+01	-2.058E+01	5.320E+02
376	1	0	0	1	1	1	0.000E+00	1.662E+01	-2.060E+01	5.320E+02
377	1	0	0	1	1	1	0.000E+00	1.552E+01	-2.048E+01	5.320E+02
378	1	0	0	1	1	1	0.000E+00	1.856E+01	-2.045E+01	5.320E+02
379	1	0	0	1	1	1	0.000E+00	1.746E+01	-2.039E+01	5.320E+02
380	1	0	0	1	1	1	0.000E+00	1.637E+01	-2.031E+01	5.320E+02
381	1	0	0	1	1	1	0.000E+00	1.830E+01	-2.017E+01	5.320E+02
382	1	0	0	1	1	1	0.000E+00	1.721E+01	-2.011E+01	5.320E+02
383	1	0	0	1	1	1	0.000E+00	1.612E+01	-2.002E+01	5.320E+02
384	1	0	0	1	1	1	0.000E+00	1.805E+01	-1.988E+01	5.320E+02
385	1	0	0	1	1	1	0.000E+00	1.696E+01	-1.982E+01	5.320E+02
386	1	0	0	1	1	1	0.000E+00	1.779E+01	-1.960E+01	5.320E+02
387	1	0	0	1	1	1	0.000E+00	1.999E+01	-1.960E+01	5.320E+02
388	1	0	0	1	1	1	0.000E+00	1.670E+01	-1.953E+01	5.320E+02
389	1	0	0	1	1	1	0.000E+00	1.753E+01	-1.931E+01	5.320E+02
390	1	0	0	1	1	1	0.000E+00	1.958E+01	-1.920E+01	5.320E+02
391	1	0	0	1	1	1	0.030E+00	1.727E+01	-1.903E+01	5.320E+02
392	1	0	0	1	1	1	0.000E+00	1.917E+01	-1.880E+01	5.320E+02
393	1	0	0	1	1	1	0.000E+00	2.110E+01	-1.841E+01	5.320E+02
394	1	0	0	1	1	1	0.000E+00	1.876E+01	-1.840E+01	5.320E+02
395	1	0	0	1	1	1	0.000E+00	2.067E+01	-1.803E+01	5.320E+02
396	1	0	0	1	1	1	0.000E+00	1.835E+01	-1.799E+01	5.320E+02
397	1	0	0	1	1	1	0.000E+00	2.023E+01	-1.765E+01	5.320E+02
398	1	0	0	1	1	1	0.000E+00	1.980E+01	-1.727E+01	5.320E+02
399	1	0	0	1	1	1	0.000E+00	2.213E+01	-1.715E+01	5.320E+02

400	1	0	0	1	1	1	0.000E+00	1.937E+01	-1.690E+01	5.320E+02
401	1	0	0	1	1	1	0.000E+00	2.168E+01	-1.680E+01	5.320E+02
402	1	0	0	1	1	1	0.000E+00	2.123E+01	-1.644E+01	5.320E+02
403	1	0	0	1	1	1	0.000E+00	2.077E+01	-1.609E+01	5.320E+02
404	1	0	0	1	1	1	0.000E+00	2.309E+01	-1.583E+01	5.320E+02
405	1	0	0	1	1	1	0.000E+00	2.032E+01	-1.574E+01	5.320E+02
406	1	0	0	1	1	1	0.000E+00	2.262E+01	-1.551E+01	5.320E+02
407	1	0	0	1	1	1	0.000E+00	2.215E+01	-1.518E+01	5.320E+02
408	1	0	0	1	1	1	0.000E+00	2.167E+01	-1.486E+01	5.320E+02
409	1	0	0	1	1	1	0.000E+00	2.120E+01	-1.453E+01	5.320E+02
410	1	0	0	1	1	1	0.000E+00	2.398E+01	-1.446E+01	5.320E+02
411	1	0	0	1	1	1	0.000E+00	2.348E+01	-1.416E+01	5.320E+02
412	1	0	0	1	1	1	0.000E+00	2.299E+01	-1.387E+01	5.320E+02
413	1	0	0	1	1	1	0.000E+00	2.250E+01	-1.357E+01	5.320E+02
414	1	0	0	1	1	1	0.000E+00	2.201E+01	-1.327E+01	5.320E+02
415	1	0	0	1	1	1	0.000E+00	2.478E+01	-1.304E+01	5.320E+02
416	1	0	0	1	1	1	0.000E+00	2.427E+01	-1.277E+01	5.320E+02
417	1	0	0	1	1	1	0.000E+00	2.376E+01	-1.251E+01	5.320E+02
418	1	0	0	1	1	1	0.000E+00	2.325E+01	-1.224E+01	5.320E+02
419	1	0	0	1	1	1	0.000E+00	2.274E+01	-1.197E+01	5.320E+02
420	1	0	0	1	1	1	0.000E+00	2.549E+01	-1.158E+01	5.320E+02
421	1	0	0	1	1	1	0.000E+00	2.497E+01	-1.134E+01	5.320E+02
422	1	0	0	1	1	1	0.000E+00	2.445E+01	-1.110E+01	5.320E+02
423	1	0	0	1	1	1	0.000E+00	2.392E+01	-1.086E+01	5.320E+02
424	1	0	0	1	1	1	0.000E+00	2.340E+01	-1.063E+01	5.320E+02
425	1	0	0	1	1	1	0.000E+00	2.612E+01	-1.007E+01	5.320E+02
426	1	0	0	1	1	1	0.000E+00	2.559E+01	-9.867E+00	5.320E+02
427	1	0	0	1	1	1	0.000E+00	2.505E+01	-9.660E+00	5.320E+02
428	1	0	0	1	1	1	0.000E+00	2.452E+01	-9.453E+00	5.320E+02
429	1	0	0	1	1	1	0.000E+00	2.398E+01	-9.247E+00	5.320E+02
430	1	0	0	1	1	1	0.000E+00	2.669E+01	-8.454E+00	5.320E+02
431	1	0	0	1	1	1	0.000E+00	2.615E+01	-8.280E+00	5.320E+02
432	1	0	0	1	1	1	0.000E+00	2.560E+01	-8.106E+00	5.320E+02
433	1	0	0	1	1	1	0.000E+00	2.505E+01	-7.933E+00	5.320E+02
434	1	0	0	1	1	1	0.000E+00	2.450E+01	-7.759E+00	5.320E+02
435	1	0	0	1	1	1	0.000E+00	2.716E+01	-7.801E+00	5.320E+02
436	1	0	0	1	1	1	0.000E+00	2.660E+01	-6.662E+00	5.320E+02
437	1	0	0	1	1	1	0.000E+00	2.605E+01	-6.522E+00	5.320E+02
438	1	0	0	1	1	1	0.000E+00	2.549E+01	-6.382E+00	5.320E+02
439	1	0	0	1	1	1	0.000E+00	2.493E+01	-6.243E+00	5.320E+02
440	1	0	0	1	1	1	0.000E+00	2.753E+01	-5.124E+00	5.320E+02
441	1	0	0	1	1	1	0.000E+00	2.696E+01	-5.018E+00	5.320E+02
442	1	0	0	1	1	1	0.000E+00	2.640E+01	-4.913E+00	5.320E+02
443	1	0	0	1	1	1	0.000E+00	2.583E+01	-4.808E+00	5.320E+02
444	1	0	0	1	1	1	0.000E+00	2.527E+01	-4.703E+00	5.320E+02
445	1	0	0	1	1	1	0.000E+00	2.779E+01	-3.426E+00	5.320E+02
446	1	0	0	1	1	1	0.000E+00	2.722E+01	-3.356E+00	5.320E+02
447	1	0	0	1	1	1	0.000E+00	2.665E+01	-3.286E+00	5.320E+02
448	1	0	0	1	1	1	0.000E+00	2.608E+01	-3.215E+00	5.320E+02
449	1	0	0	1	1	1	0.000E+00	2.551E+01	-3.145E+00	5.320E+02
450	1	0	0	1	1	1	0.000E+00	2.795E+01	-1.716E+00	5.320E+02
451	1	0	0	1	1	1	0.000E+00	2.737E+01	-1.681E+00	5.320E+02
452	1	0	0	1	1	1	0.000E+00	2.680E+01	-1.646E+00	5.320E+02
453	1	0	0	1	1	1	0.000E+00	2.623E+01	-1.611E+00	5.320E+02
454	1	0	0	1	1	1	0.000E+00	2.565E+01	-1.575E+00	5.320E+02
455	1	0	1	1	1	1	0.000E+00	2.570E+01	1.436E-06	5.320E+02
456	1	0	1	1	1	1	0.000E+00	2.628E+01	1.468E-06	5.320E+02
457	1	0	1	1	1	1	0.000E+00	2.685E+01	1.500E-06	5.320E+02
458	1	0	1	1	1	1	0.000E+00	2.743E+01	1.532E-06	5.320E+02
459	1	0	1	1	1	1	0.000E+00	2.800E+01	1.565E-06	5.320E+02

