

## Appendix 6B. Figures

Figure 6-1. Minimum Containment Sump pH Following a Design Basis LOCA

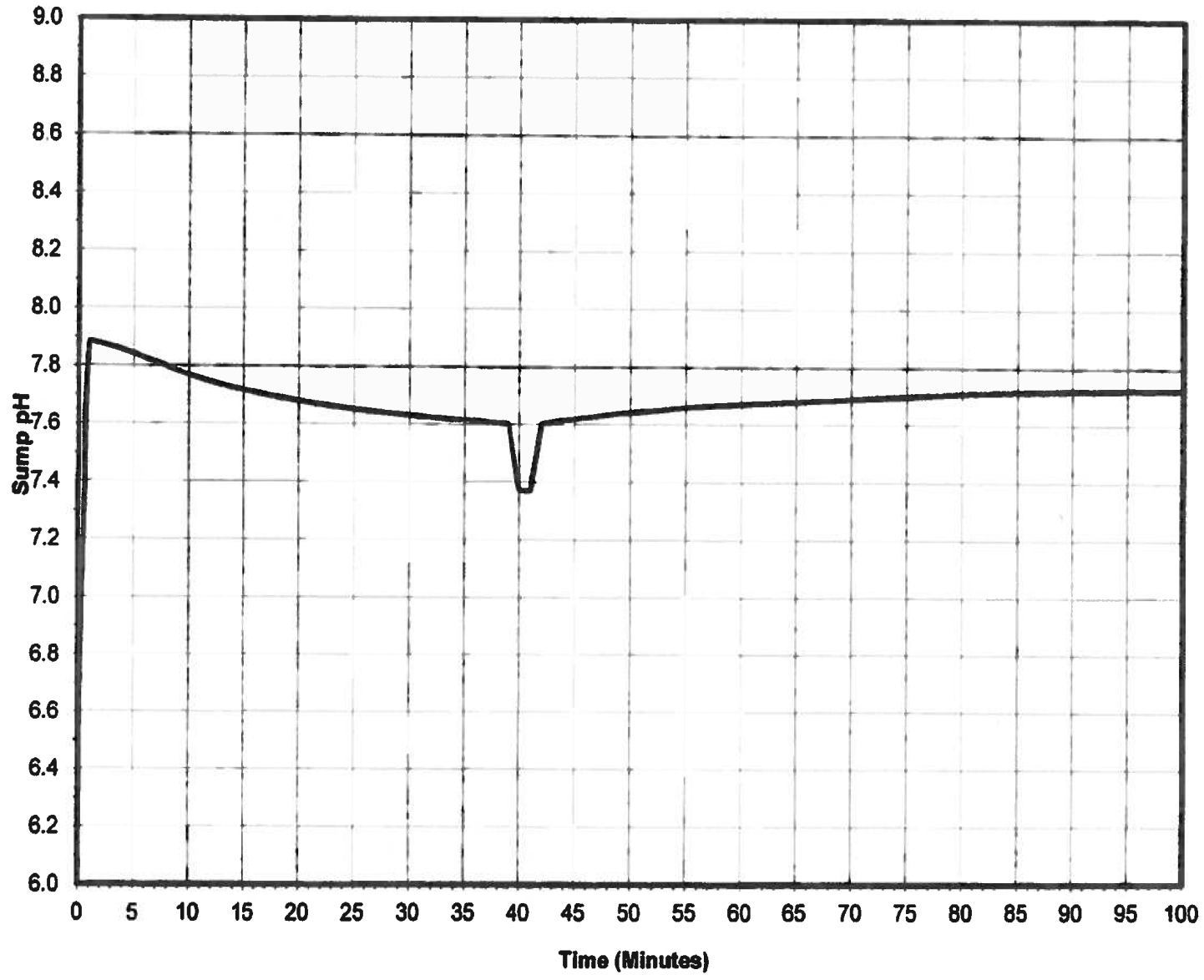
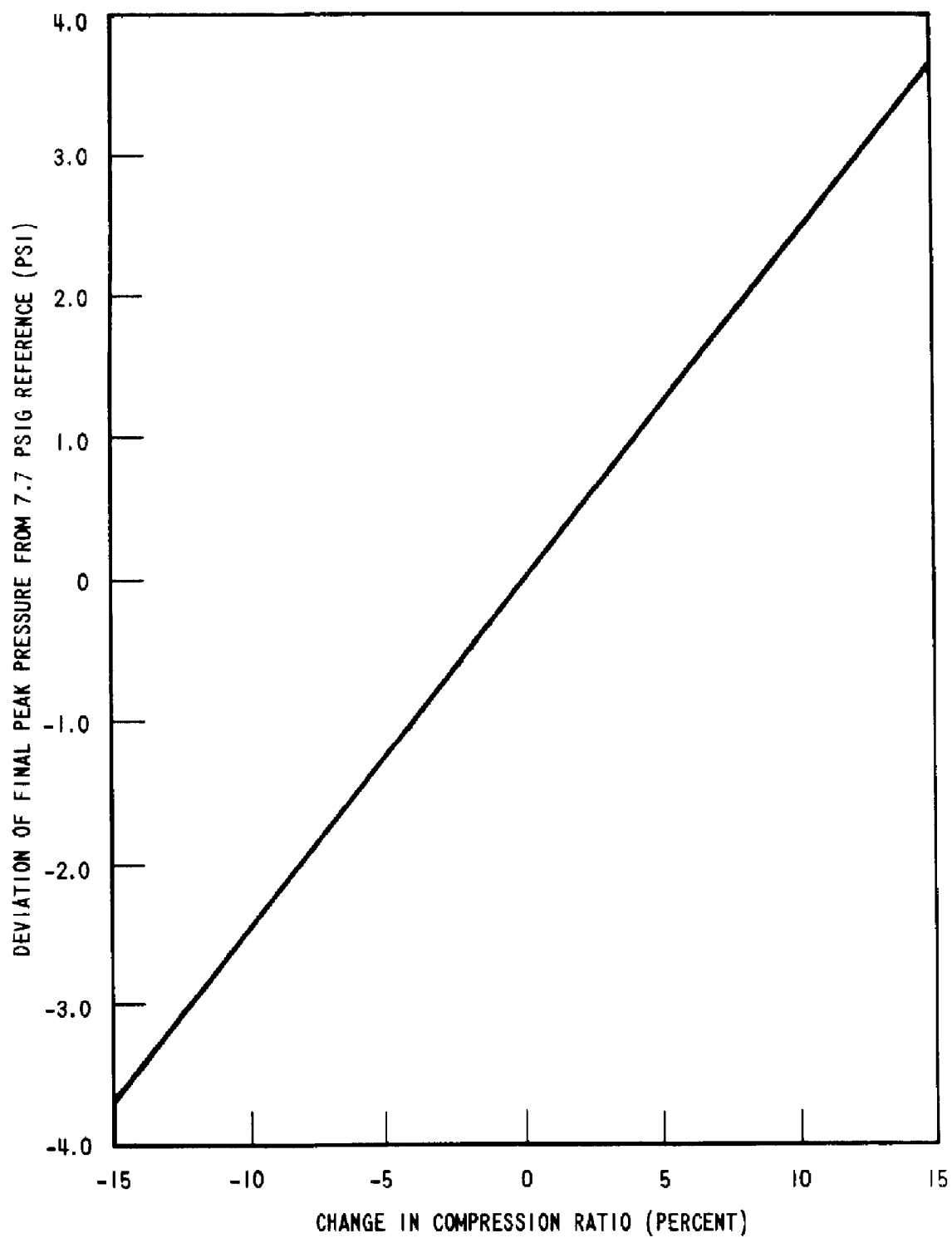


Figure 6-2. Sensitivity of Peak Pressure to Air Compression Ratio



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Figure 6-3. Steam Concentration in a Vertical Distribution Channel

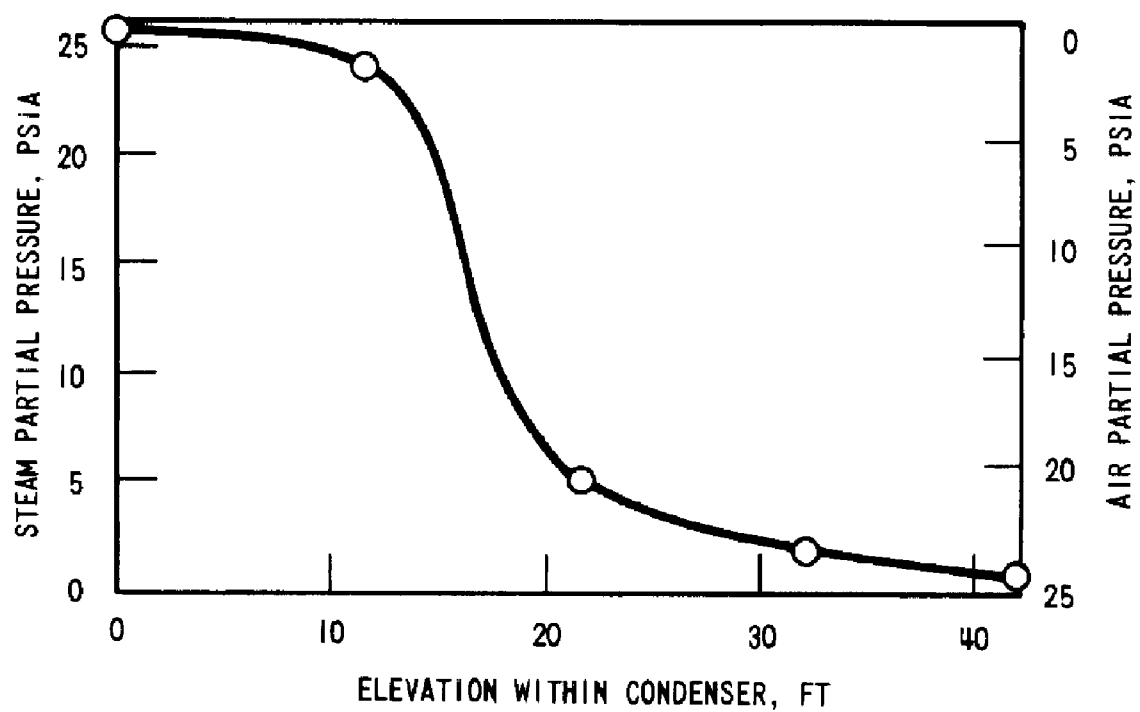




Figure 6-4. Peak Compression Pressure Versus Compression Ratio

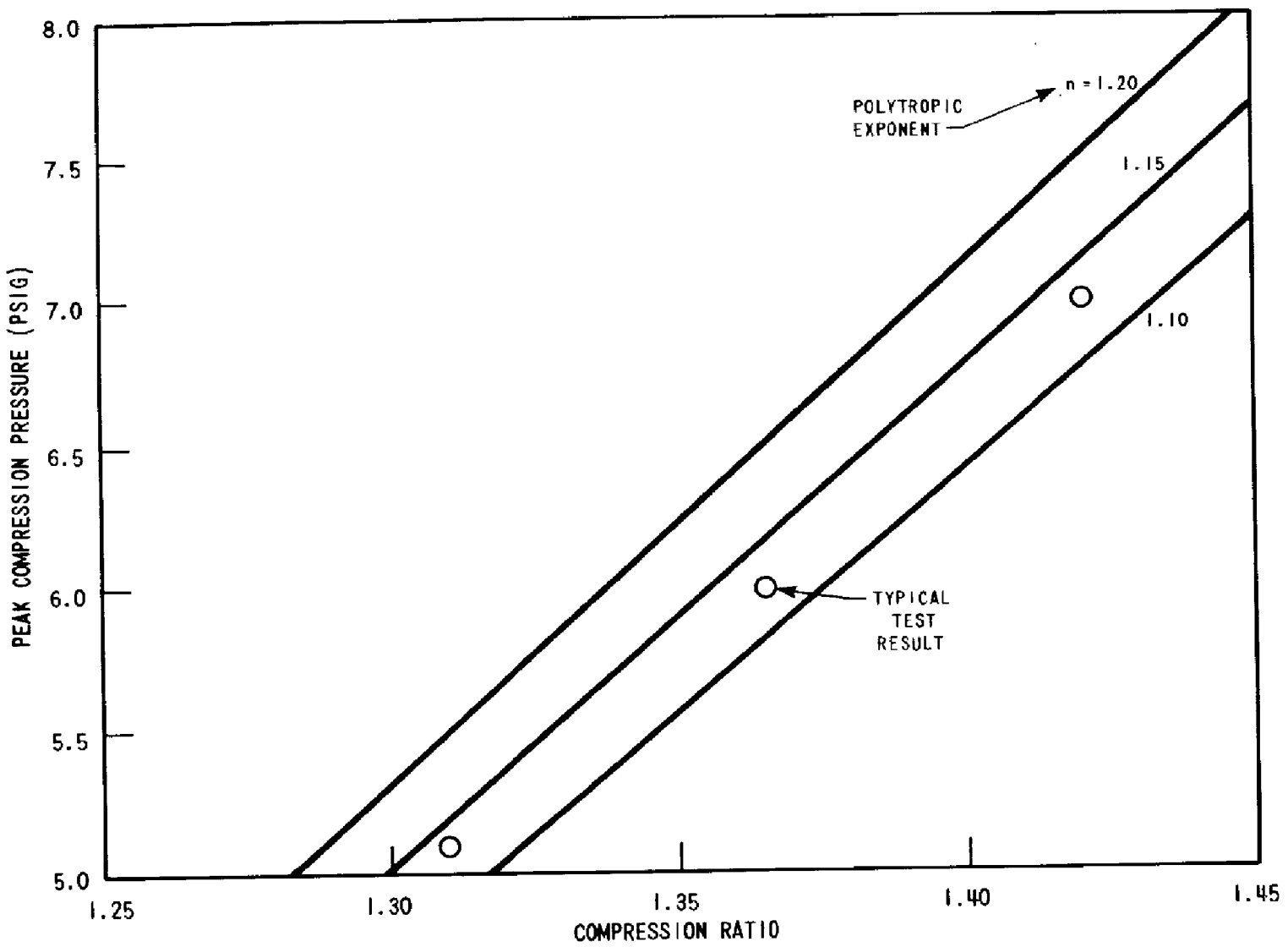


Figure 6-5. Upper Compartment Compression Pressure Versus Energy Release for Tests at 110% and 200% of Initial DBA Blowdown Rate

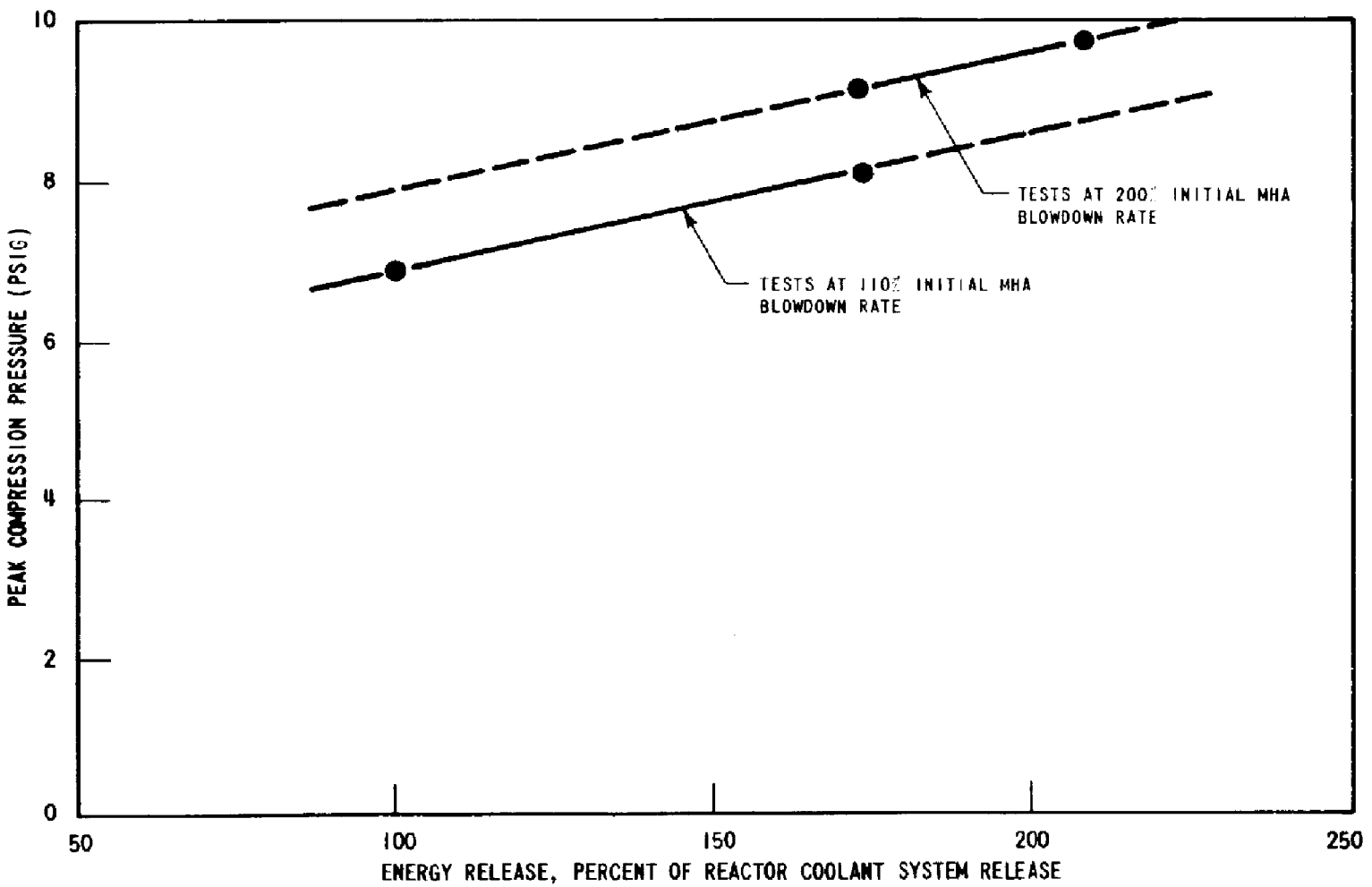


Figure 6-6. Peak Containment Pressure Transient – Pressure

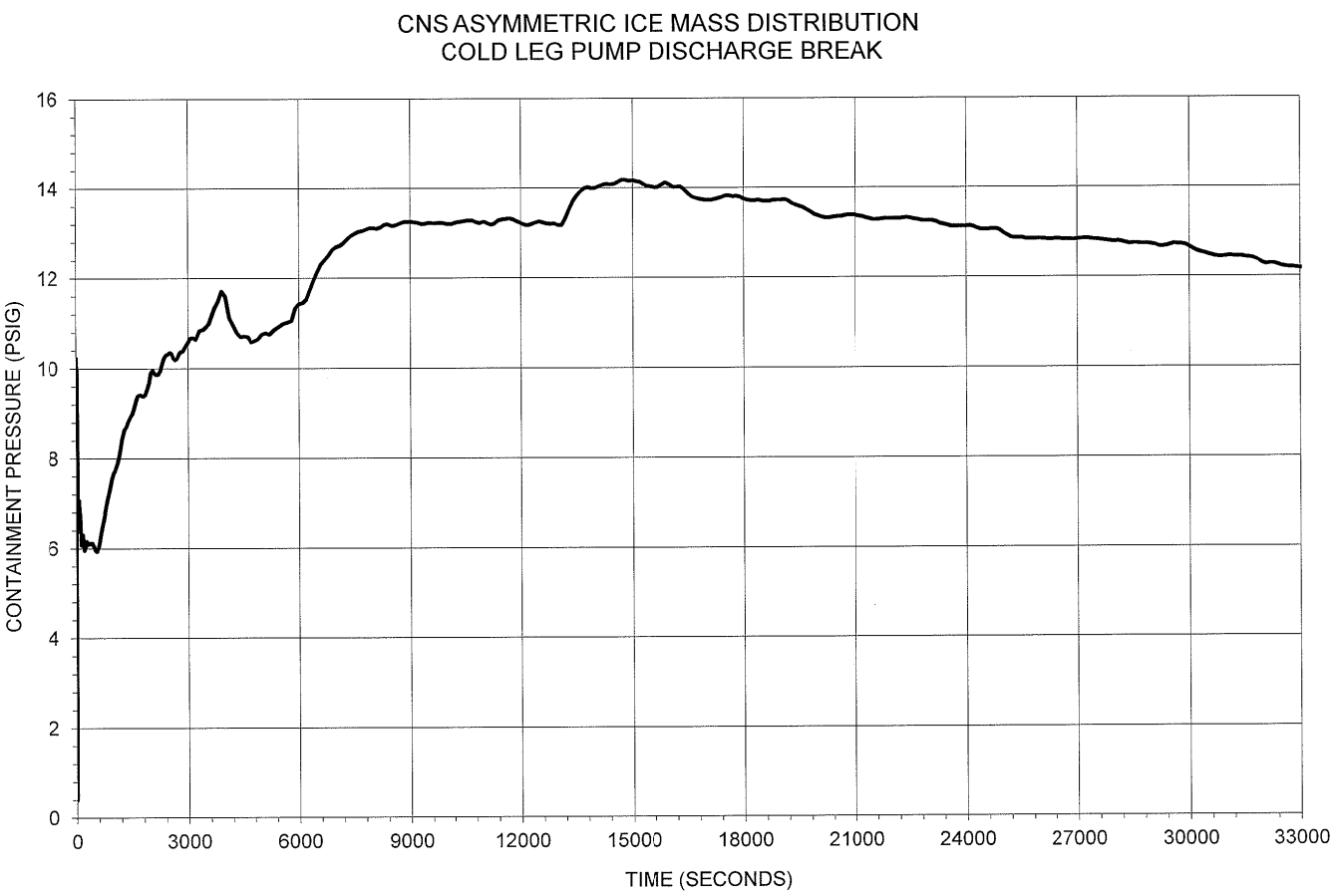


Figure 6-7. Peak Containment Pressure Transient - Upper Containment Temperature

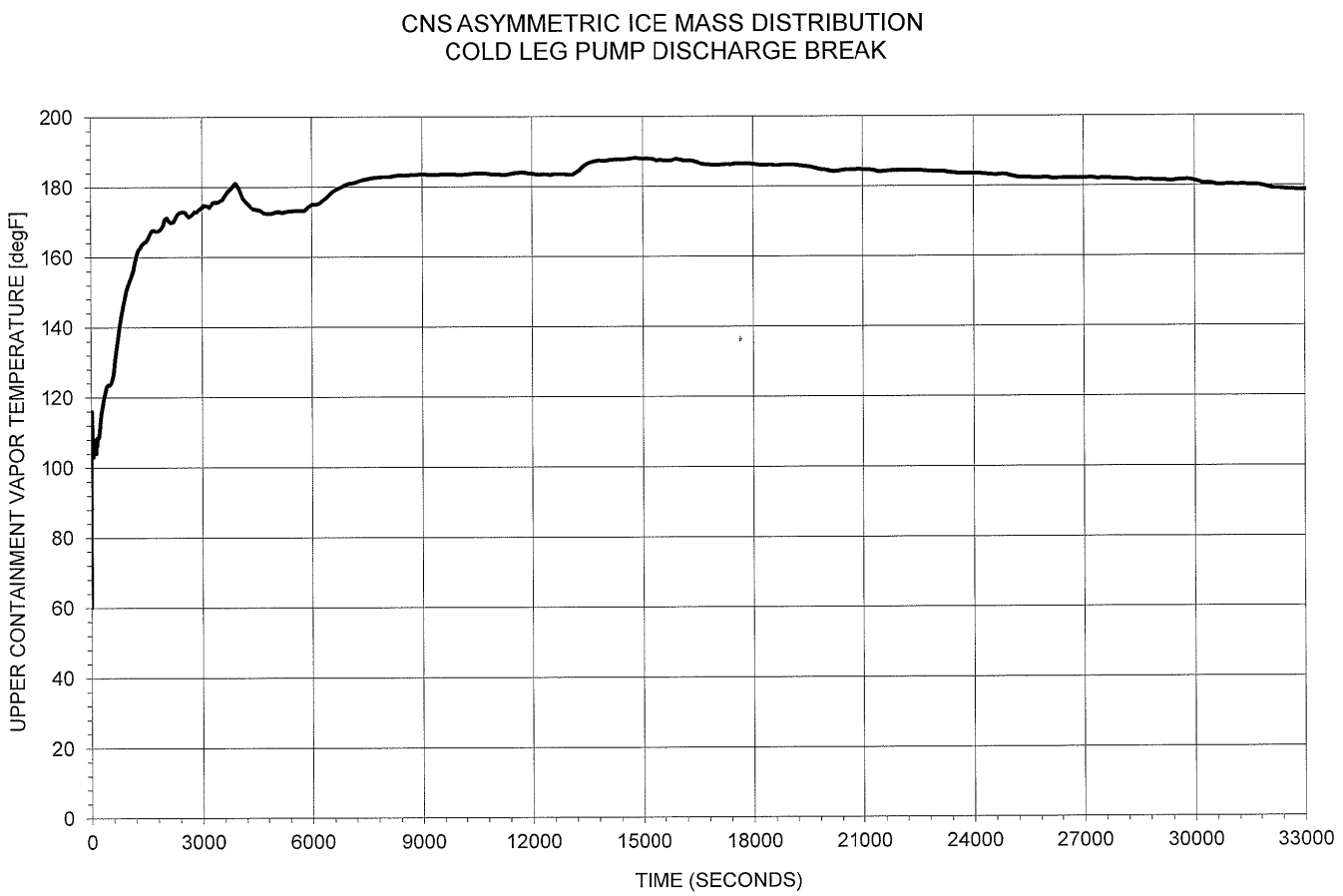


Figure 6-8. Peak Containment Pressure Transient - Lower Containment Temperature

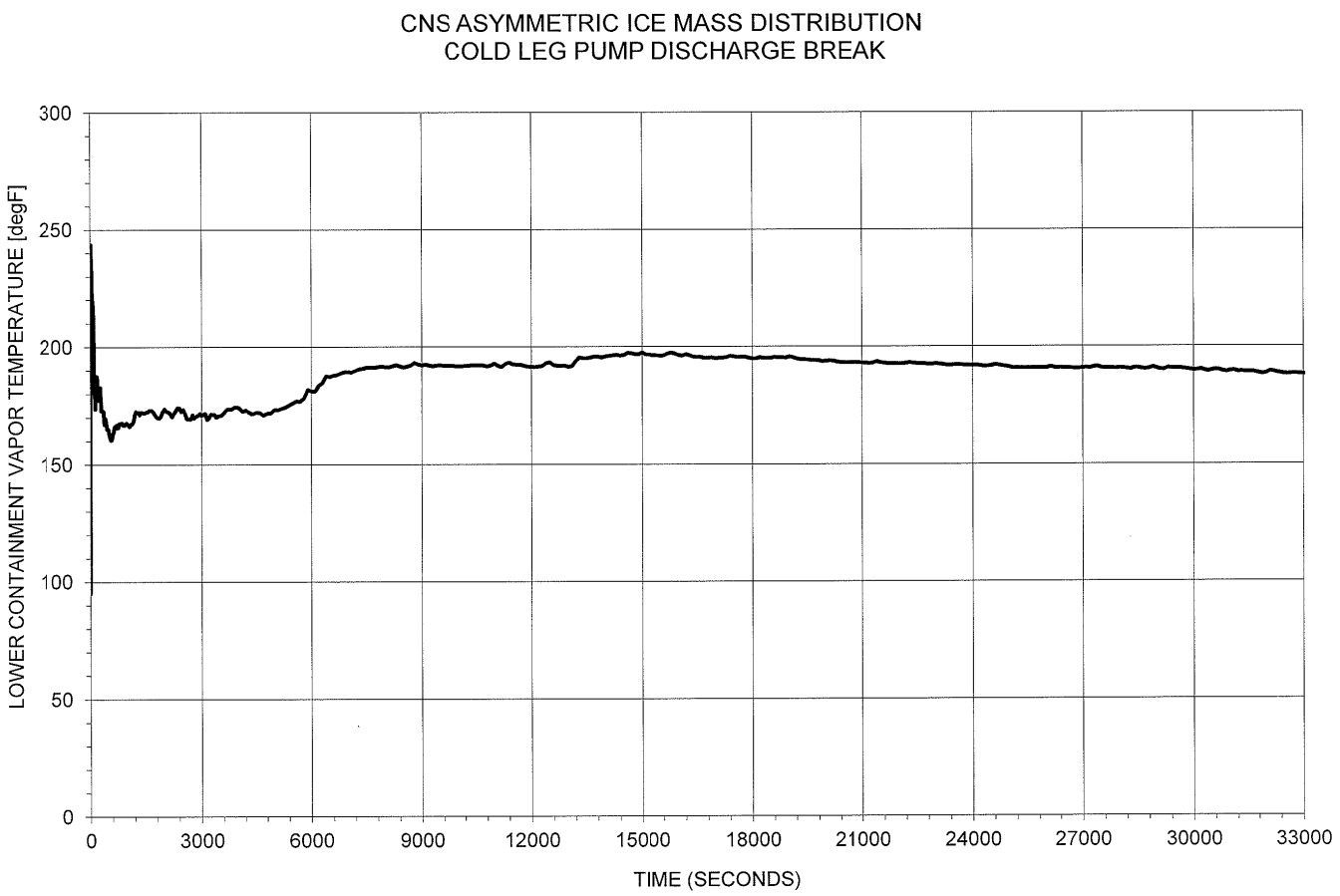