**** PRINT OF EQUATION NUMBERS SUPPRESSED

1**** TWO-DIMENSIONAL SOLID ELEMENTS

axisymmetric (loads and results per radian)

number of elements	=	388
number of materials	=	2
maximum temperatures per material	=	1
analysis code	=	0
axisymmetric.....0		
plane strain.....1		

plane stress.....2
 incompatible displacement modes * 0
 include.....0
 suppress.....1

1**** MATERIAL PROPERTIES

material i.d. number = 1
 number of temperatures = 1
 weight density = 2.8300E-01
 mass density = 7.3297E-04
 beta angle = 0.0000E+00

TEMPERATURE	E(N)/ ALPHA(N)	E(S)/ ALPHA(S)	E(T)/ ALPHA(T)	MU(NS)	MU(NT)	MU(ST)	G(NS)
550.0	2.700E+07 7.180E-06	2.700E+07 7.180E-06	2.700E+07 7.180E-06	.300	.300	.300	1.038E+07

material i.d. number = 2
 number of temperatures = 1
 weight density = 2.8300E-01
 mass density = 7.3297E-04
 beta angle = 0.0000E+00

TEMPERATURE	E(N)/ ALPHA(N)	E(S)/ ALPHA(S)	E(T)/ ALPHA(T)	MU(NS)	MU(NT)	MU(ST)	G(NS)
550.0	2.555E+07 9.450E-06	2.555E+07 9.450E-06	2.555E+07 9.450E-06	.300	.300	.300	9.827E+06

1**** ELEMENT LOAD MULTIPLIERS

	CASE A	CASE B	CASE C	CASE D
TEMP	0.000E+00	1.000E+00	0.000E+00	0.000E+00
PRES	1.000E+00	0.000E+00	0.000E+00	0.000E+00
X-DIR	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y-DIR	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Z-DIR	0.000E+00	0.000E+00	0.000E+00	0.000E+00

1**** ELEMENT CONNECTIVITY DATA

ELEM NO.	NODE I	NODE J	NODE K	NODE L	MAT'L INDEX	REFERENCE TEMP	I-J FACE PRESSURE	OP	THICKNESS
1	8	1	2	9	1	7.000E+01	1.000E+03	20	0.000E+00
2	9	2	3	10	1	7.000E+01	0.000E+00	20	0.000E+00
3	10	3	4	11	1	7.000E+01	0.000E+00	20	0.000E+00
4	11	4	5	12	1	7.000E+01	0.000E+00	20	0.000E+00
5	12	5	6	13	1	7.000E+01	0.000E+00	20	0.000E+00
6	13	6	7	14	1	7.000E+01	0.000E+00	20	0.000E+00
7	15	8	9	16	1	7.000E+01	1.000E+03	20	0.000E+00
8	9	10	17	16	1	7.000E+01	0.000E+00	20	0.000E+00
9	10	11	18	17	1	7.000E+01	0.000E+00	20	0.000E+00
10	11	12	19	18	1	7.000E+01	0.000E+00	20	0.000E+00
11	12	13	20	19	1	7.000E+01	0.000E+00	20	0.000E+00
12	13	14	21	20	1	7.000E+01	0.000E+00	20	0.000E+00
13	22	15	16	23	1	7.000E+01	1.000E+03	20	0.000E+00
14	16	17	24	23	1	7.000E+01	0.000E+00	20	0.000E+00
15	17	18	25	24	1	7.000E+01	0.000E+00	20	0.000E+00
16	18	19	26	25	1	7.000E+01	0.000E+00	20	0.000E+00
17	19	20	27	26	1	7.000E+01	0.000E+00	20	0.000E+00
18	20	21	28	27	1	7.000E+01	0.000E+00	20	0.000E+00
19	29	22	23	30	1	7.000E+01	1.000E+03	20	0.000E+00
20	23	24	31	30	1	7.000E+01	0.000E+00	20	0.000E+00
21	24	25	32	31	1	7.000E+01	0.000E+00	20	0.000E+00
22	25	26	33	32	1	7.000E+01	0.000E+00	20	0.000E+00
23	26	27	34	33	1	7.000E+01	0.000E+00	20	0.000E+00
24	27	28	35	34	1	7.000E+01	0.000E+00	20	0.000E+00
25	36	29	30	37	1	7.000E+01	1.000E+03	20	0.000E+00
26	30	31	38	37	1	7.000E+01	0.000E+00	20	0.000E+00