Figure 6-9. Peak Containment Pressure Transient - Sump Temperature

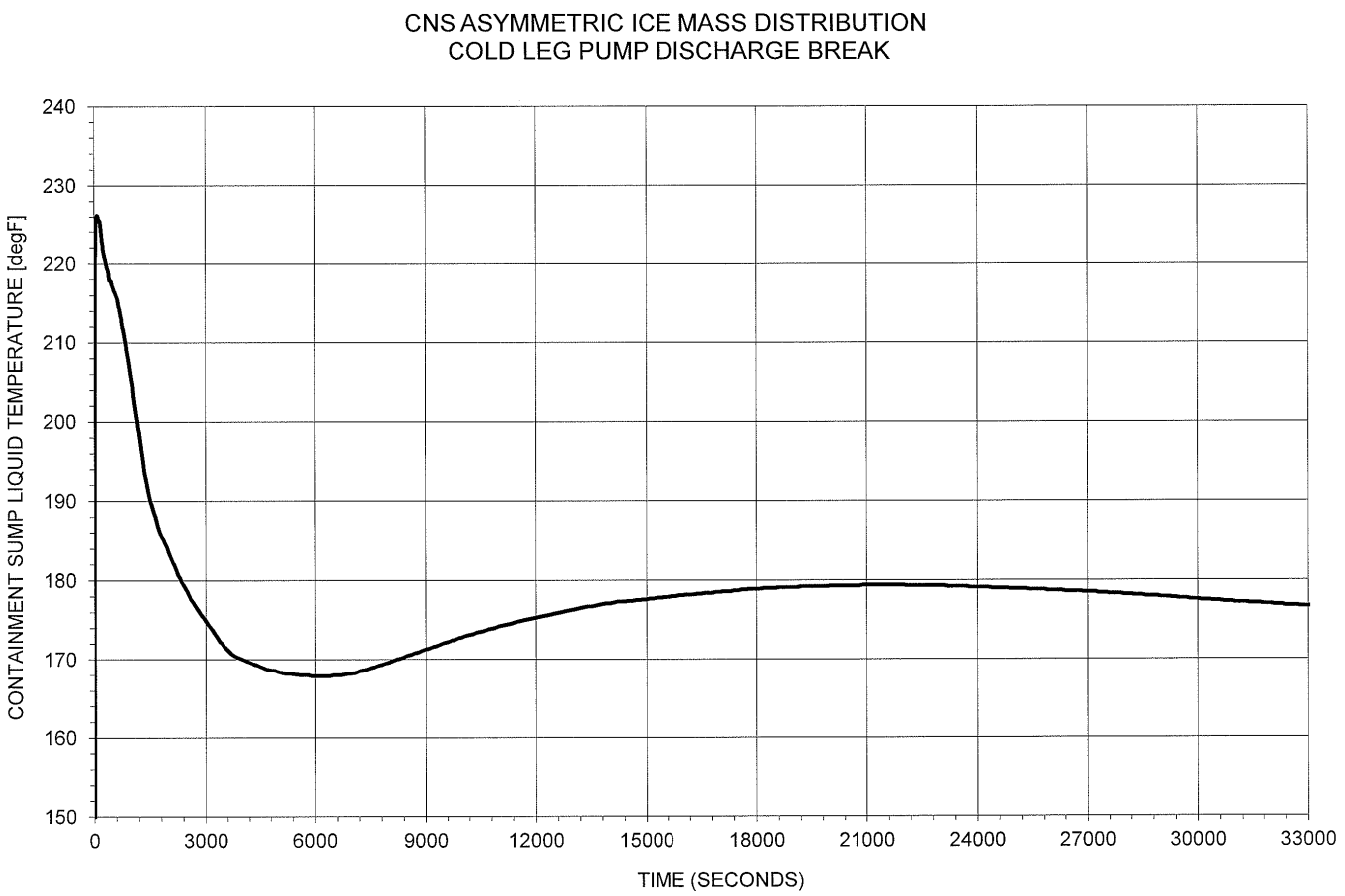
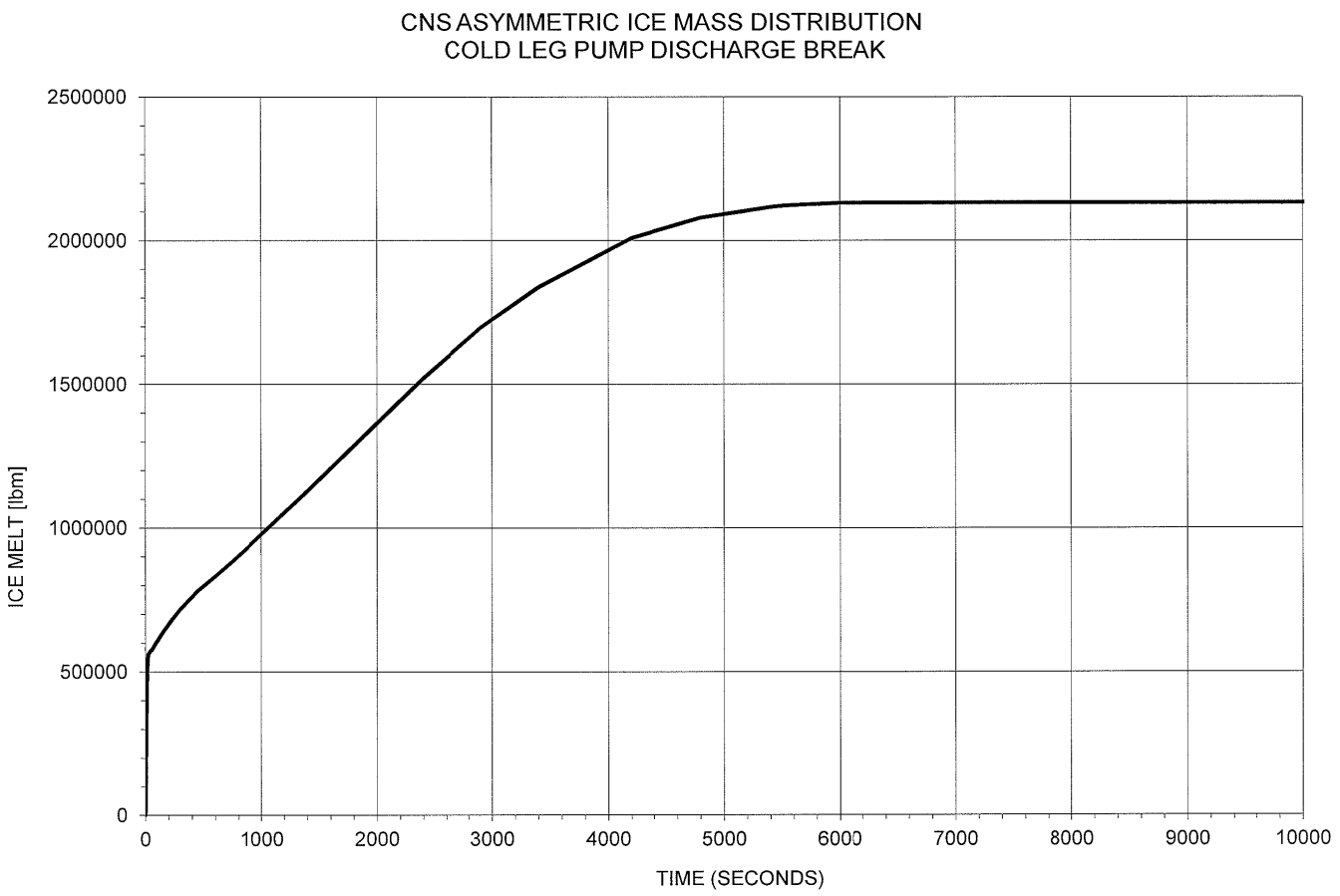
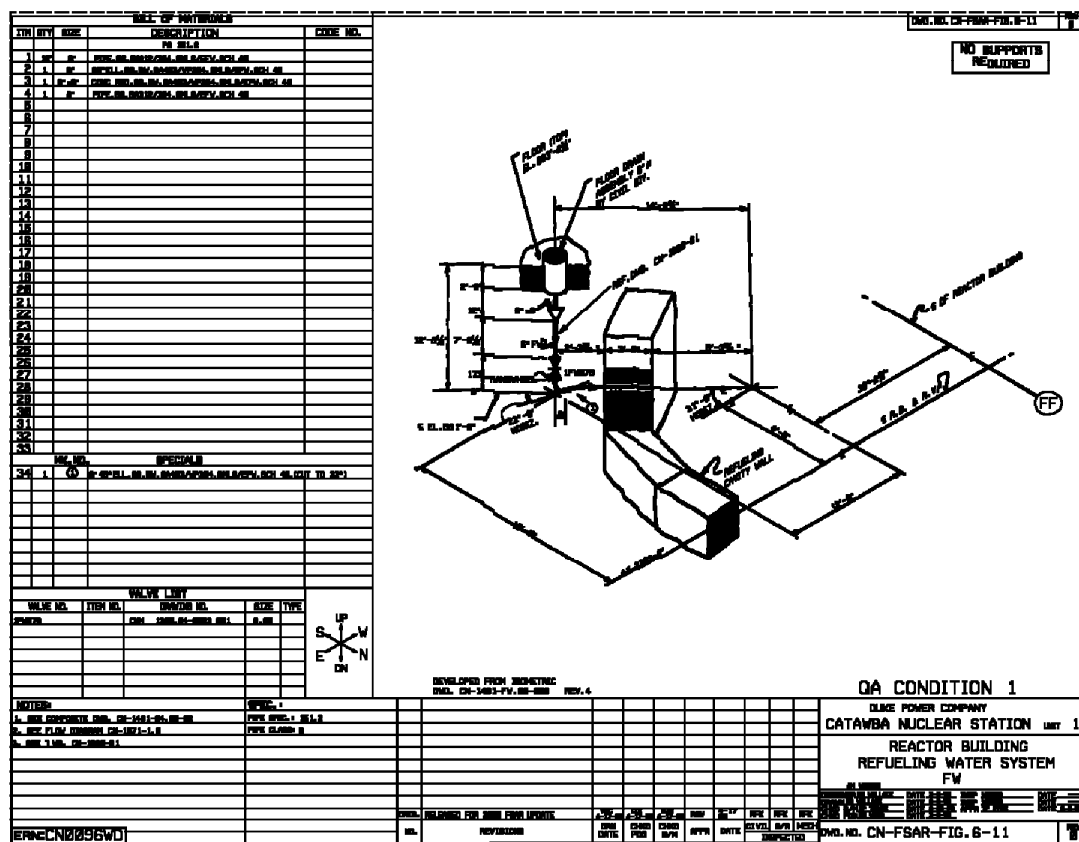


Figure 6-10. Peak Containment Pressure Transient - Ice Melted



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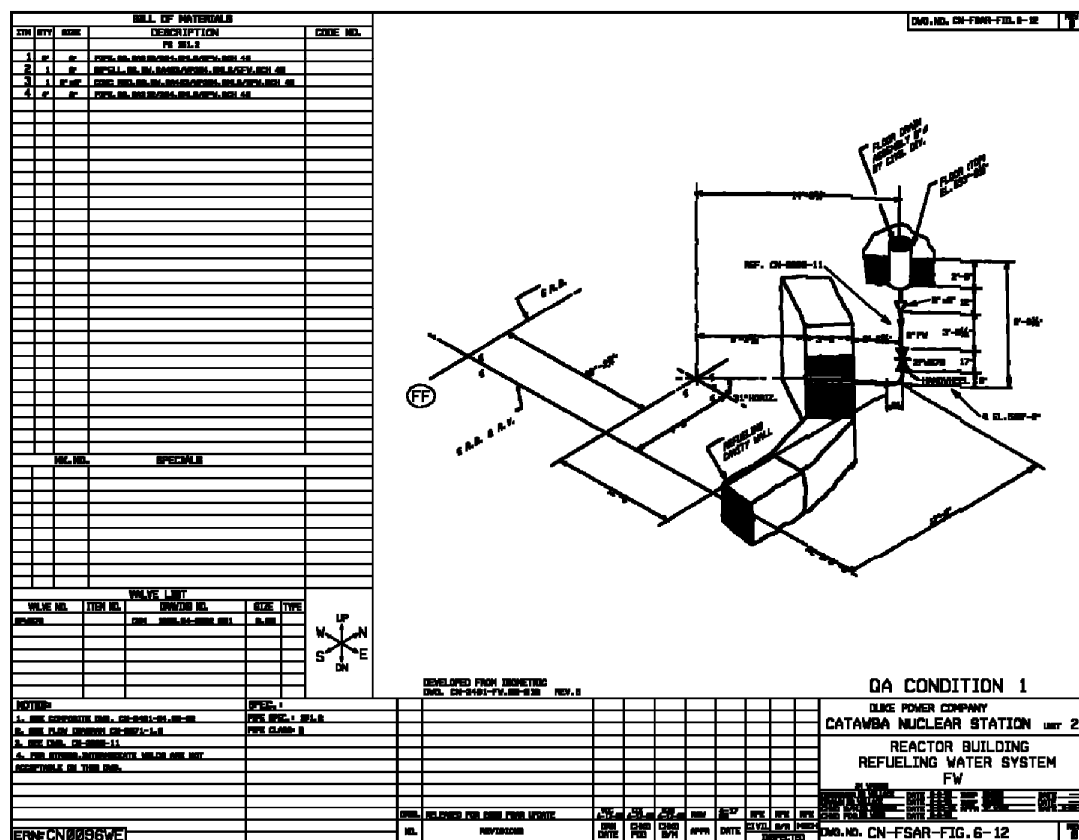