27	31	32	39	38	1	7.000E+01	0.000E+00	20	0.000E+00
28	32	33	40	39	1	7.000E+01	0.000E+00	20	0.000E+00
29	33	34	41	40	1	7.000E+01	0.000E+00	20	0.000E+00
30	34	35	42	41	1	7.000E+01	0.000E+00	20	0.000E+00
31	43	36	37	44	1	7.000E+01	1.000E+03	20	0.000E+00
32	37	38	45	44	1	7.000E+01	0.000E+00	20	0.000E+00
33	38	39	46	45	1	7.000E+01	0.000E+00	20	0.000E+00
34	39	40	47	46	1	7.000E+01	0.000E+00	20	0.000E+00
35	40	41	48	47	1	7.000E+01	0.000E+00	20	0.000E+00
36	41	42	49	48	1	7.000E+01	0.000E+00	20	0.000E+00
37	50	43	44	51	1	7.000E+01	1.000E+03	20	0.000E+00
38	44	45	52	51	1	7.000E+01	0.000E+00	20	0.000E+00
39	45	46	53	52	1	7.000E+01	0.000E+00	20	0.000E+00
40	46	47	54	53	1	7.000E+01	0.000E+00	20	0.000E+00
41	47	48	55	54	1	7.000E+01	0.000E+00	20	0.000E+00
42	48	49	56	55	1	7.000E+01	0.000E+00	20	0.000E+00
43	57	50	51	58	1	7.000E+01	1.000E+03	20	0.000E+00
44	51	52	59	58	1	7.000E+01	0.000E+00	20	0.000E+00
45	52	53	60	59	1	7.000E+01	0.000E+00	20	0.000E+00
46	53	54	61	60	1	7.000E+01	0.000E+00	20	0.000E+00
47	54	55	62	61	1	7.000E+01	0.000E+00	20	0.000E+00
48	55	56	63	62	1	7.000E+01	0.000E+00	20	0.000E+00
49	64	57	58	65	1	7.000E+01	1.000E+03	20	0.000E+00
50	58	59	66	65	1	7.000E+01	0.000E+00	20	0.000E+00
51	59	60	67	66	1	7.000E+01	0.000E+00	20	0.000E+00
52	60	61	68	67	1	7.000E+01	0.000E+00	20	0.000E+00
53	61	62	69	68	1	7.000E+01	0.000E+00	20	0.000E+00
54	62	63	70	69	1	7.000E+01	0.000E+00	20	0.000E+00
55	71	64	65	72	1	7.000E+01	1.000E+03	20	0.000E+00
56	65	66	73	72	1	7.000E+01	0.000E+00	20	0.000E+00
57	66	67	74	73	1	7.000E+01	0.000E+00	20	0.000E+00
58	67	68	75	74	1	7.000E+01	0.000E+00	20	0.000E+00
59	68	69	76	75	1	7.000E+01	0.000E+00	20	0.000E+00
60	69	70	77	76	1	7.000E+01	0.000E+00	20	0.000E+00
61	78	71	72	79	1	7.000E+01	1.000E+03	20	0.000E+00
62	72	73	80	79	1	7.000E+01	0.000E+00	20	0.000E+00
63	73	74	81	80	1	7.000E+01	0.000E+00	20	0.000E+00
64	74	75	82	81	1	7.000E+01	0.000E+00	20	0.000E+00
65	75	76	83	82	1	7.000E+01	0.000E+00	20	0.000E+00
66	76	77	84	83	1	7.000E+01	0.000E+00	20	0.000E+00
67	85	78	79	86	1	7.000E+01	1.000E+03	20	0.000E+00
68	79	80	87	86	1	7.000E+01	0.000E+00	20	0.000E+00
69	80	81	88	87	1	7.000E+01	0.000E+00	20	0.000E+00
70	81	82	89	88	1	7.000E+01	0.000E+00	20	0.000E+00
71	82	83	90	89	1	7.000E+01	0.000E+00	20	0.000E+00
72	83	84	91	90	1	7.000E+01	0.000E+00	20	0.000E+00
73	92	85	86	93	1	7.000E+01	1.000E+03	20	0.000E+00
74	86	87	94	93	1	7.000E+01	0.000E+00	20	0.000E+00
75	87	88	95	94	1	7.000E+01	0.000E+00	20	0.000E+00
76	88	89	96	95	1	7.000E+01	0.000E+00	20	0.000E+00
77	89	90	97	96	1	7.000E+01	0.000E+00	20	0.000E+00
78	90	91	98	97	1	7.000E+01	0.000E+00	20	0.000E+00
79	99	92	93	100	1	7.000E+01	1.000E+03	20	0.000E+00
80	93	94	101	100	1	7.000E+01	0.000E+00	20	0.000E+00
81	94	95	102	101	1	7.000E+01	0.000E+00	20	0.000E+00
82	95	96	103	102	1	7.000E+01	0.000E+00	20	0.000E+00
83	96	97	104	103	1	7.000E+01	0.000E+00	20	0.000E+00
84	97	98	105	104	1	7.000E+01	0.000E+00	20	0.000E+00
85	106	99	100	107	1	7.000E+01	1.000E+03	20	0.000E+00
86	100	101	108	107	1	7.000E+01	0.000E+00	20	0.000E+00
87	101	102	109	108	1	7.000E+01	0.000E+00	20	0.000E+00
88	102	103	110	109	1	7.000E+01	0.000E+00	20	0.000E+00
89	103	104	111	110	1	7.000E+01	0.000E+00	20	0.000E+00
90	104	105	112	111	1	7.000E+01	0.000E+00	20	0.000E+00
91	113	106	107	114	1	7.000E+01	1.000E+03	20	0.000E+00
92	107	108	115	114	1	7.000E+01	0.000E+00	20	0.000E+00
93	108	109	116	115	1	7.000E+01	0.000E+00	20	0.000E+00
94	109	110	117	116	1	7.000E+01	0.000E+00	20	0.000E+00
95	110	111	118	117	1	7.000E+01	0.000E+00	20	0.000E+00
96	111	112	119	118	1	7.000E+01	0.000E+00	20	0.000E+00
97	120	113	114	121	1	7.000E+01	1.000E+03	20	0.000E+00
98	114	115	122	121	1	7.000E+01	0.000E+00	20	0.000E+00

99	115	116	123	122	1	7.000E+01	0.000E+00	20	0.000E+00
100	116	117	124	123	1	7.000E+01	0.000E+00	20	0.000E+00
101	117	118	125	124	1	7.000E+01	0.000E+00	20	0.000E+00
102	118	119	126	125	1	7.000E+01	0.000E+00	20	0.000E+00
103	127	120	121	128	1	7.000E+01	1.000E+03	20	0.000E+00
104	121	122	129	128	1	7.000E+01	0.000E+00	20	0.000E+00
105	122	123	130	129	1	7.000E+01	1.000E+00	20	0.000E+00
106	123	124	131	130	1	7.000E+01	0.000E+00	20	0.000E+00
107	124	125	132	131	1	7.000E+01	0.000E+00	20	0.000E+00
108	125	126	133	132	1	7.000E+01	0.000E+00	20	0.000E+00
109	134	127	128	135	1	7.000E+01	1.000E+03	20	0.000E+00
110	128	129	136	135	1	7.000E+01	0.000E+00	20	0.000E+00
111	129	130	137	136	1	7.000E+01	0.000E+00	20	0.000E+00
112	130	131	138	137	1	7.000E+01	0.000E+00	20	0.000E+00
113	131	132	139	138	1	7.000E+01	0.000E+00	20	0.000E+00
114	132	133	140	139	1	7.000E+01	0.000E+00	20	0.000E+00
115	141	134	135	142	1	7.000E+01	1.000E+03	20	0.000E+00
116	135	136	143	142	1	7.000E+01	0.000E+00	20	0.000E+00
117	136	137	144	143	1	7.000E+01	0.000E+00	20	0.000E+00
118	137	138	145	144	1	7.000E+01	0.000E+00	20	0.000E+00
119	138	139	146	145	1	7.000E+01	0.000E+00	20	0.000E+00
120	139	140	147	146	1	7.000E+01	0.000E+00	20	0.000E+00
121	148	141	142	149	1	7.000E+01	1.000E+03	20	0.000E+00
122	142	143	150	149	1	7.000E+01	0.000E+00	20	0.000E+00
123	143	144	151	150	1	7.000E+01	0.000E+00	20	0.000E+00
124	144	145	152	151	1	7.000E+01	0.000E+00	20	0.000E+00
125	145	146	153	152	1	7.000E+01	0.000E+00	20	0.000E+00
126	146	147	154	153	1	7.000E+01	0.000E+00	20	0.000E+00
127	155	148	149	156	1	7.000E+01	1.000E+03	20	0.000E+00
128	149	150	157	156	1	7.000E+01	0.000E+00	20	0.000E+00
129	150	151	158	157	1	7.000E+01	0.000E+00	20	0.000E+00
130	151	152	159	158	1	7.000E+01	0.000E+00	20	0.000E+00
131	152	153	160	159	1	7.000E+01	0.000E+00	20	0.000E+00
132	153	154	161	160	1	7.000E+01	0.000E+00	20	0.000E+00
133	162	155	156	163	1	7.000E+01	1.000E+03	20	0.000E+00
134	156	157	164	163	1	7.000E+01	0.000E+00	20	0.000E+00
135	157	158	165	164	1	7.000E+01	0.000E+00	20	0.000E+00
136	158	159	166	165	1	7.000E+01	0.000E+00	20	0.000E+00
137	159	160	167	166	1	7.000E+01	0.000E+00	20	0.000E+00
138	160	161	168	167	1	7.000E+01	0.000E+00	20	0.000E+00
139	169	162	163	170	1	7.000E+01	1.000E+03	20	0.000E+00
140	163	164	171	170	1	7.000E+01	0.000E+00	20	0.000E+00
141	164	165	172	171	1	7.000E+01	0.000E+00	20	0.000E+00
142	165	166	173	172	1	7.000E+01	0.000E+00	20	0.000E+00
143	166	167	174	173	1	7.000E+01	0.000E+00	20	0.000E+00
144	167	168	175	174	1	7.000E+01	0.000E+00	20	0.000E+00
145	176	169	170	177	1	7.000E+01	1.000E+03	20	0.000E+00
146	170	171	178	177	1	7.000E+01	0.000E+00	20	0.000E+00
147	171	172	179	178	1	7.000E+01	0.000E+00	20	0.000E+00
148	172	173	180	179	1	7.000E+01	0.000E+00	20	0.000E+00
149	173	174	181	180	1	7.000E+01	0.000E+00	20	0.000E+00
150	174	175	182	181	1	7.000E+01	0.000E+00	20	0.000E+00
151	183	176	177	184	1	7.000E+01	1.000E+03	20	0.000E+00
152	177	178	185	184	1	7.000E+01	0.000E+00	20	0.000E+00
153	178	179	186	185	1	7.000E+01	0.000E+00	20	0.000E+00
154	179	180	187	186	1	7.000E+01	0.000E+00	20	0.000E+00
155	180	181	188	187	1	7.000E+01	0.000E+00	20	0.000E+00
156	181	182	189	188	1	7.000E+01	0.000E+00	20	0.000E+00
157	190	183	184	191	1	7.000E+01	1.000E+03	20	0.000E+00
158	184	185	192	191	1	7.000E+01	0.000E+00	20	0.000E+00
159	185	186	193	192	1	7.000E+01	0.000E+00	20	0.000E+00
160	186	187	194	193	1	7.000E+01	0.000E+00	20	0.000E+00
161	187	188	195	194	1	7.000E+01	0.000E+00	20	0.000E+00
162	188	189	196	195	1	7.000E+01	0.000E+00	20	0.000E+00
163	197	190	191	198	1	7.000E+01	1.000E+03	20	0.000E+00
164	191	192	199	198	1	7.000E+01	0.000E+00	20	0.000E+00
165	192	193	200	199	1	7.000E+01	0.000E+00	20	0.000E+00
166	193	194	201	200	1	7.000E+01	0.000E+00	20	0.000E+00
167	194	195	202	201	1	7.000E+01	0.000E+00	20	0.000E+00
168	195	196	203	202	1	7.000E+01	0.000E+00	20	0.000E+00
169	204	197	198	205	1	7.000E+01	1.000E+03	20	0.000E+00
170	198	199	206	205	1	7.000E+01	0.000E+00	20	0.000E+00