Figure 6-13. Drain Piping Arrangement Refueling Canal

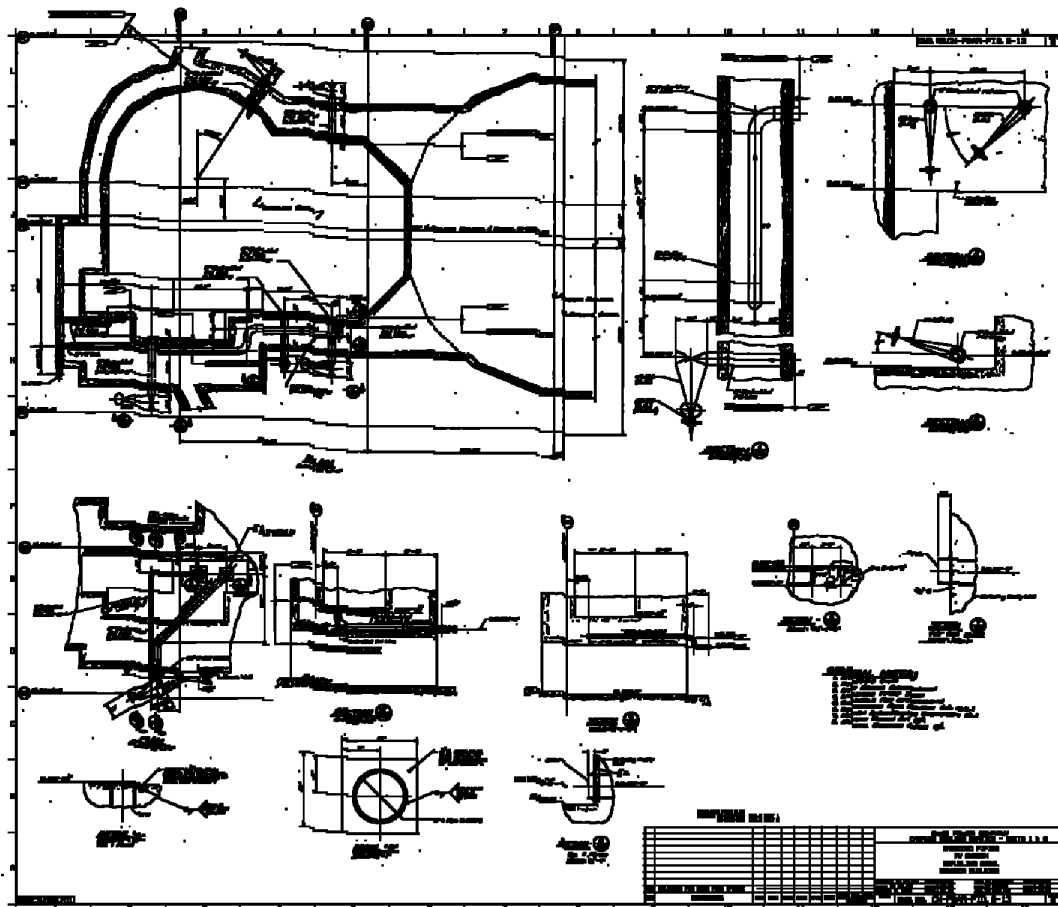
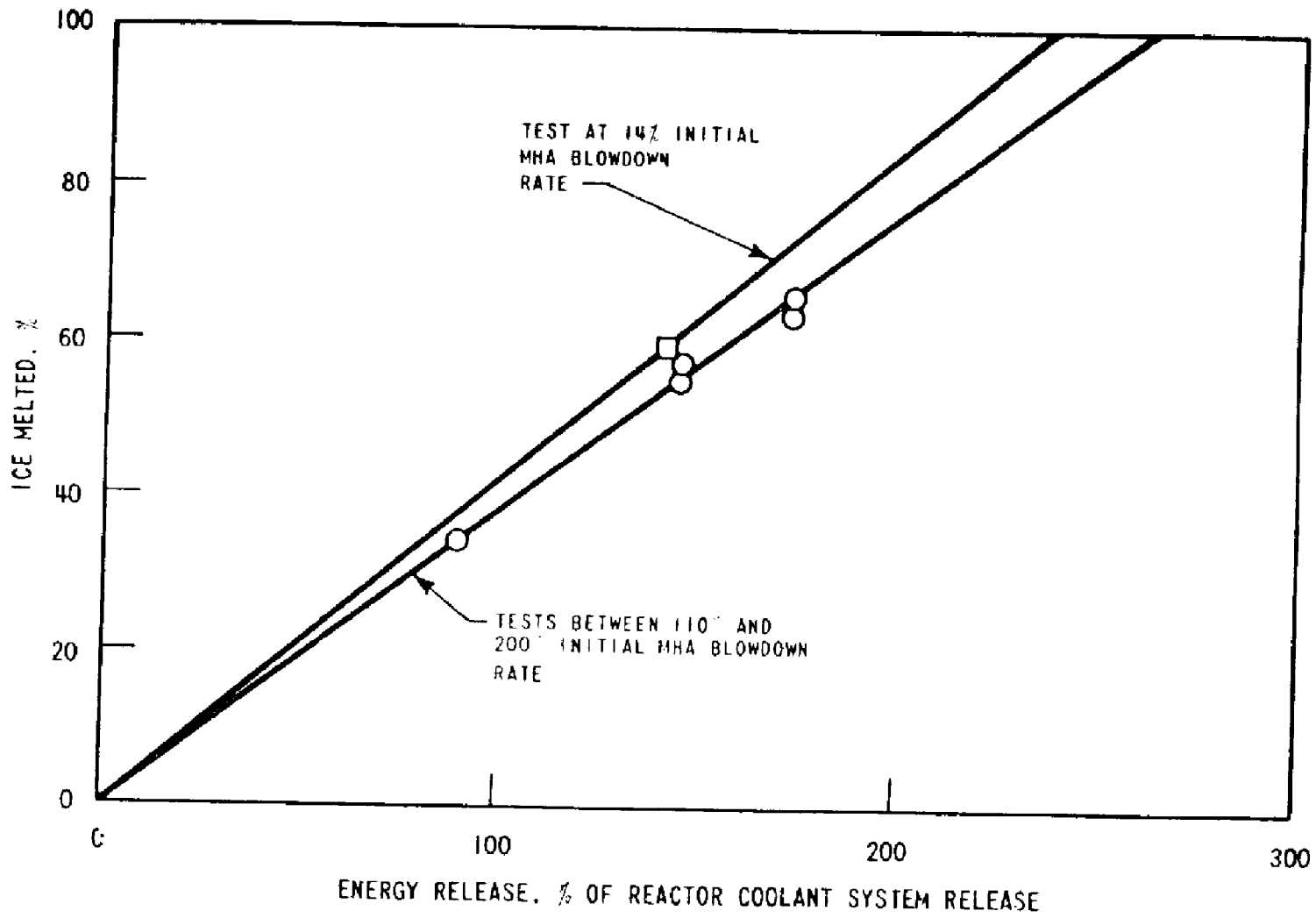
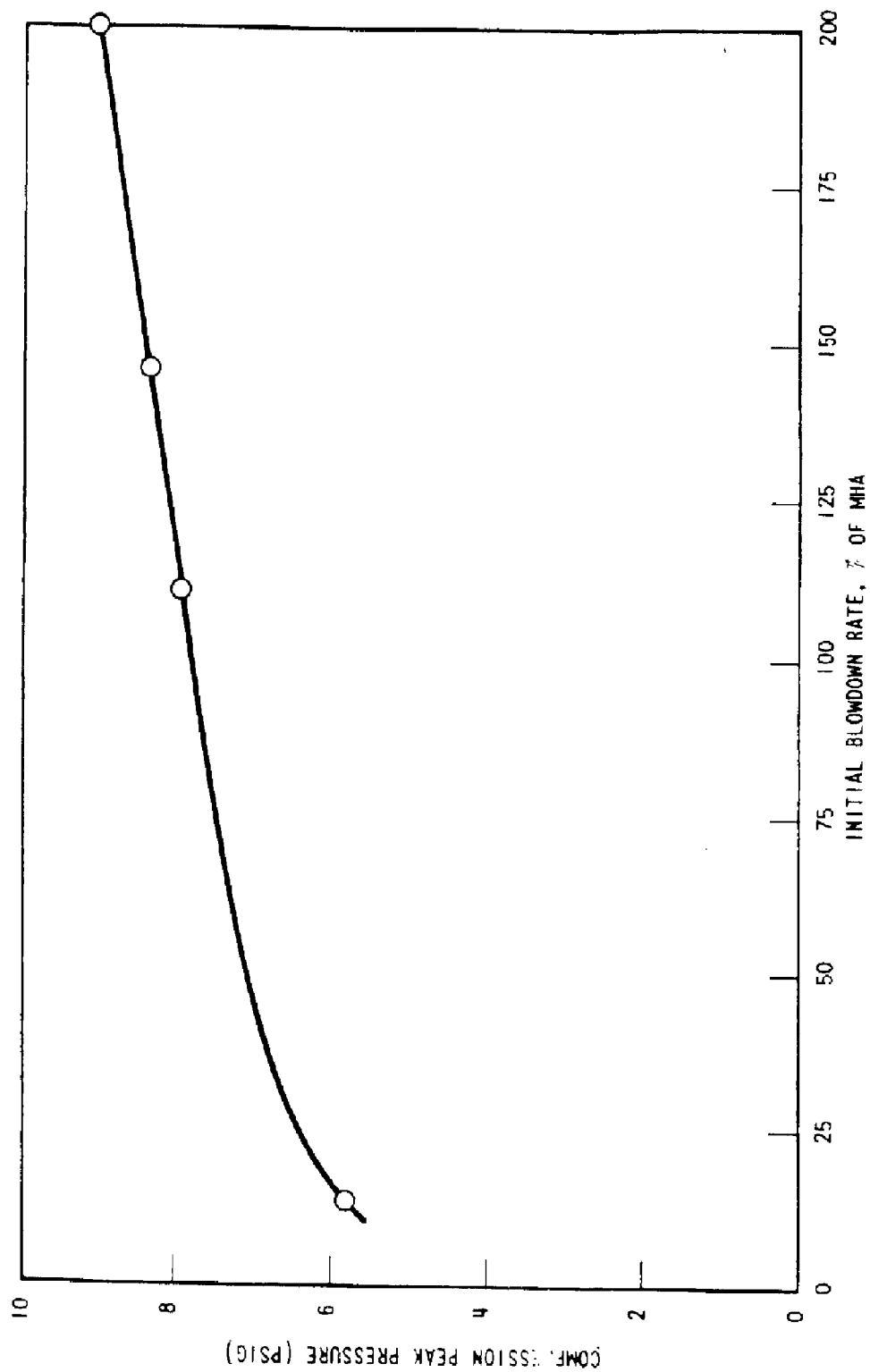


Figure 6-14. Ice Melted Versus Energy Release for Tests at Different Blowdown Rates



**Figure 6-15. Upper Compartment Peak Compression Pressure Versus Blowdown Rate for Tests with 175% Energy Release**



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Figure 6-16. Peak Reverse Differential Pressure Transient

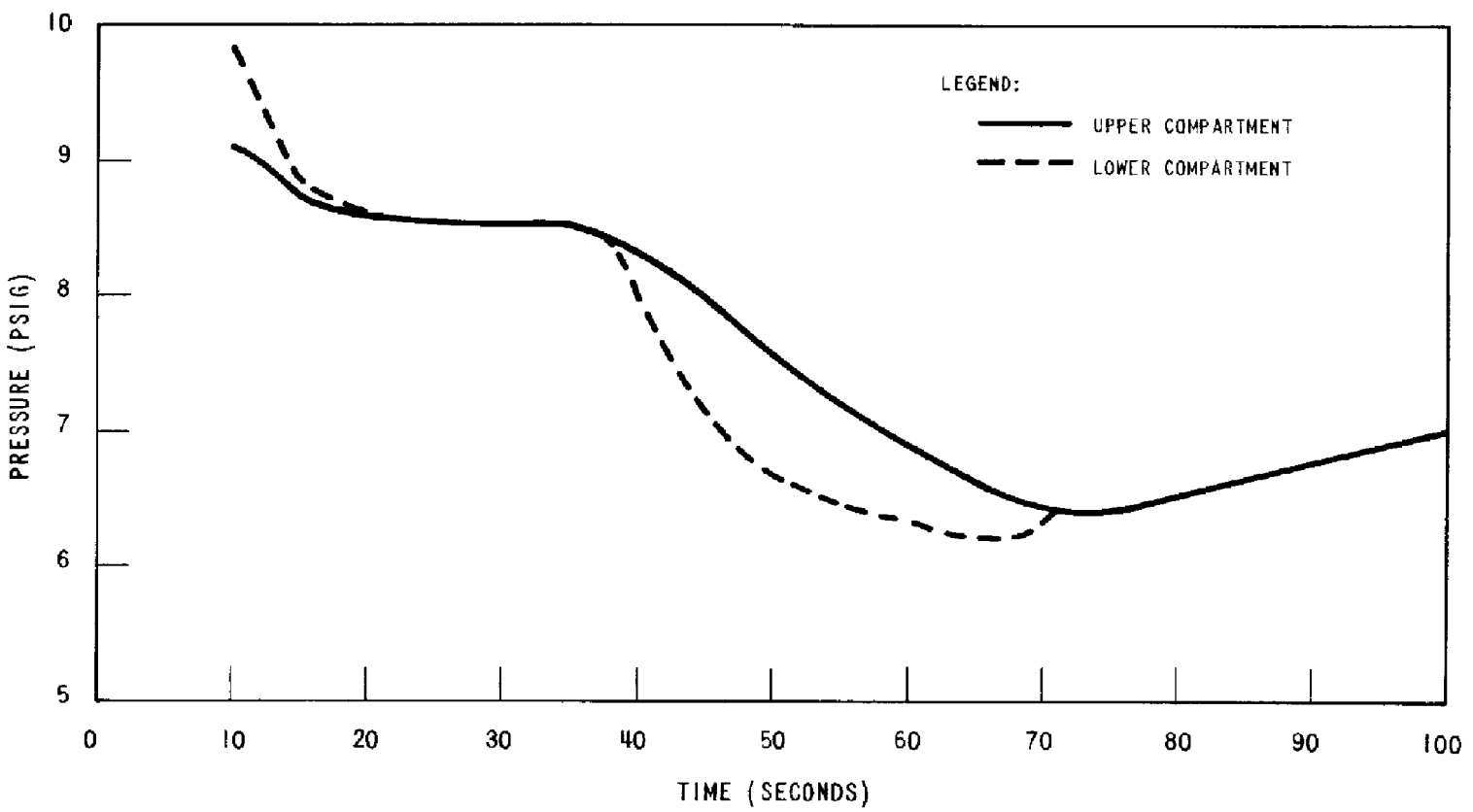
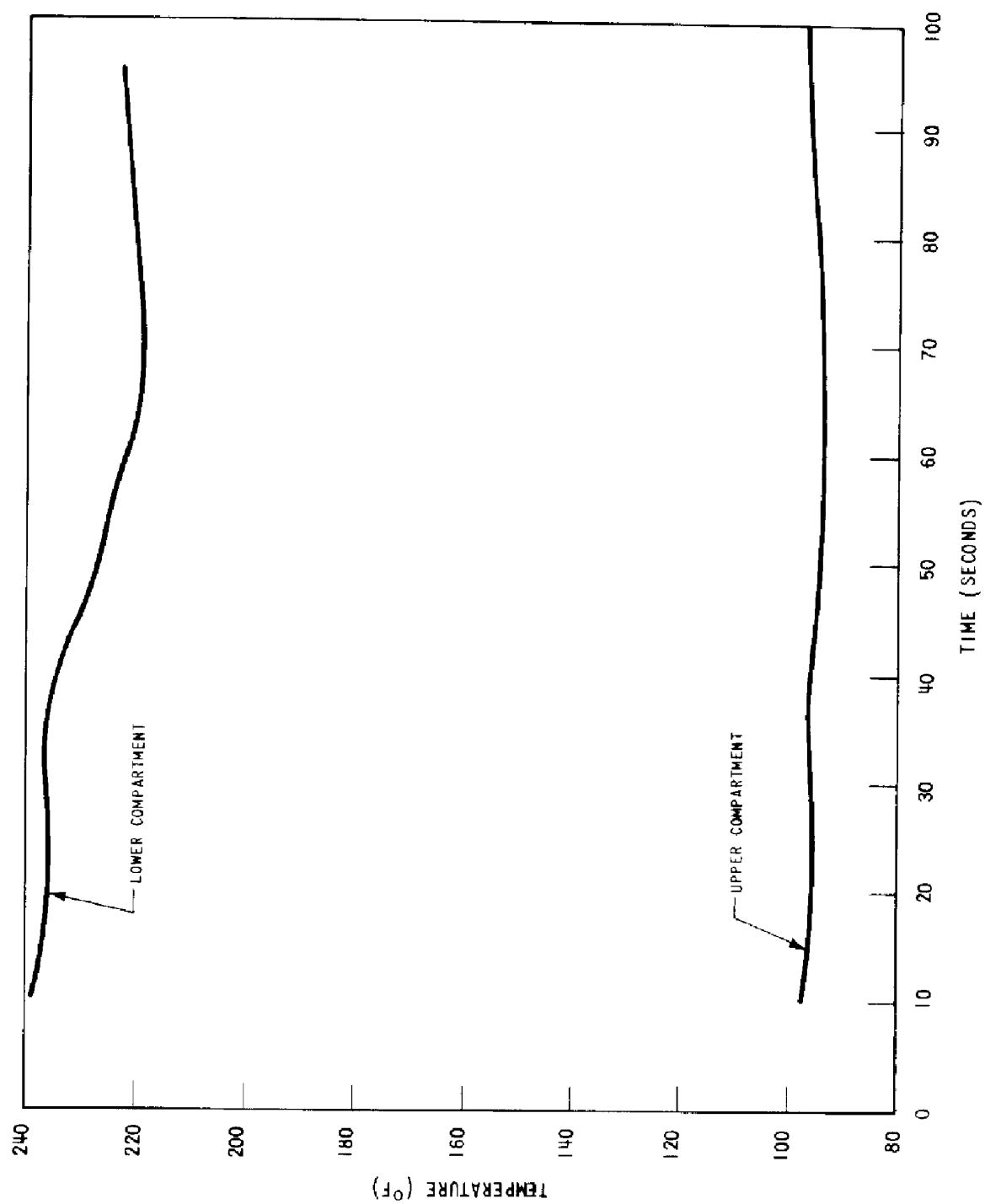
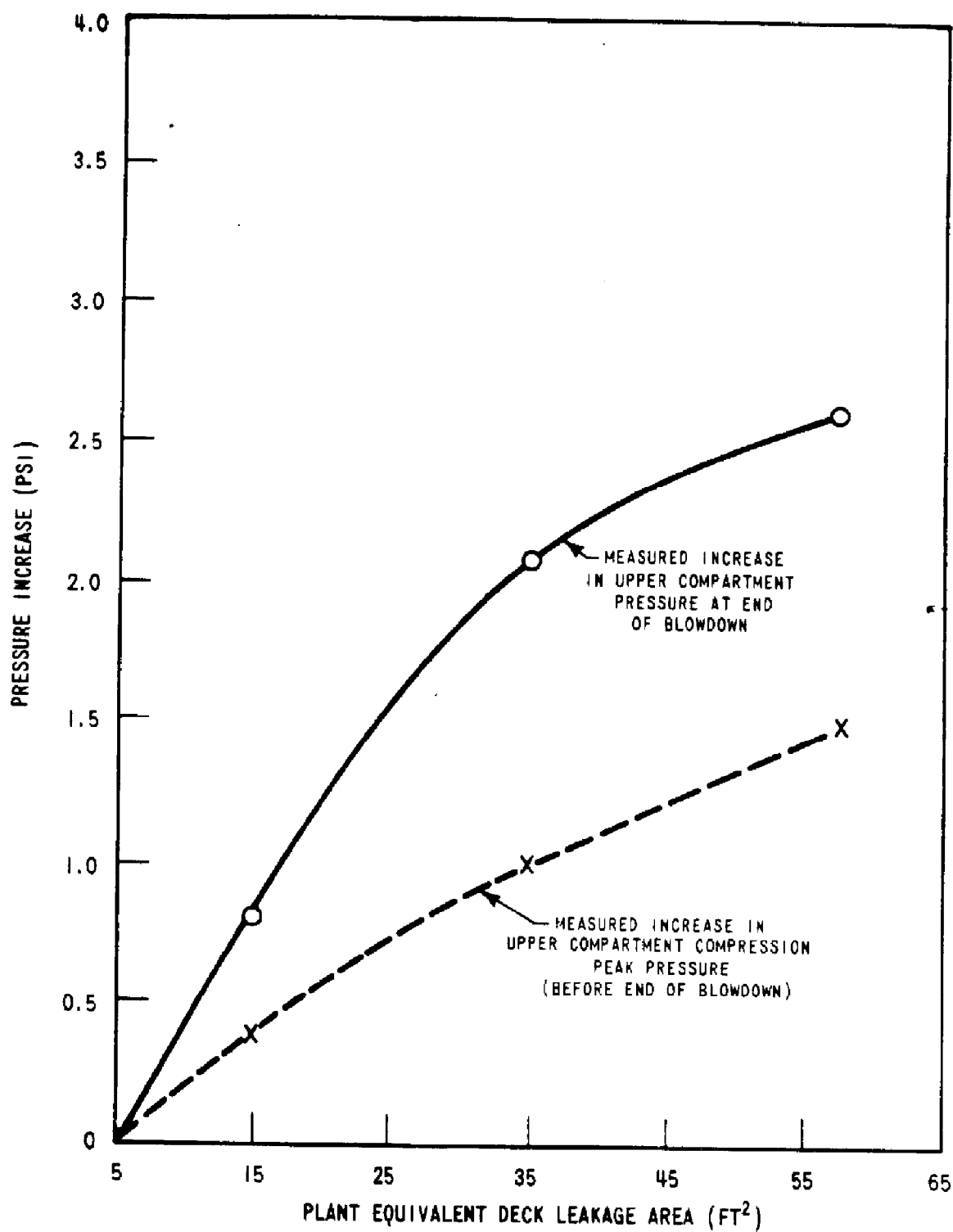