171	199	200	207	206	1	7.000E+01	0.000E+00	20	0.000E+00
172	200	201	208	207	1	7.000E+01	0.000E+00	20	0.000E+00
173	201	202	209	208	1	7.000E+01	0.000E+00	20	0.000E+00
174	202	203	210	209	1	7.000E+01	0.000E+00	20	0.000E+00
175	211	204	205	212	1	7.000E+01	1.000E+03	20	0.000E+00
176	205	206	213	212	1	7.000E+01	0.000E+00	20	0.000E+00
177	206	207	214	213	1	7.000E+01	0.000E+00	20	0.000E+00
178	207	208	215	214	1	7.000E+01	0.000E+00	20	0.000E+00
179	208	209	216	215	1	7.000E+01	0.000E+00	20	0.000E+00
180	209	210	217	216	1	7.000E+01	0.000E+00	20	0.000E+00
181	210	211	212	219	1	7.000E+01	1.000E+03	20	0.000E+00
182	212	213	220	219	1	7.000E+01	0.000E+00	20	0.000E+00
183	213	214	221	220	1	7.000E+01	0.000E+00	20	0.000E+00
184	214	215	222	221	1	7.000E+01	0.000E+00	20	0.000E+00
185	215	216	223	222	1	7.000E+01	0.000E+00	20	0.000E+00
186	216	217	224	223	1	7.000E+01	0.000E+00	20	0.000E+00
187	223	224	225	226	1	7.000E+01	0.000E+00	20	0.000E+00
188	222	223	226	227	1	7.000E+01	0.000E+00	20	0.000E+00
189	221	222	227	228	1	7.000E+01	0.000E+00	20	0.000E+00
190	220	221	228	229	1	7.000E+01	0.000E+00	20	0.000E+00
191	219	220	229	230	1	7.000E+01	0.000E+00	20	0.000E+00
192	231	218	219	230	1	7.000E+01	1.000E+03	20	0.000E+00
193	226	225	232	233	1	7.000E+01	0.000E+00	20	0.000E+00
194	227	226	233	234	1	7.000E+01	0.000E+00	20	0.000E+00
195	228	227	234	235	1	7.000E+01	0.000E+00	20	0.000E+00
196	229	228	235	237	1	7.000E+01	0.000E+00	20	0.000E+00
197	230	229	237	239	1	7.000E+01	0.000E+00	20	0.000E+00
198	233	232	236	238	1	7.000E+01	0.000E+00	20	0.000E+00
199	241	231	230	239	1	7.000E+01	1.000E+03	20	0.000E+00
200	234	233	238	240	1	7.000E+01	0.000E+00	20	0.000E+00
201	235	234	240	243	1	7.000E+01	0.000E+00	20	0.000E+00
202	238	236	242	244	1	7.000E+01	0.000E+00	20	0.000E+00
203	237	235	243	245	1	7.000E+01	0.000E+00	20	0.000E+00
204	240	238	244	246	1	7.000E+01	0.000E+00	20	0.000E+00
205	239	237	245	247	1	7.000E+01	0.000E+00	20	0.000E+00
206	249	241	239	247	1	7.000E+01	1.000E+03	20	0.000E+00
207	243	240	246	248	1	7.000E+01	0.000E+00	20	0.000E+00
208	245	243	248	250	1	7.000E+01	0.000E+00	20	0.000E+00
209	247	245	250	251	1	7.000E+01	0.000E+00	20	0.000E+00
210	244	242	252	254	2	7.000E+01	0.000E+00	20	0.000E+00
211	246	244	254	255	2	7.000E+01	0.000E+00	20	0.000E+00
212	253	249	247	251	1	7.000E+01	1.000E+03	20	0.000E+00
213	248	246	255	256	2	7.000E+01	0.000E+00	20	0.000E+00
214	250	248	256	257	2	7.000E+01	0.000E+00	20	0.000E+00
215	251	250	257	258	2	7.000E+01	0.000E+00	20	0.000E+00
216	259	253	251	258	2	7.000E+01	1.000E+03	20	0.000E+00
217	254	252	260	261	2	7.000E+01	0.000E+00	20	0.000E+00
218	255	254	261	262	2	7.000E+01	0.000E+00	20	0.000E+00
219	256	255	262	263	2	7.000E+01	0.000E+00	20	0.000E+00
220	257	256	263	264	2	7.000E+01	0.000E+00	20	0.000E+00
221	258	257	264	265	2	7.000E+01	0.000E+00	20	0.000E+00
222	266	259	258	265	2	7.000E+01	1.000E+03	20	0.000E+00
223	261	260	267	268	2	7.000E+01	0.000E+00	20	0.000E+00
224	262	261	268	269	2	7.000E+01	0.000E+00	20	0.000E+00
225	263	262	269	270	2	7.000E+01	0.000E+00	20	0.000E+00
226	264	263	270	271	2	7.000E+01	0.000E+00	20	0.000E+00
227	265	264	271	272	2	7.000E+01	0.000E+00	20	0.000E+00
228	273	266	265	272	2	7.000E+01	1.000E+03	20	0.000E+00
229	268	267	276	275	2	7.000E+01	0.000E+00	20	0.000E+00
230	269	268	275	274	2	7.000E+01	0.000E+00	20	0.000E+00
231	270	269	274	280	2	7.000E+01	0.000E+00	20	0.000E+00
232	271	270	280	279	2	7.000E+01	0.000E+00	20	0.000E+00
233	272	271	279	278	2	7.000E+01	0.000E+00	20	0.000E+00
234	281	273	272	278	2	7.000E+01	1.000E+03	20	0.000E+00
235	277	282	283	276	2	7.000E+01	0.000E+00	20	0.000E+00
236	275	274	283	284	2	7.000E+01	0.000E+00	20	0.000E+00
237	284	285	274	275	2	7.000E+01	0.000E+00	20	0.000E+00
238	285	287	280	274	2	7.000E+01	0.000E+00	20	0.000E+00
239	287	289	279	280	2	7.000E+01	0.000E+00	20	0.000E+00
240	289	292	278	279	2	7.000E+01	0.000E+00	20	0.000E+00
241	294	281	278	292	2	7.000E+01	1.000E+03	20	0.000E+00
242	282	286	288	283	2	7.000E+01	0.000E+00	20	0.000E+00