Figure 6-17. Peak Reverse Differential Pressure Transient



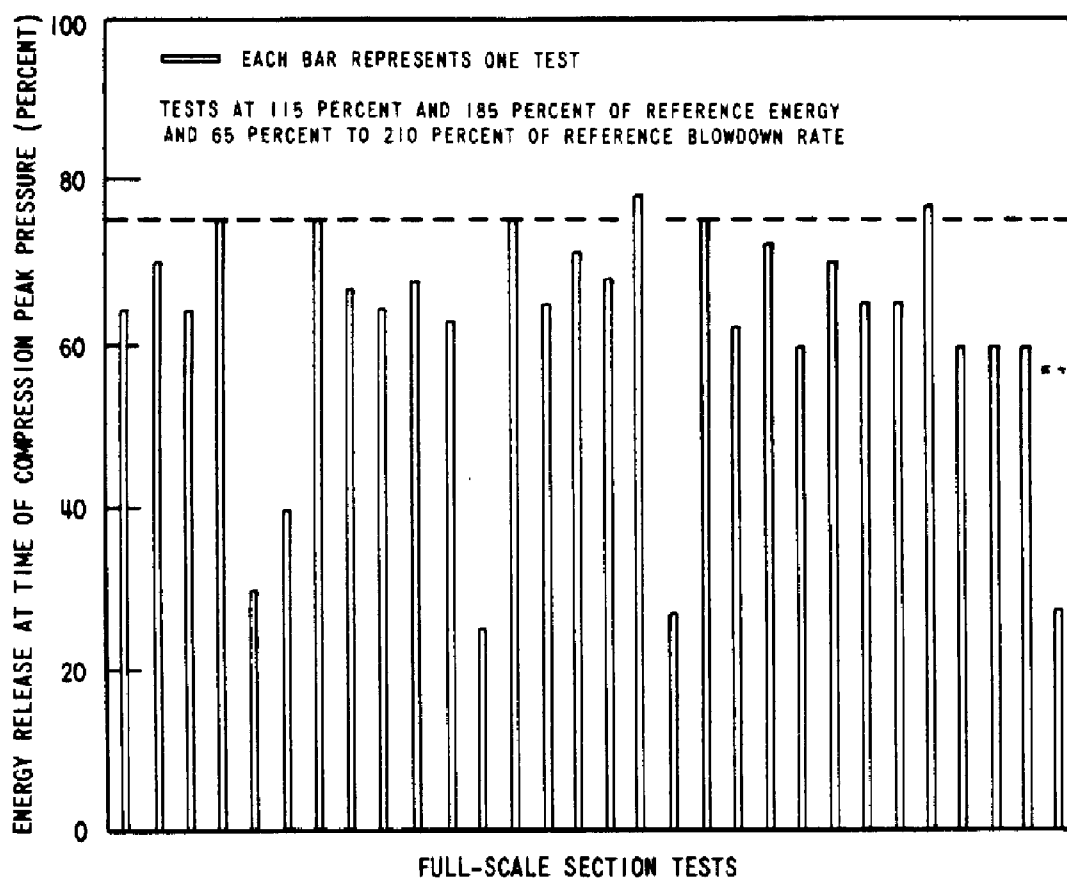
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Figure 6-18. Pressure Increase Versus Deck Area from Deck Leakage Tests

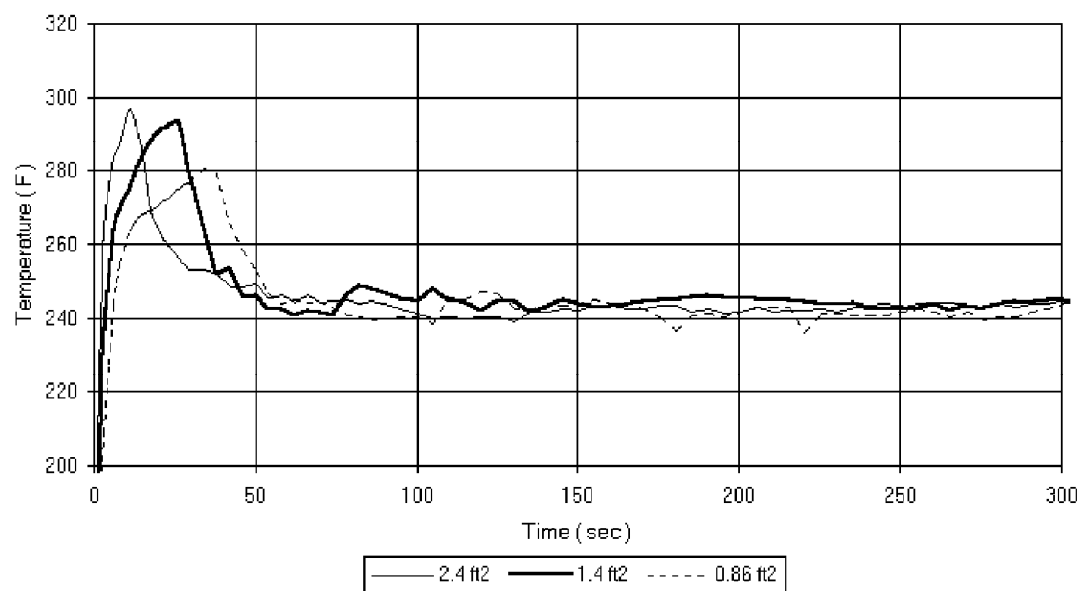


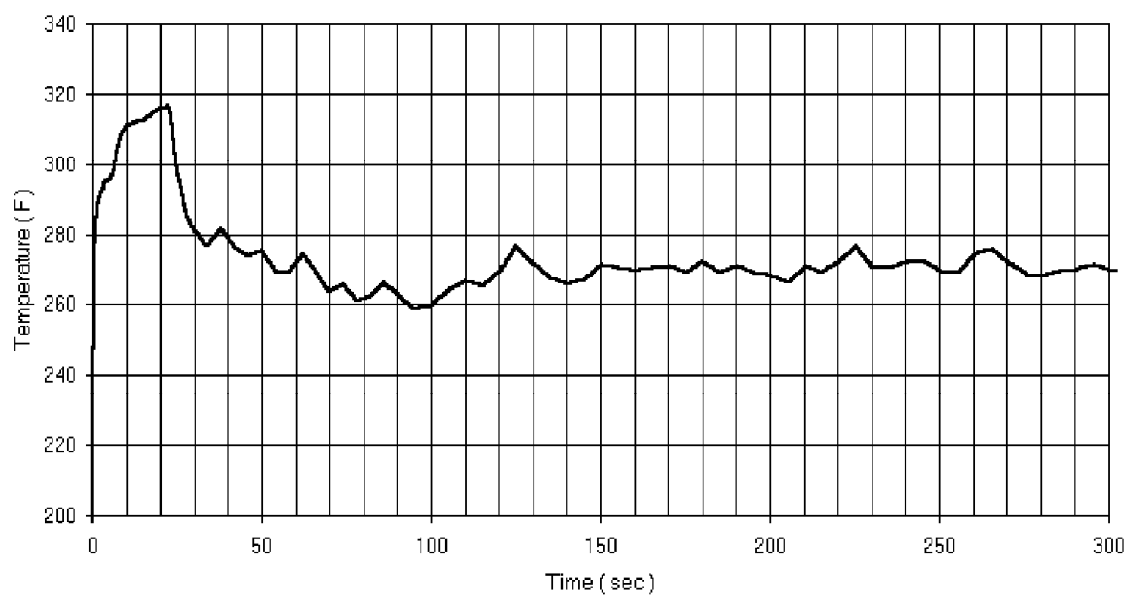
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Figure 6-19. Energy Release at Time of Compression Peak Pressure from Full-Scale Section Test with 1-Foot Diameter Baskets





**Figure 6-20. Peak Containment Temperature Transient - Lower Containment Temperature**

**Figure 6-21. Peak Containment Temperature Transient - Break Compartment Temperature**

**Figure 6-22. Deleted Per 1997 Update**

Figure 6-23. Typical Upper and Lower Compartment Pressure Transient for Break Compartment Having a DEHL Break

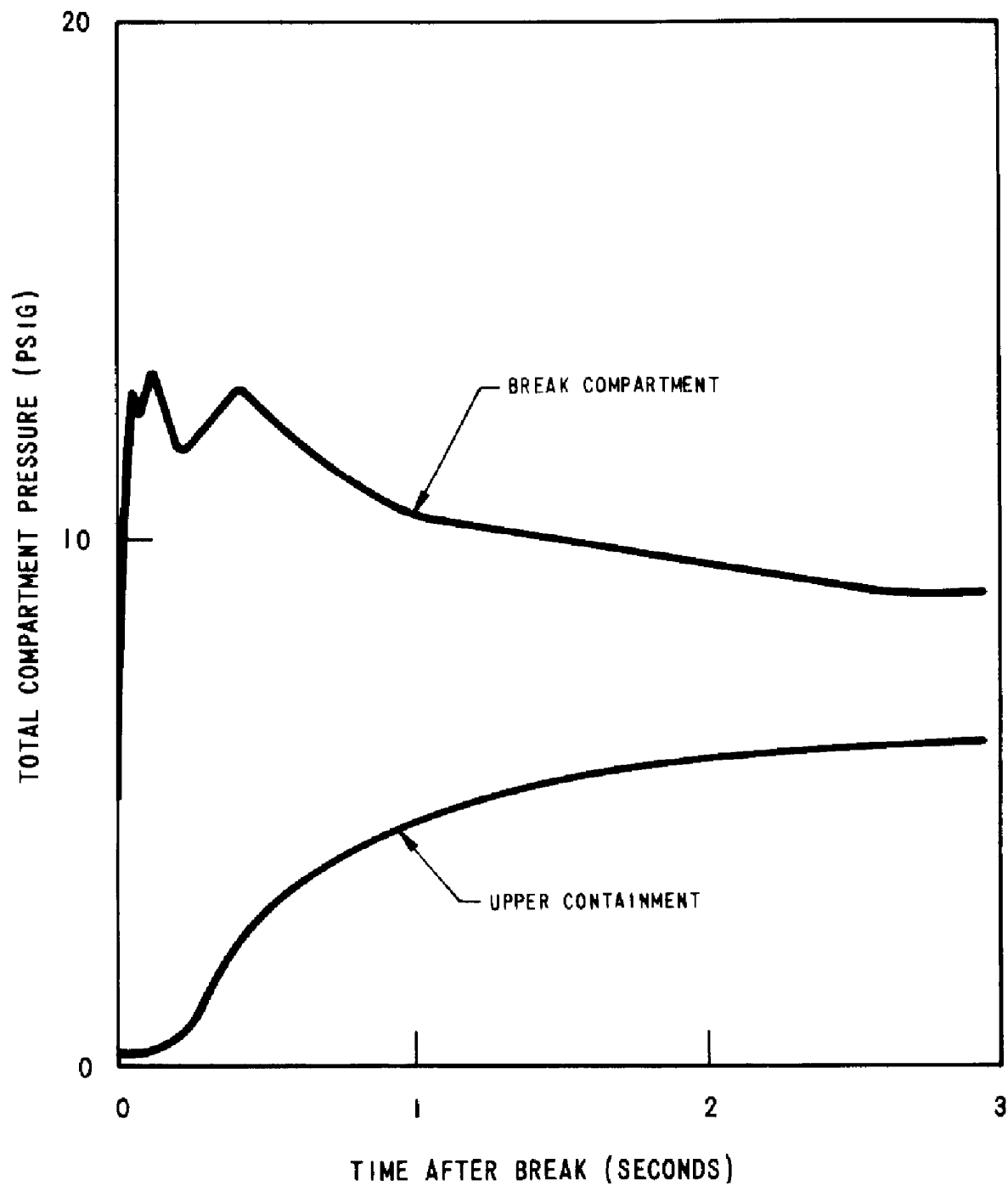


Figure 6-24. Typical Upper and Lower Compartment Pressure Transient for Break Compartment Having a DECL Break