243	290	284	283	288	2	7.000E+01	0.000E+00	20	0.000E+00
244	290	295	285	284	2	7.000E+01	0.000E+00	20	0.000E+00
245	286	291	293	288	2	7.000E+01	0.000E+00	20	0.000E+00
246	295	300	307	285	2	7.000E+01	0.000E+00	20	0.000E+00
247	297	290	288	293	2	7.000E+01	0.000E+00	20	0.000E+00
248	291	296	299	293	2	7.000E+01	0.000E+00	20	0.000E+00
249	300	304	289	287	2	7.000E+01	0.000E+00	20	0.000E+00
250	297	305	295	290	2	7.000E+01	0.000E+00	20	0.000E+00
251	304	307	292	289	2	7.000E+01	0.000E+00	20	0.000E+00
252	302	297	293	299	2	7.000E+01	0.000E+00	20	0.000E+00
253	296	298	303	299	2	7.000E+01	0.000E+00	20	0.000E+00
254	312	294	292	307	2	7.000E+01	1.000E+03	20	0.000E+00
255	305	309	300	295	2	7.000E+01	0.000E+00	20	0.000E+00
256	298	301	306	303	2	7.000E+01	0.000E+00	20	0.000E+00
257	308	302	299	303	2	7.000E+01	0.000E+00	20	0.000E+00
258	302	310	305	297	2	7.000E+01	0.000E+00	20	0.000E+00
259	306	311	308	303	2	7.000E+01	0.000E+00	20	0.000E+00
260	309	314	304	300	2	7.000E+01	0.000E+00	20	0.000E+00
261	308	315	310	302	2	7.000E+01	0.000E+00	20	0.000E+00
262	301	313	317	306	2	7.000E+01	0.000E+00	20	0.000E+00
263	310	316	309	305	2	7.000E+01	0.000E+00	20	0.000E+00
264	314	318	307	304	2	7.000E+01	0.000E+00	20	0.000E+00
265	311	319	315	308	2	7.000E+01	0.000E+00	20	0.000E+00
266	306	317	320	311	2	7.000E+01	0.000E+00	20	0.000E+00
267	323	312	307	318	2	7.000E+01	1.000E+03	20	0.000E+00
268	316	321	314	309	2	7.000E+01	0.000E+00	20	0.000E+00
269	315	322	316	310	2	7.000E+01	0.000E+00	20	0.000E+00
270	311	320	328	319	2	7.000E+01	0.000E+00	20	0.000E+00
271	317	313	324	326	2	7.000E+01	0.000E+00	20	0.000E+00
272	321	327	318	314	2	7.000E+01	0.000E+00	20	0.000E+00
273	319	325	322	315	2	7.000E+01	0.000E+00	20	0.000E+00
274	322	329	321	316	2	7.000E+01	0.000E+00	20	0.000E+00
275	320	317	326	330	2	7.000E+01	0.000E+00	20	0.000E+00
276	331	323	318	327	2	7.000E+01	1.000E+03	20	0.000E+00
277	319	328	335	325	2	7.000E+01	0.000E+00	20	0.000E+00
278	325	332	329	322	2	7.000E+01	0.000E+00	20	0.000E+00
279	329	334	327	321	2	7.000E+01	0.000E+00	20	0.000E+00
280	328	320	330	337	2	7.000E+01	0.000E+00	20	0.000E+00
281	326	324	333	336	2	7.000E+01	0.000E+00	20	0.000E+00
282	330	326	336	338	2	7.000E+01	0.000E+00	20	0.000E+00
283	340	331	327	334	2	7.000E+01	1.000E+03	20	0.000E+00
284	332	339	334	329	2	7.000E+01	0.000E+00	20	0.000E+00
285	325	335	341	332	2	7.000E+01	0.000E+00	20	0.000E+00
286	335	328	337	343	2	7.000E+01	0.000E+00	20	0.000E+00
287	337	330	338	344	2	7.000E+01	0.000E+00	20	0.000E+00
288	336	333	342	345	2	7.000E+01	0.000E+00	20	0.000E+00
289	346	340	334	339	2	7.000E+01	1.000E+03	20	0.000E+00
290	332	341	347	339	2	7.000E+01	0.000E+00	20	0.000E+00
291	341	335	343	349	2	7.000E+01	0.000E+00	20	0.000E+00
292	338	336	345	348	2	7.000E+01	0.000E+00	20	0.000E+00
293	343	337	344	350	2	7.000E+01	0.000E+00	20	0.000E+00
294	352	346	339	347	2	7.000E+01	1.000E+03	20	0.000E+00
295	345	342	351	351	2	7.000E+01	0.000E+00	16	0.000E+00
296	344	338	348	353	2	7.000E+01	0.000E+00	20	0.000E+00
297	347	341	349	354	2	7.000E+01	0.000E+00	20	0.000E+00
298	349	343	350	355	2	7.000E+01	0.000E+00	20	0.000E+00
299	348	345	356	356	2	7.000E+01	0.000E+00	16	0.000E+00
300	345	351	356	356	2	7.000E+01	0.000E+00	16	0.000E+00
301	350	344	353	357	2	7.000E+01	0.000E+00	20	0.000E+00
302	358	352	347	354	2	7.000E+01	1.000E+03	20	0.000E+00
303	353	348	356	361	2	7.000E+01	0.000E+00	20	0.000E+00
304	354	349	355	360	2	7.000E+01	0.000E+00	20	0.000E+00
305	355	350	357	362	2	7.000E+01	0.000E+00	20	0.000E+00
306	356	351	359	363	2	7.000E+01	0.000E+00	20	0.000E+00
307	357	353	361	365	2	7.000E+01	0.000E+00	20	0.000E+00
308	364	358	354	360	2	7.000E+01	1.000E+03	20	0.000E+00
309	360	355	362	367	2	7.000E+01	0.000E+00	20	0.000E+00
310	361	356	363	368	2	7.000E+01	0.000E+00	20	0.000E+00
311	362	357	365	369	2	7.000E+01	0.000E+00	20	0.000E+00
312	363	359	366	370	2	7.000E+01	0.000E+00	20	0.000E+00
313	371	364	360	367	2	7.000E+01	1.000E+03	20	0.000E+00
314	365	361	368	372	2	7.000E+01	0.000E+00	20	0.000E+00

315	367	362	369	373	2	7.000E+01	0.000E+00	20	0.000E+00
316	368	363	370	375	2	7.000E+01	0.000E+00	20	0.000E+00
317	369	365	372	376	2	7.000E+01	0.000E+00	20	0.000E+00
318	377	371	367	373	2	7.000E+01	1.000E+03	20	0.000E+00
319	370	366	374	378	2	7.000E+01	0.000E+00	20	0.000E+00
320	372	368	375	379	2	7.000E+01	0.000E+00	20	0.000E+00
321	373	369	376	380	2	7.000E+01	0.000E+00	20	0.000E+00
322	375	370	378	381	2	7.000E+01	0.000E+00	20	0.000E+00
323	376	372	379	382	2	7.000E+01	0.000E+00	20	0.000E+00
324	383	377	373	380	2	7.000E+01	1.000E+03	20	0.000E+00
325	379	375	381	384	2	7.000E+01	0.000E+00	20	0.000E+00
326	380	376	382	385	2	7.000E+01	0.000E+00	20	0.000E+00
327	382	379	384	386	2	7.000E+01	0.000E+00	20	0.000E+00
328	378	374	387	390	2	7.000E+01	0.000E+00	20	0.000E+00
329	381	378	390	390	2	7.000E+01	0.000E+00	16	0.000E+00
330	388	383	380	385	2	7.000E+01	1.000E+03	20	0.000E+00
331	385	382	386	389	2	7.000E+01	0.000E+00	20	0.000E+00
332	384	381	390	392	2	7.000E+01	0.000E+00	20	0.000E+00
333	391	388	385	389	2	7.000E+01	1.000E+03	20	0.000E+00
334	386	384	392	394	2	7.000E+01	0.000E+00	20	0.000E+00
335	389	386	394	394	2	7.000E+01	0.000E+00	16	0.000E+00
336	390	387	393	395	2	7.000E+01	0.000E+00	20	0.000E+00
337	396	391	389	394	2	7.000E+01	1.000E+03	20	0.000E+00
338	392	390	395	397	2	7.000E+01	0.000E+00	20	0.000E+00
339	394	392	397	398	2	7.000E+01	0.000E+00	20	0.000E+00
340	400	396	394	398	2	7.000E+01	1.000E+03	20	0.000E+00
341	395	393	399	401	2	7.000E+01	0.000E+00	20	0.000E+00
342	397	395	401	402	2	7.000E+01	0.000E+00	20	0.000E+00
343	398	397	402	403	2	7.000E+01	0.000E+00	20	0.000E+00
344	405	400	398	403	2	7.000E+01	1.000E+03	20	0.000E+00
345	401	399	404	406	2	7.000E+01	0.000E+00	20	0.000E+00
346	402	401	406	407	2	7.000E+01	0.000E+00	20	0.000E+00
347	403	402	407	408	2	7.000E+01	0.000E+00	20	0.000E+00
348	409	405	403	408	2	7.000E+01	1.000E+03	20	0.000E+00
349	406	404	410	411	2	7.000E+01	0.000E+00	20	0.000E+00
350	407	406	411	412	2	7.000E+01	0.000E+00	20	0.000E+00
351	408	407	412	413	2	7.000E+01	0.000E+00	20	0.000E+00
352	414	409	408	413	2	7.000E+01	1.000E+03	20	0.000E+00
353	411	410	415	416	2	7.000E+01	0.000E+00	20	0.000E+00
354	412	411	416	417	2	7.000E+01	0.000E+00	20	0.000E+00
355	413	412	417	418	2	7.000E+01	0.000E+00	20	0.000E+00
356	419	414	413	418	2	7.000E+01	1.000E+03	20	0.000E+00
357	416	415	420	421	2	7.000E+01	0.000E+00	20	0.000E+00
358	417	416	421	422	2	7.000E+01	0.000E+00	20	0.000E+00
359	418	417	422	423	2	7.000E+01	0.000E+00	20	0.000E+00
360	424	419	418	423	2	7.000E+01	1.000E+03	20	0.000E+00
361	421	420	425	426	2	7.000E+01	0.000E+00	20	0.000E+00
362	422	421	426	427	2	7.000E+01	0.000E+00	20	0.000E+00
363	423	422	427	428	2	7.000E+01	0.000E+00	20	0.000E+00
364	429	424	423	428	2	7.000E+01	1.000E+03	20	0.000E+00
365	426	425	430	431	2	7.000E+01	0.000E+00	20	0.000E+00
366	427	426	431	432	2	7.000E+01	0.000E+00	20	0.000E+00
367	428	427	432	433	2	7.000E+01	0.000E+00	20	0.000E+00
368	434	429	428	433	2	7.000E+01	1.000E+03	20	0.000E+00
369	431	430	435	436	2	7.000E+01	0.000E+00	20	0.000E+00
370	432	431	436	437	2	7.000E+01	0.000E+00	20	0.000E+00
371	433	432	437	438	2	7.000E+01	0.000E+00	20	0.000E+00
372	439	434	433	438	2	7.000E+01	1.000E+03	20	0.000E+00
373	436	435	440	441	2	7.000E+01	0.000E+00	20	0.000E+00
374	437	436	441	442	2	7.000E+01	0.000E+00	20	0.000E+00
375	438	437	442	443	2	7.000E+01	0.000E+00	20	0.000E+00
376	444	439	438	443	2	7.000E+01	1.000E+03	20	0.000E+00
377	441	440	445	446	2	7.000E+01	0.000E+00	20	0.000E+00
378	442	441	446	447	2	7.000E+01	0.000E+00	20	0.000E+00
379	443	442	447	448	2	7.000E+01	0.000E+00	20	0.000E+00
380	449	444	443	448	2	7.000E+01	1.000E+03	20	0.000E+00
381	446	445	450	451	2	7.000E+01	0.000E+00	20	0.000E+00
382	447	446	451	452	2	7.000E+01	0.000E+00	20	0.000E+00
383	448	447	452	453	2	7.000E+01	0.000E+00	20	0.000E+00
384	454	449	448	453	2	7.000E+01	1.000E+03	20	0.000E+00
385	451	450	459	458	2	7.000E+01	0.000E+00	20	0.000E+00
386	452	451	458	457	2	7.000E+01	0.000E+00	20	0.000E+00

3Br	453	452	457	456	2	7.000E+01	0.000E+00	20	0.000E+00
3BB	455	454	453	456	2	7.000E+01	1.000E+03	20	0.000E+00

1**** BANDWIDTH MINIMIZATION

minbnd (bandwidth control parameter) =	1
bandwidth before resequencing =	42
bandwidth after resequencing =	20

**** EQUATION PARAMETERS

total number of equations =	913
bandwidth =	20
number of equations in a block =	913
number of blocks =	1
blocking memory (kilobytes) =	4737
available memory (kilobytes) =	4737

1**** NODAL LOADS (STATIC) OR MASSES (DYNAMIC)

MODE NUMBER	LOAD CASE	X-AXIS FORCE	Y-AXIS FORCE	Z-AXIS FORCE	X-AXIS MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	1	0.000E+00	0.000E+00	-4.057E+03	0.000E+00	0.000E+00	0.000E+00
2	1	0.000E+00	0.000E+00	-8.113E+03	0.000E+00	0.000E+00	0.000E+00
3	1	0.000E+00	0.000E+00	-8.113E+03	0.000E+00	0.000E+00	0.000E+00
4	1	0.000E+00	0.000E+00	-8.113E+03	0.000E+00	0.000E+00	0.000E+00
5	1	0.000E+00	0.000E+00	-8.113E+03	0.000E+00	0.000E+00	0.000E+00
6	1	0.000E+00	0.000E+00	-8.113E+03	0.000E+00	0.000E+00	0.000E+00
7	1	0.000E+00	0.000E+00	-4.057E+03	0.000E+00	0.000E+00	0.000E+00

1**** ELEMENT LOAD MULTIPLIERS


load case	case A	case B	case C	case D
1	1.000E+00	0.000E+00	0.000E+00	0.000E+00
2	0.000E+00	1.000E+00	0.000E+00	0.000E+00