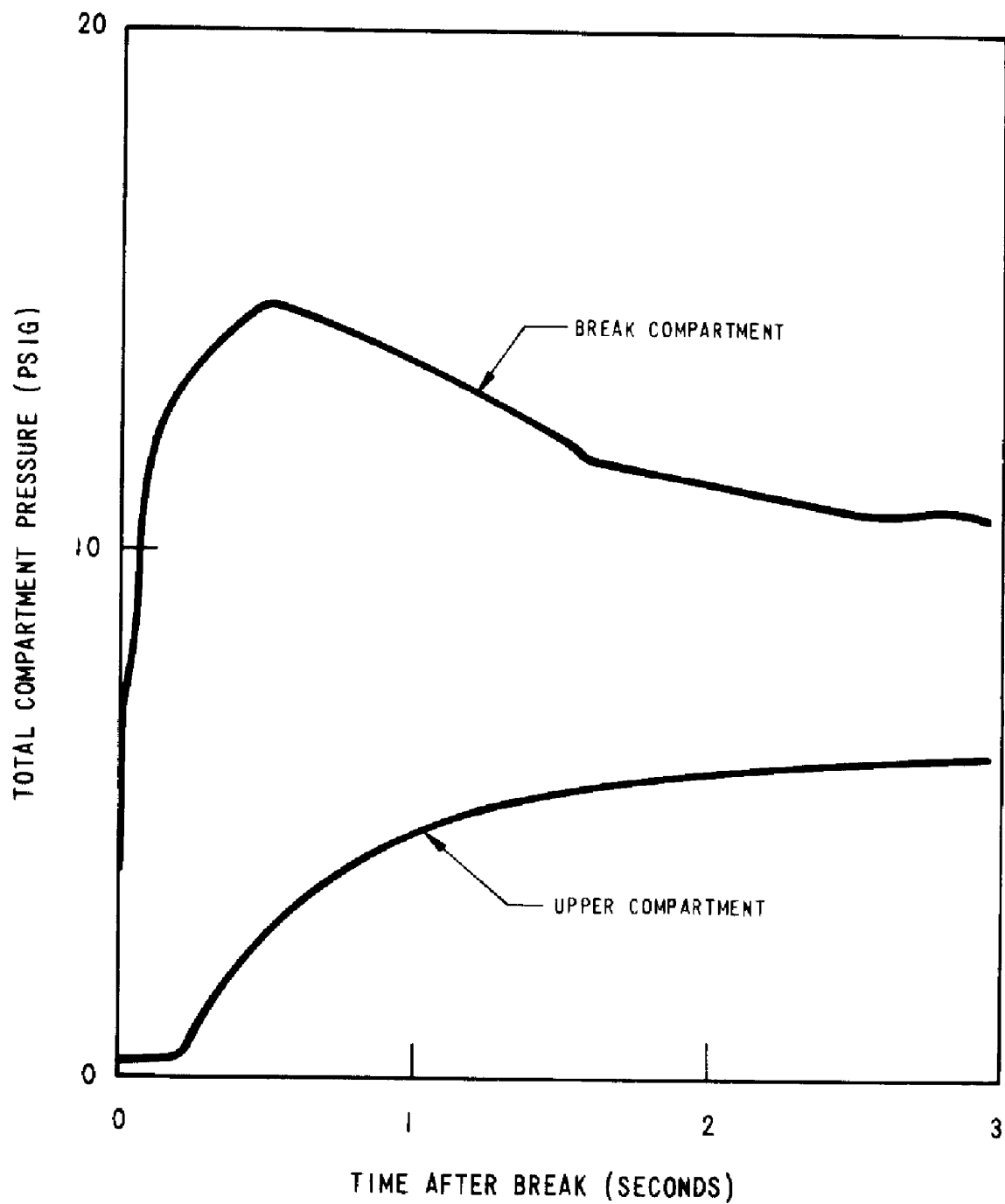


Figure 6-25. Plan at Equipment Rooms Elevation

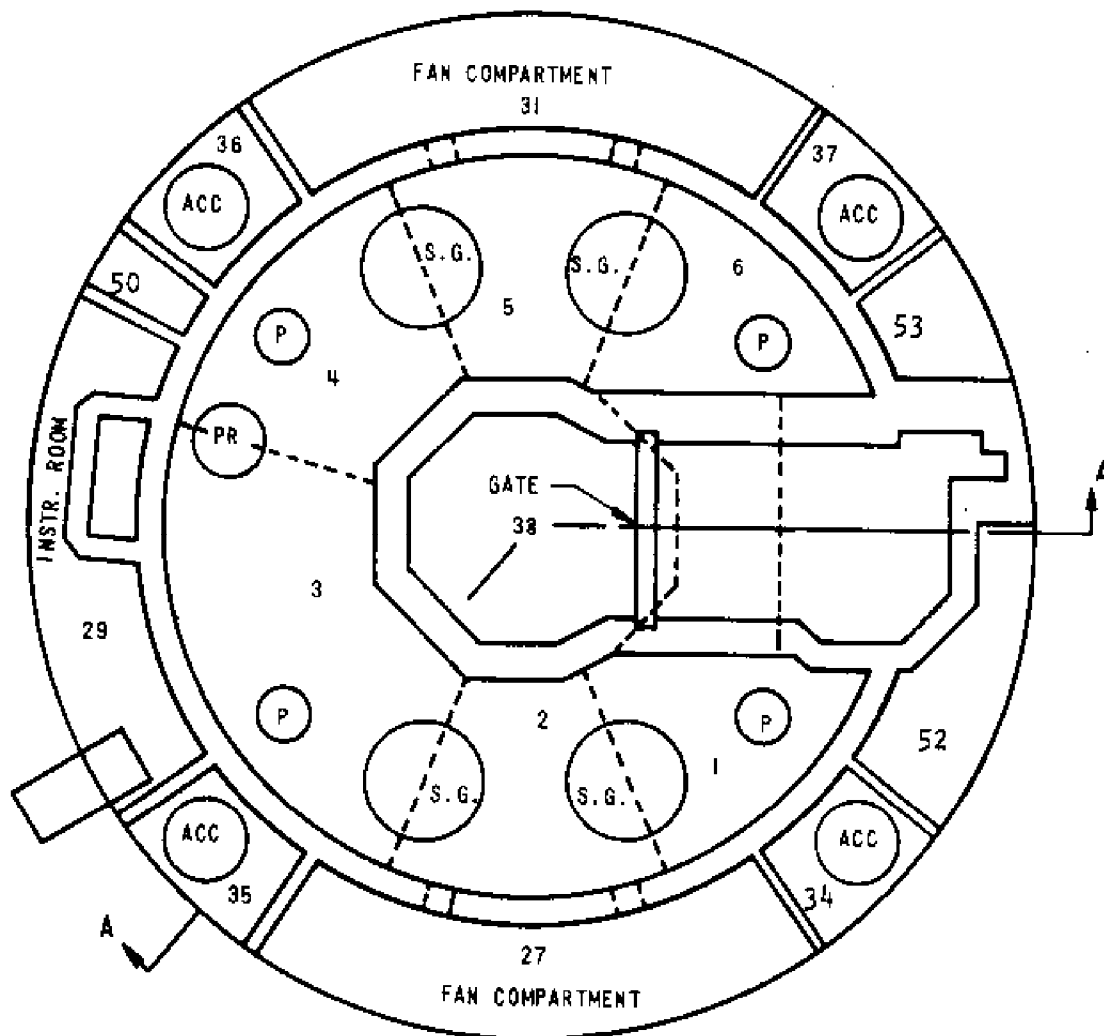


Figure 6-26. Compartment Section View

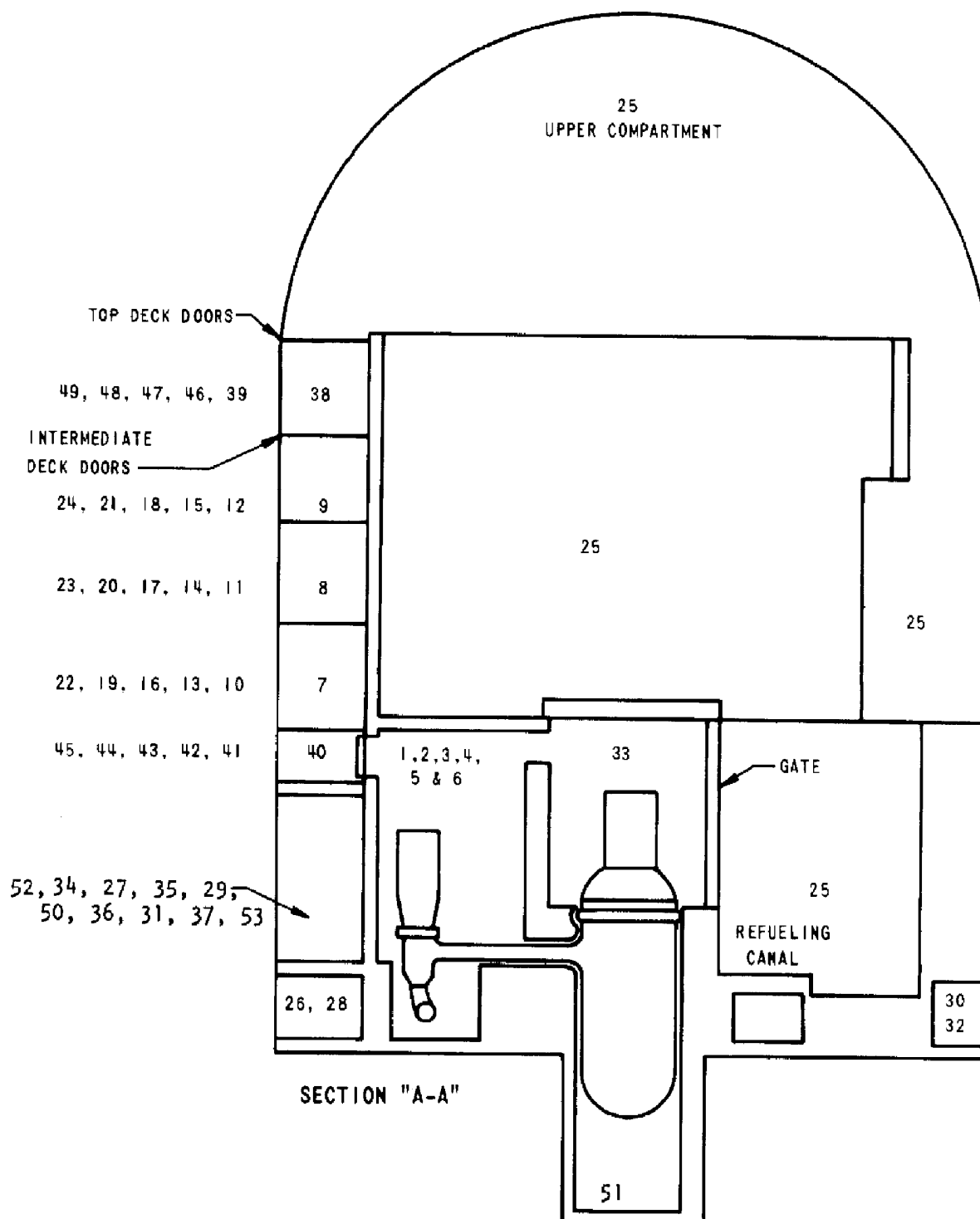


Figure 6-27. Plan View at Ice Condenser Elevation - Ice Condenser Compartments

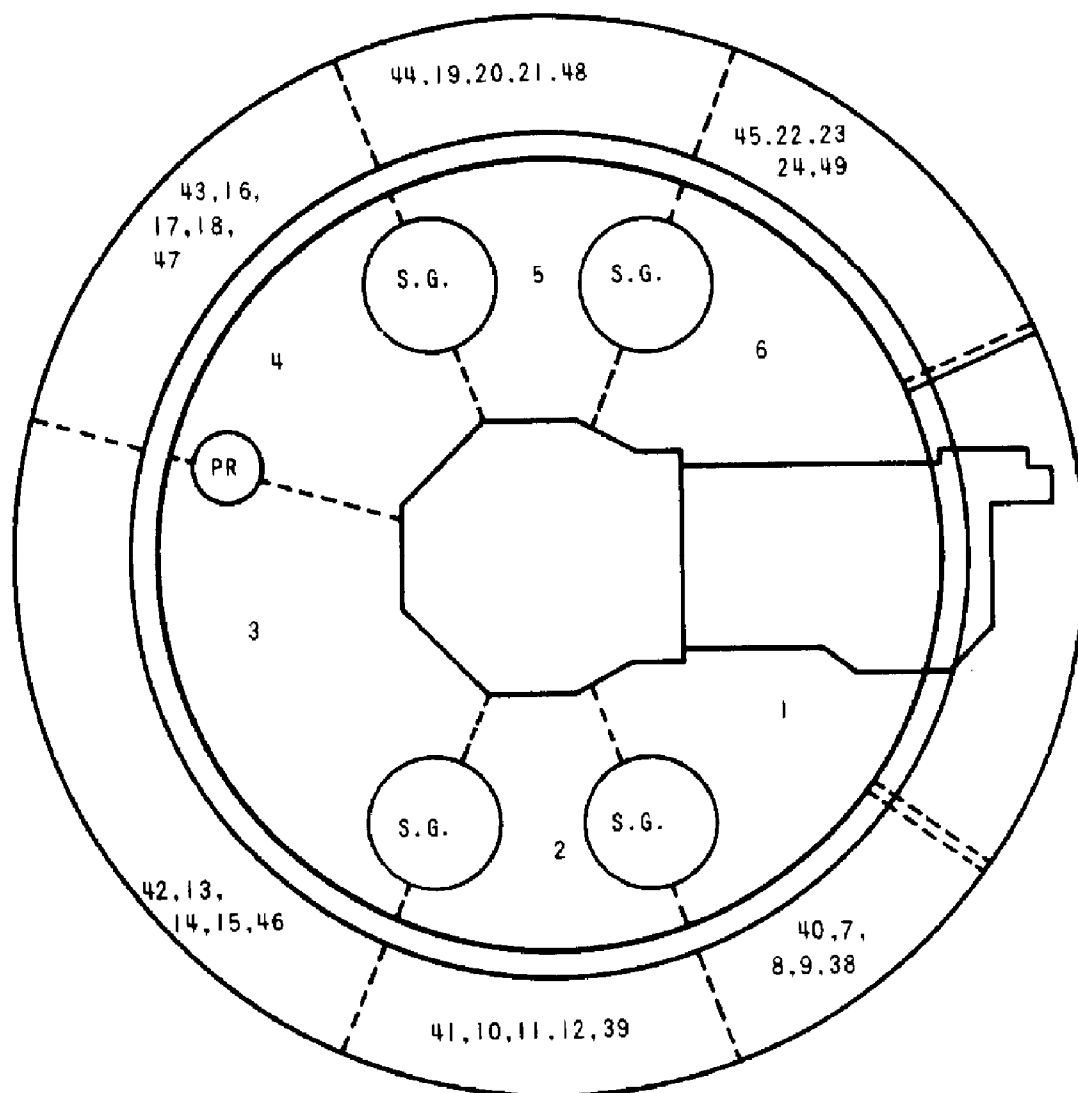




Figure 6-28. Layout of Containment Shell

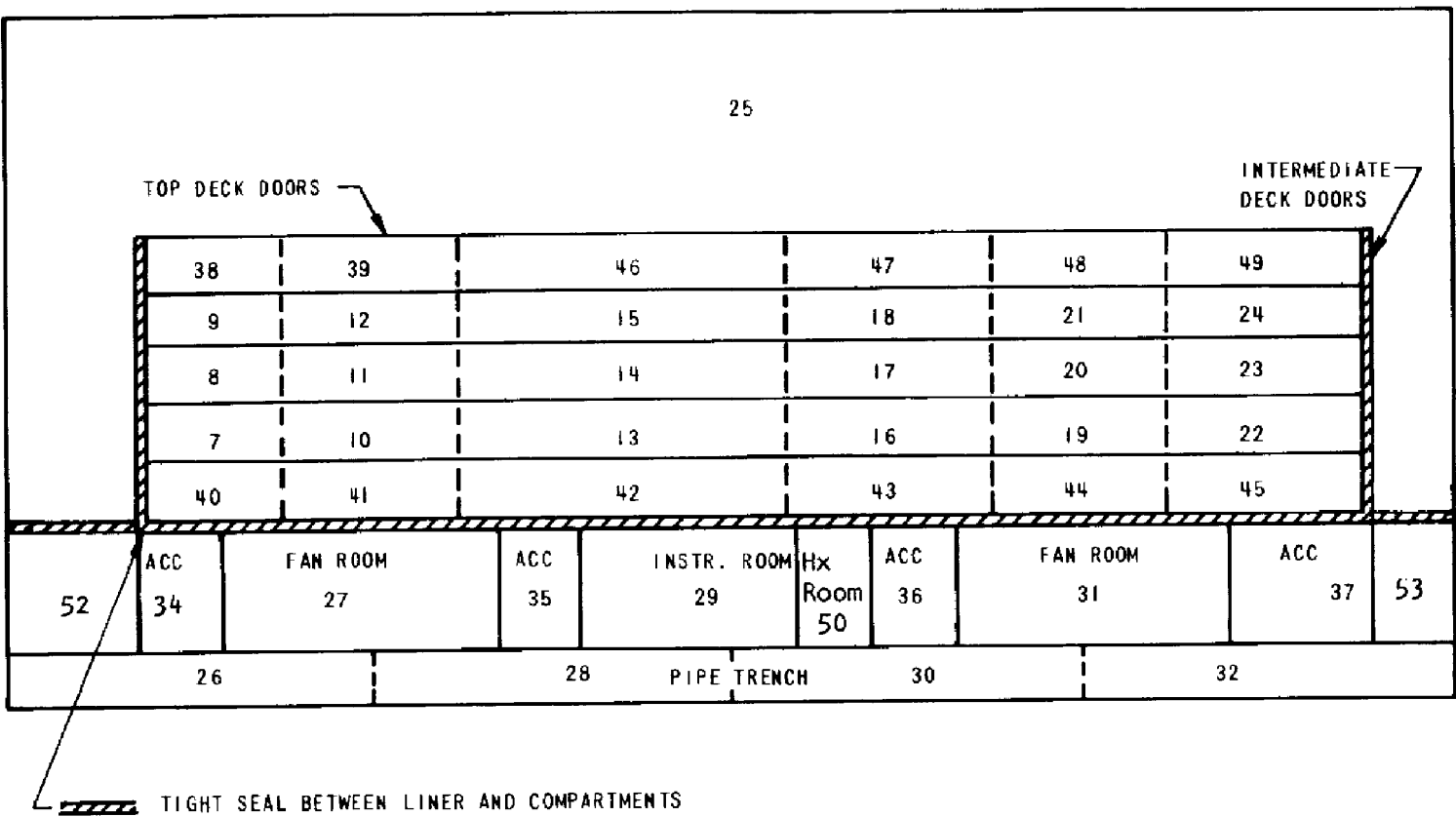