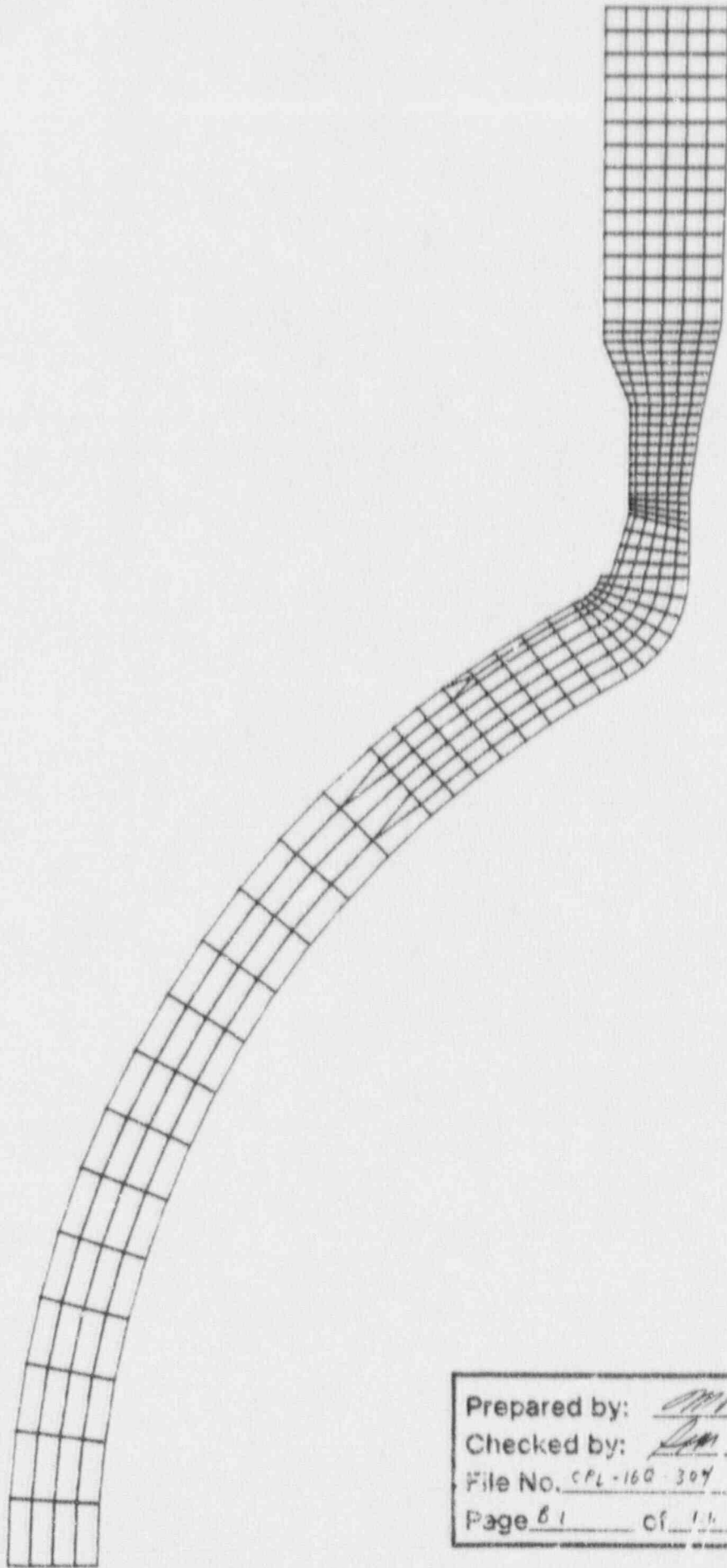
1**** STIFFNESS MATRIX PARAMETERS

minimum non-zero diagonal element =	1.3213E+08
maximum diagonal element =	3.5810E+09
maximum/minimum =	2.7103E+01
average diagonal element =	8.0656E+08
density of the matrix =	4.2590E+01

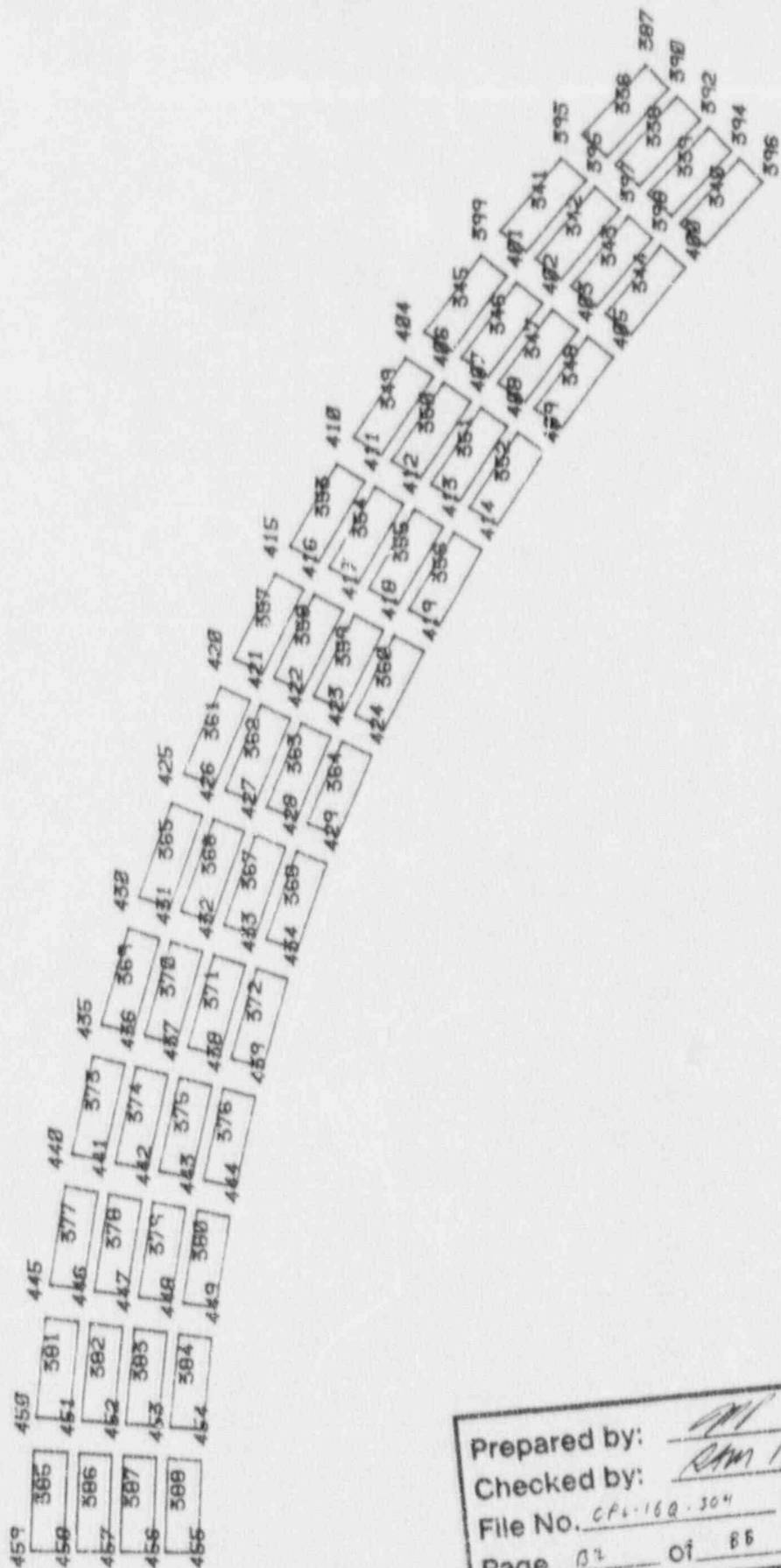
Appendix B

Plots of FEM

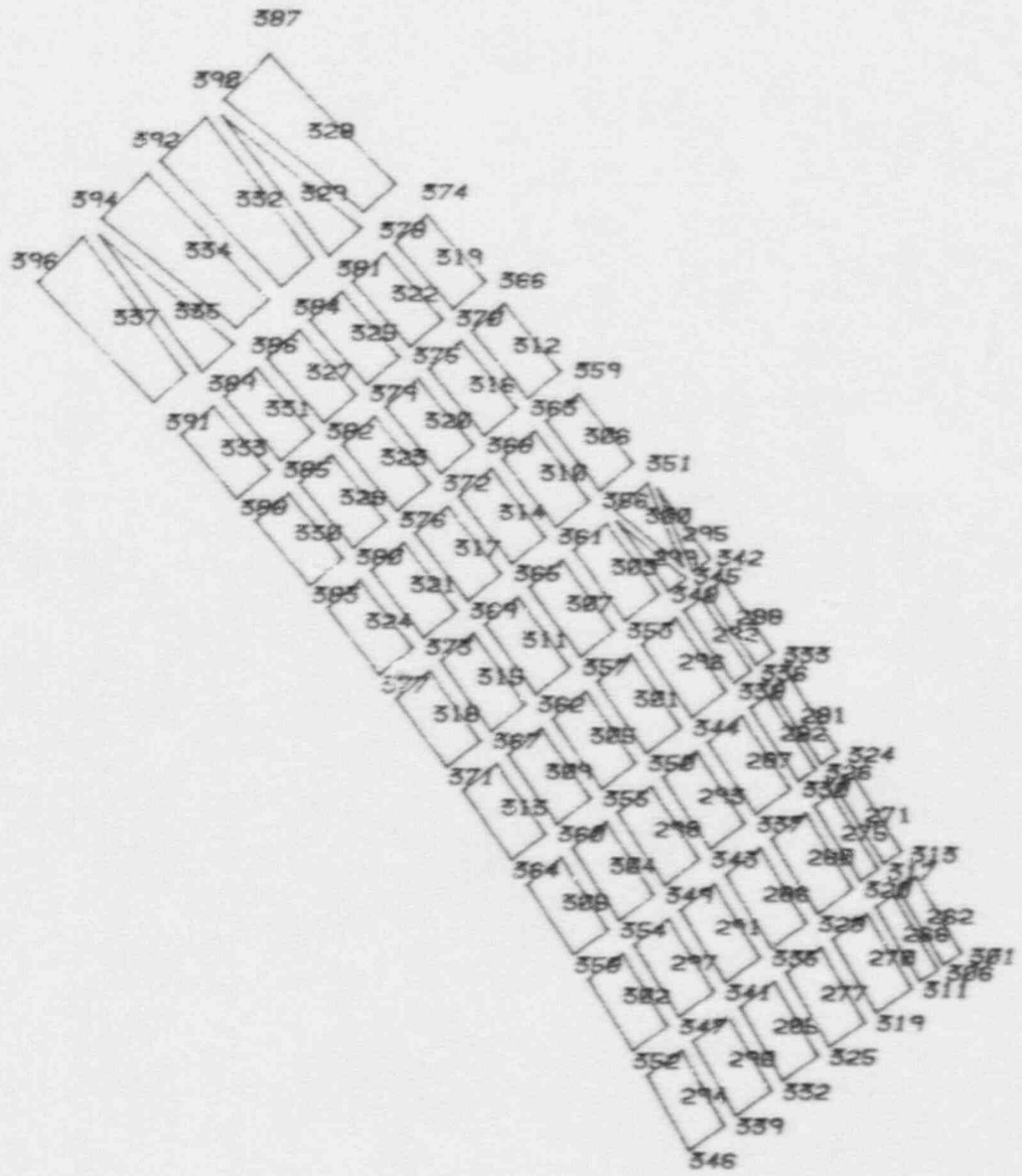
	Revision	0				
	Preparer/Date	<i>AM</i> 1-15-91				
	Checker/Date	<i>RPM</i> 1/16/91				
File No. CPL-16Q-304			Page <u>80</u> of <u>86</u>			