Figure 6-29. TMD Code Network

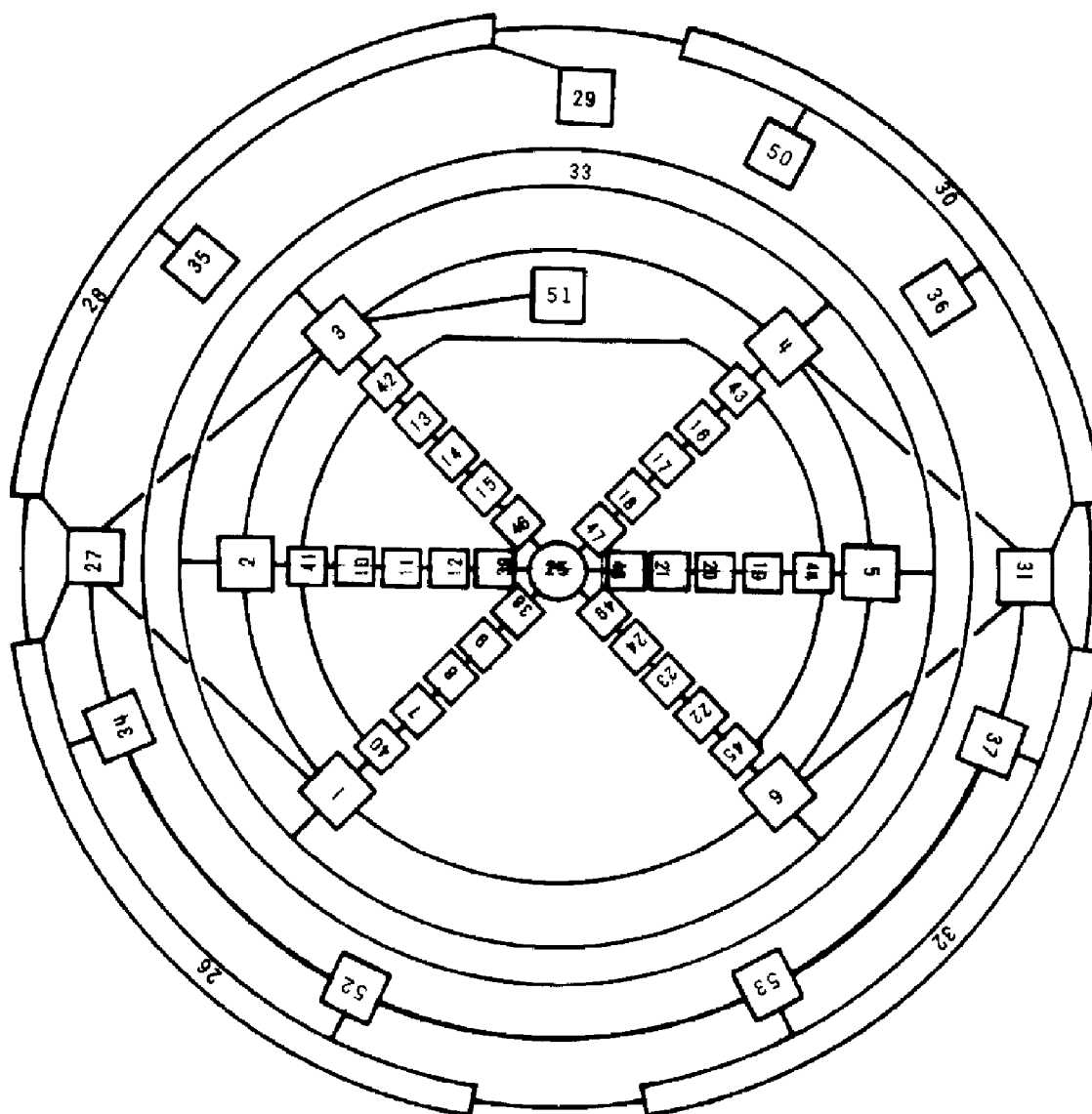


Figure 6-30. Nine Volume Nodalization of the Steam Generator Enclosure

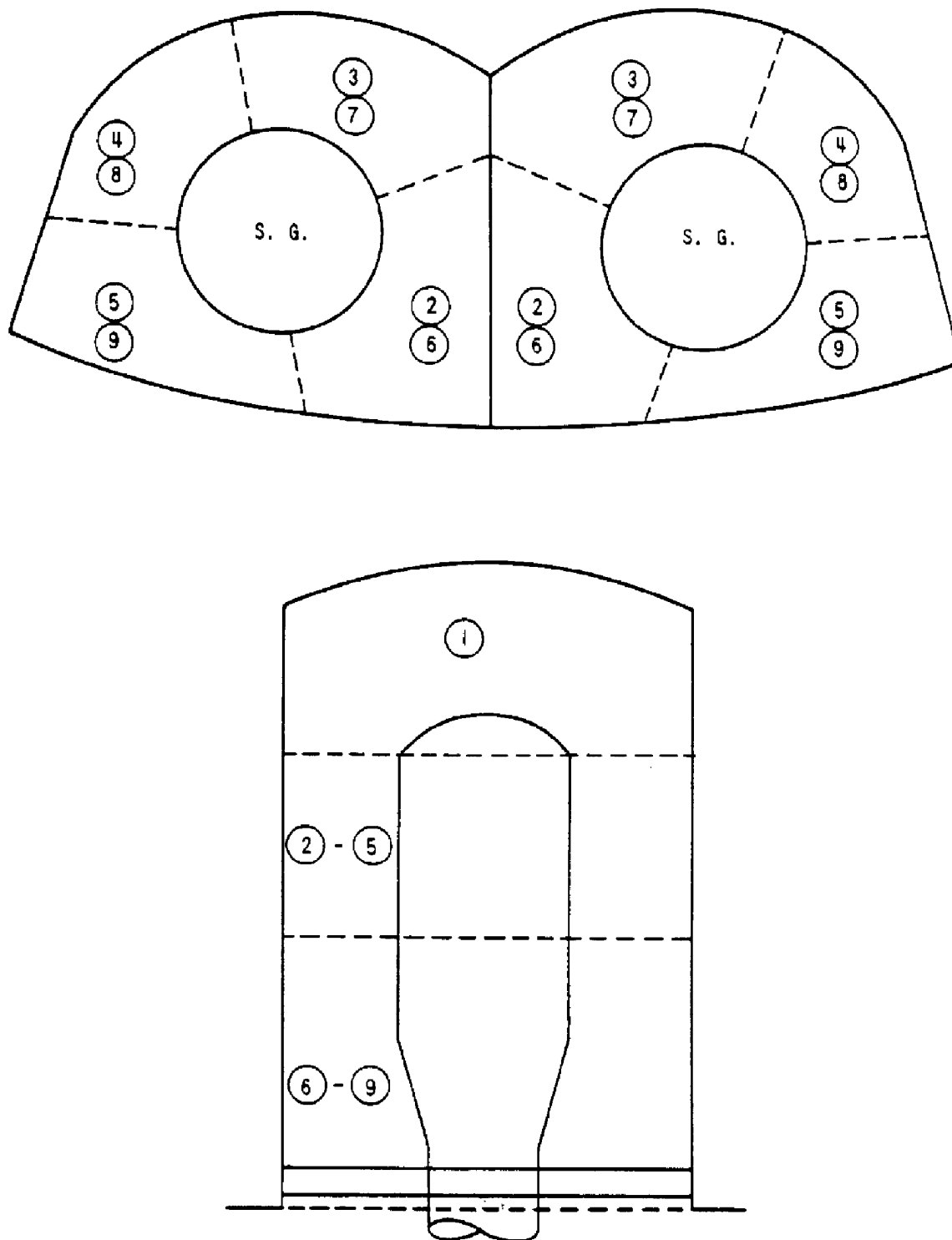
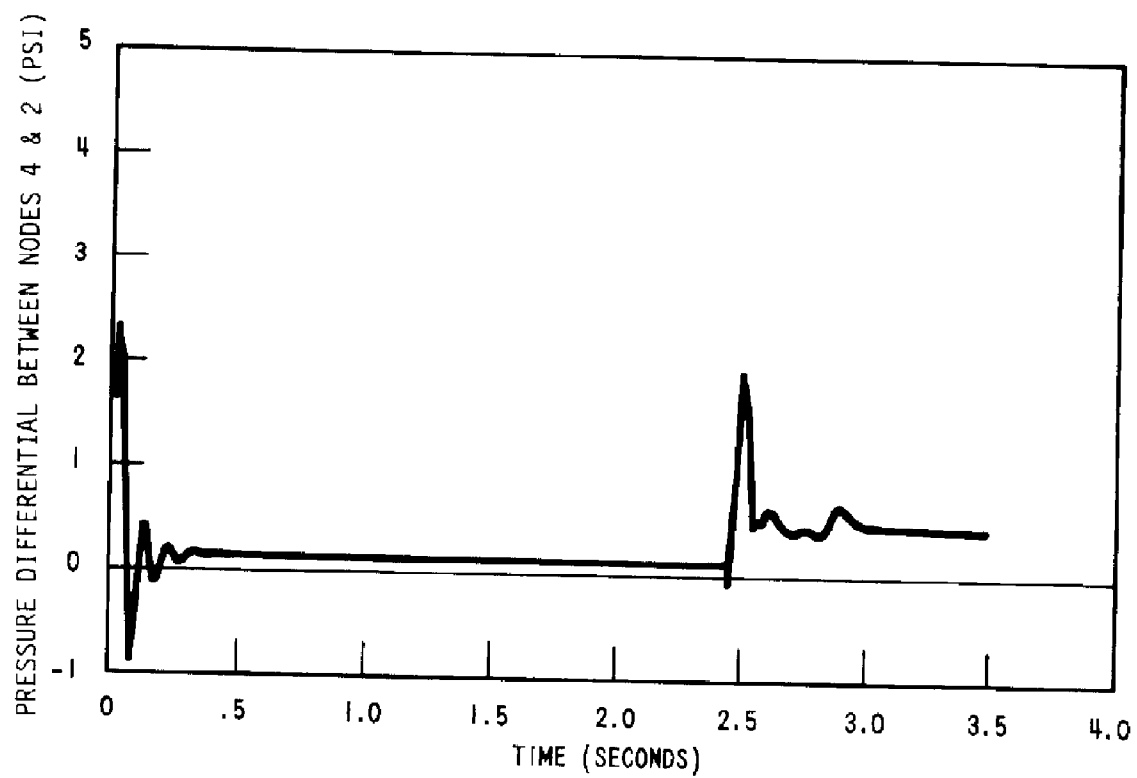


Figure 6-31. Double Ended Steam Line Break in Steam Generator Enclosure



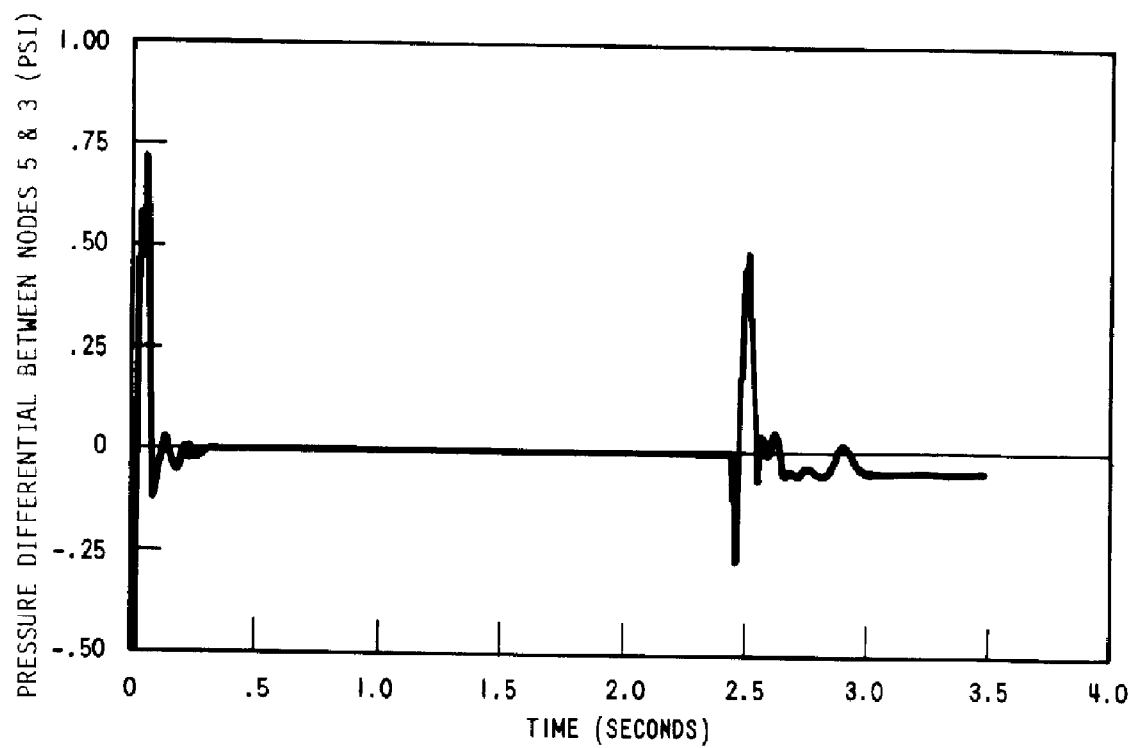
**Figure 6-32. Double Ended Steam Line Break in Steam Generator Enclosure**