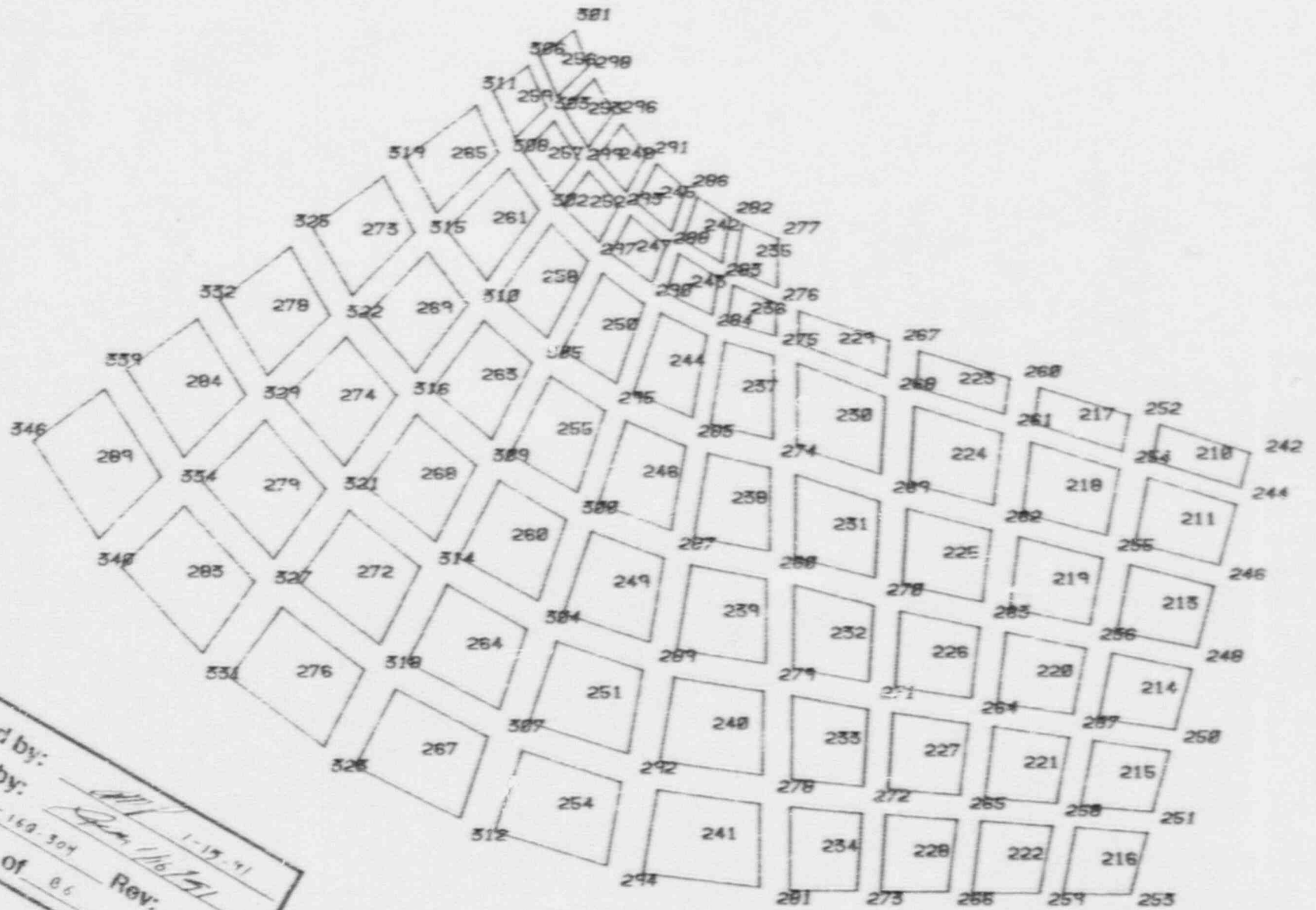
Prepared by:	<u><i>MM</i></u> 1-15-91
Checked by:	<u><i>DM</i></u> 1/16/91
File No.	<u>CPL-160-307</u> Rev: <u>0</u>
Page	<u>01</u> of <u>11</u>



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Prepared by: 1-15-91
 Checked by:
 File No. CP-160-304 Rev: 0
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Prepared by: _____
 Checked by: _____
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 Rev: 0

242	232	222	212	217	210	203	196	184	182	175	168	161	154	147	140	133	126	119	112	105	
202	191	181	171	180	174	168	162	155	150	144	138	132	126	120	114	108	102	96	90		
244	235	225	215	216	209	202	195	189	181	174	167	160	153	146	139	132	125	118	111	104	
204	200	194	189	185	179	173	167	161	155	149	143	137	131	125	119	113	107	101	95	89	
248	243	234	227	222	215	208	201	194	187	180	173	166	159	152	145	138	131	124	117	110	103
207	201	195	189	184	178	172	166	160	154	148	142	136	130	124	118	112	106	100	94	88	
246	243	238	228	221	214	207	200	193	186	179	172	165	158	151	144	137	130	123	116	109	102
208	205	198	192	185	177	171	165	159	153	147	141	135	129	123	117	111	105	99	93	87	
250	245	237	229	220	213	206	199	192	185	178	171	164	157	150	143	136	129	122	115	108	101
209	205	197	191	182	176	170	164	158	152	146	140	134	128	122	116	110	104	98	92	86	
251	247	239	230	219	212	205	198	191	184	177	170	163	156	149	142	135	128	121	114	107	100
212	206	199	192	181	175	169	163	157	151	145	139	133	127	121	115	109	103	97	91	85	
255	249	241	231	216	211	204	197	190	183	176	169	162	155	148	141	134	127	120	113	106	99

Prepared by: _____
 Checked by: _____
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185	84	78	72	66	60	54	48	42	36	30	24	18	12	6	7
184	85	77	71	65	59	53	47	41	35	29	23	17	11	5	6
183	82	76	70	64	58	52	46	40	34	28	22	16	10	4	5
182	81	75	69	63	57	51	45	39	33	27	21	15	9	3	4
181	80	74	68	62	56	50	44	38	32	26	20	14	8	2	5
180	79	73	67	61	55	49	43	37	31	25	19	13	7	1	2
179															1

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