Figure 6-33. Double Ended Steam Line Break in Steam Generator Enclosure

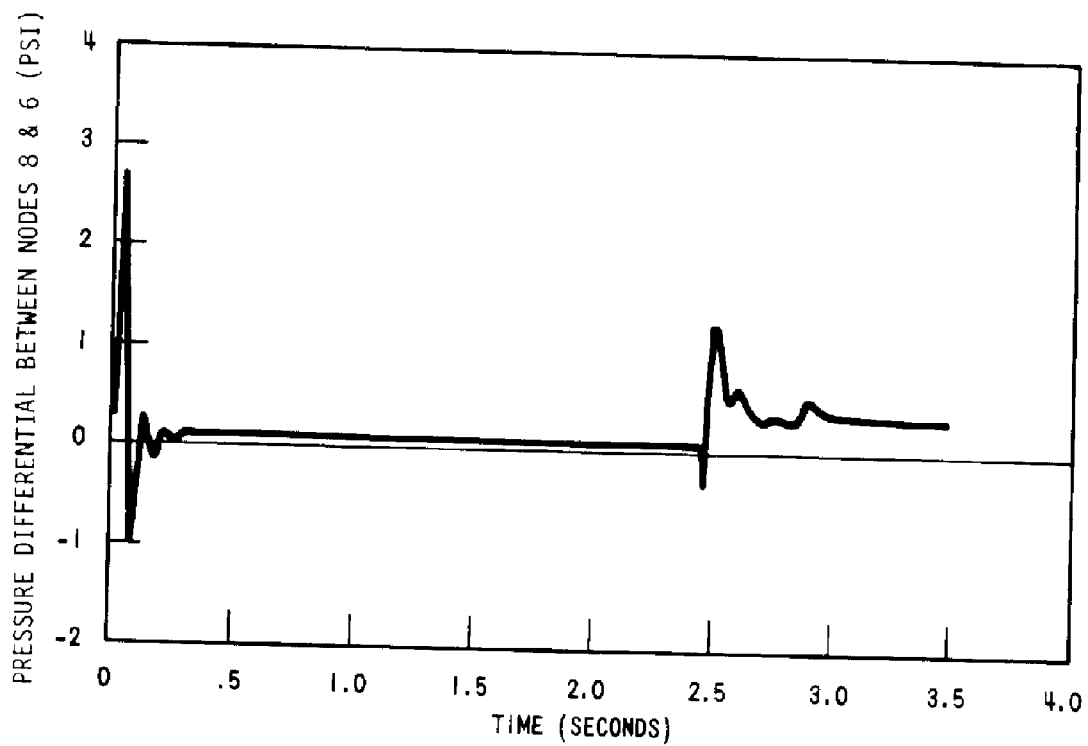


Figure 6-34. Double Ended Steam Line Break in Steam Generator Enclosure

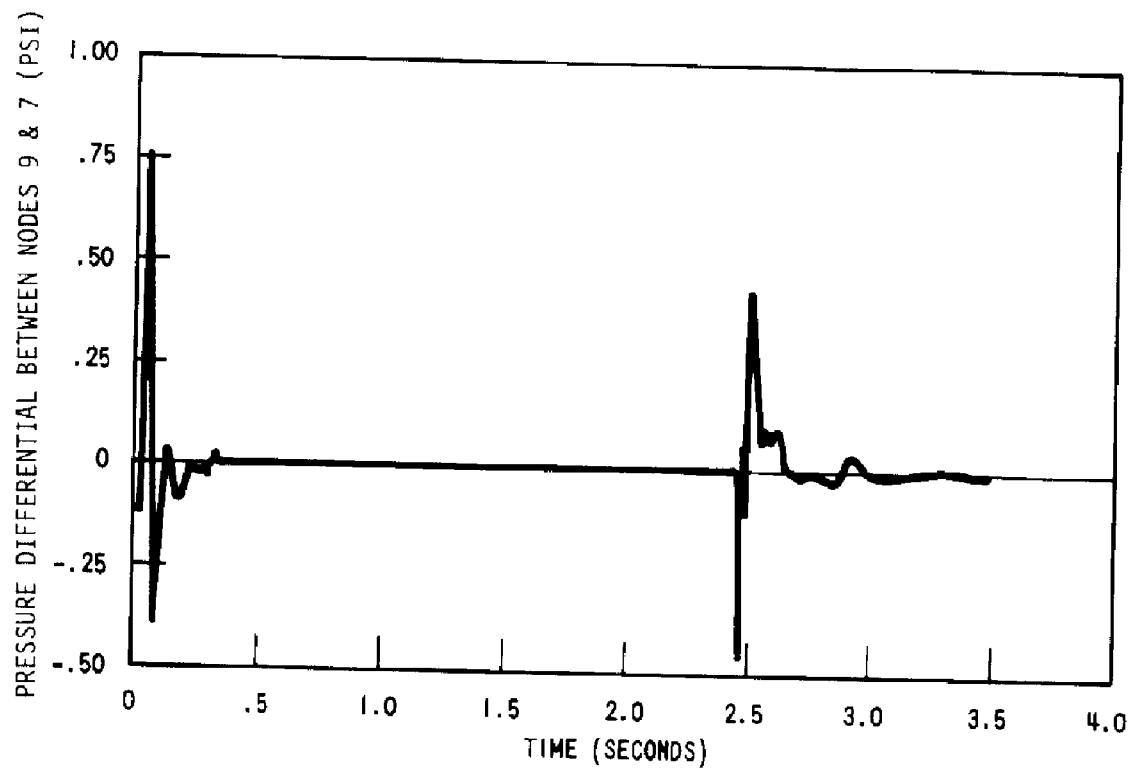
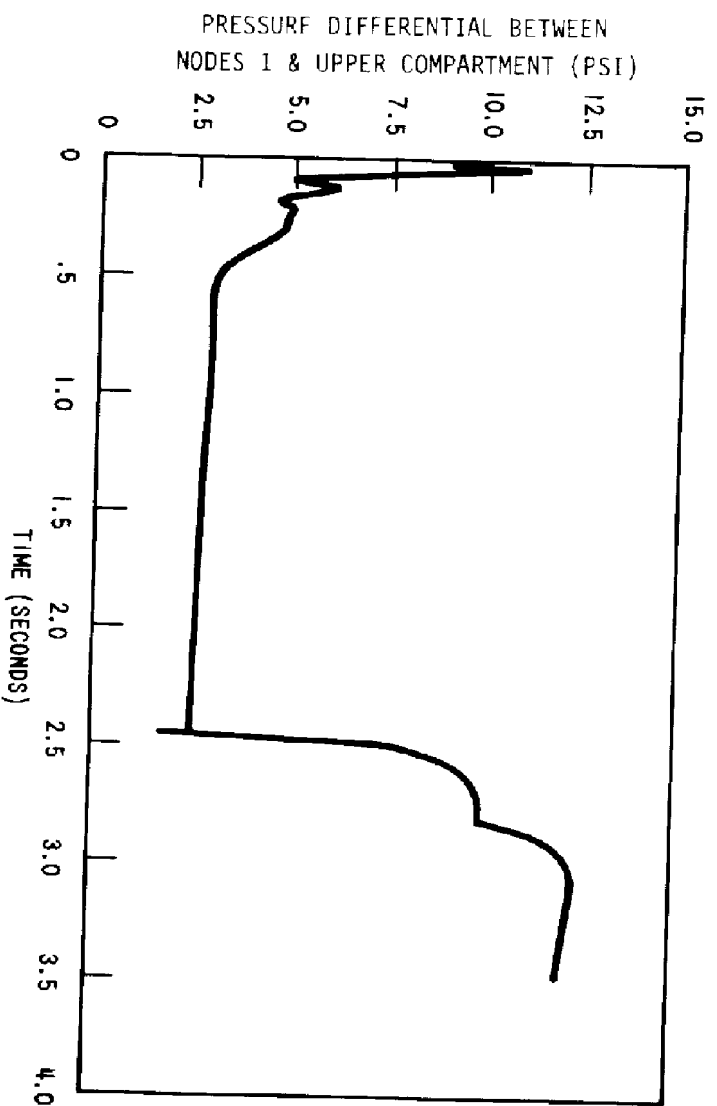


Figure 6-35. Double Ended Steam Line Break in Steam Generator Enclosure





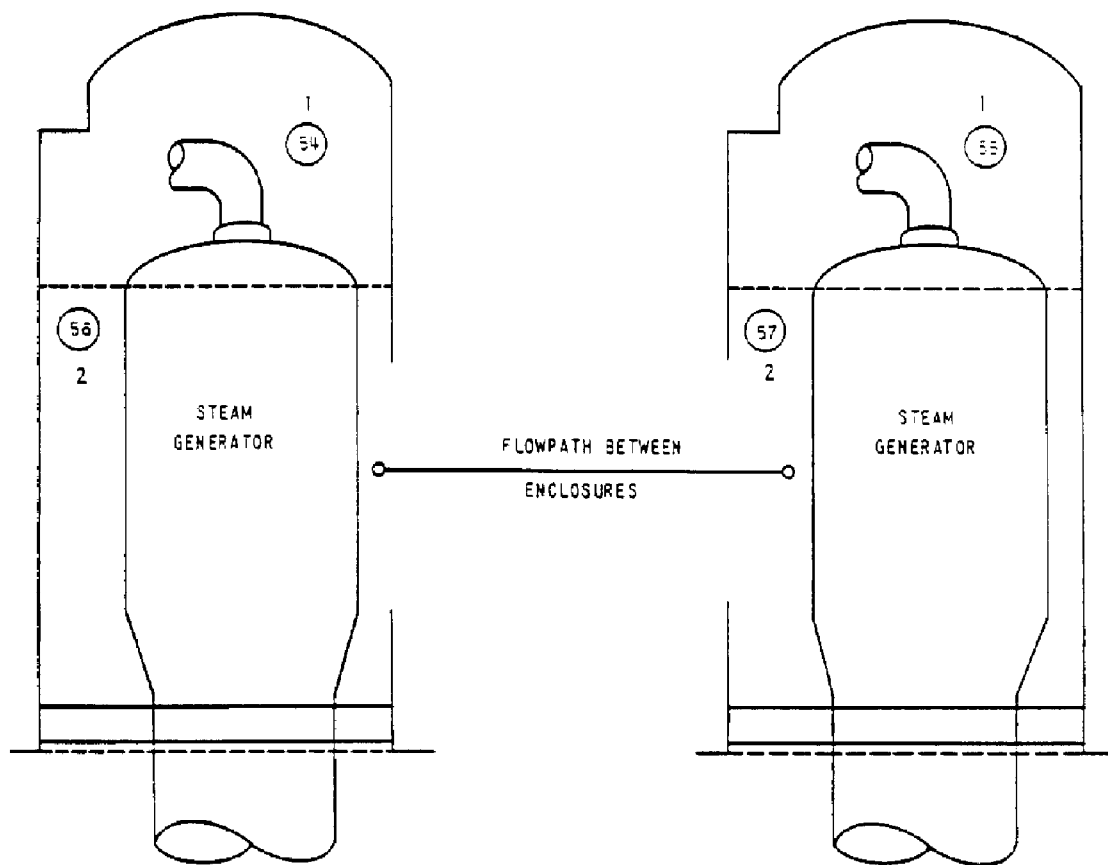
**Figure 6-36. Two Volume Nodalization of the Steam Generator Enclosure**

Figure 6-37. Two Volume Nodalization of the Pressurizer Enclosure

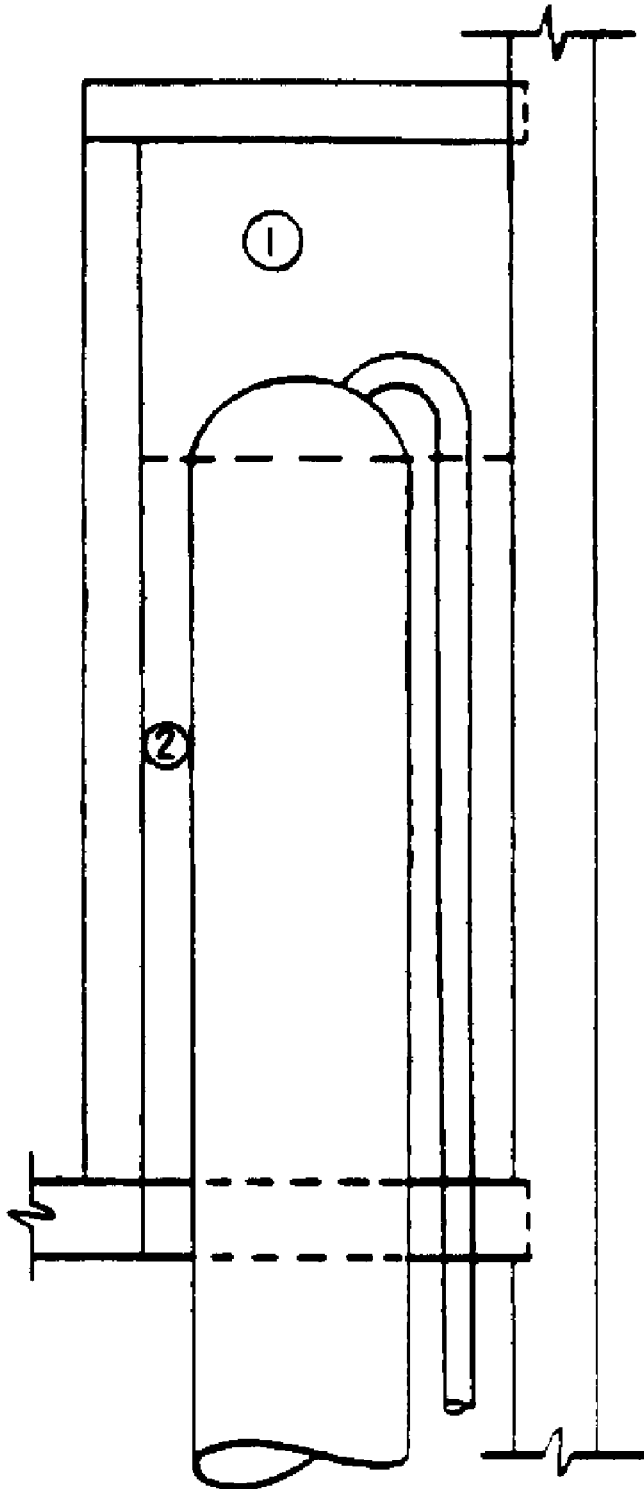


Figure 6-38. Four Volume Nodalization of the Pressurizer Enclosure

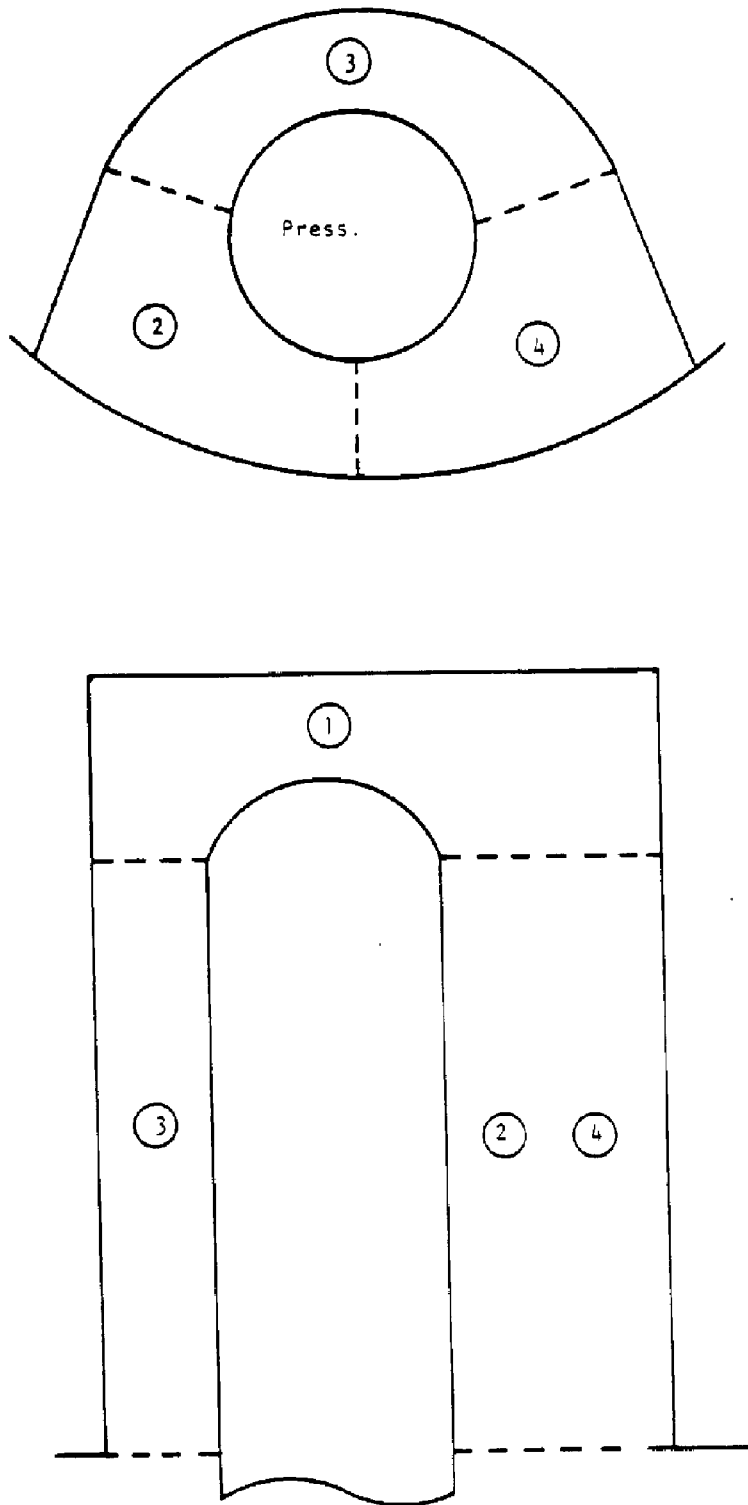


Figure 6-39. Developed View of the TMD Code Network for the Reactor Cavity Analysis

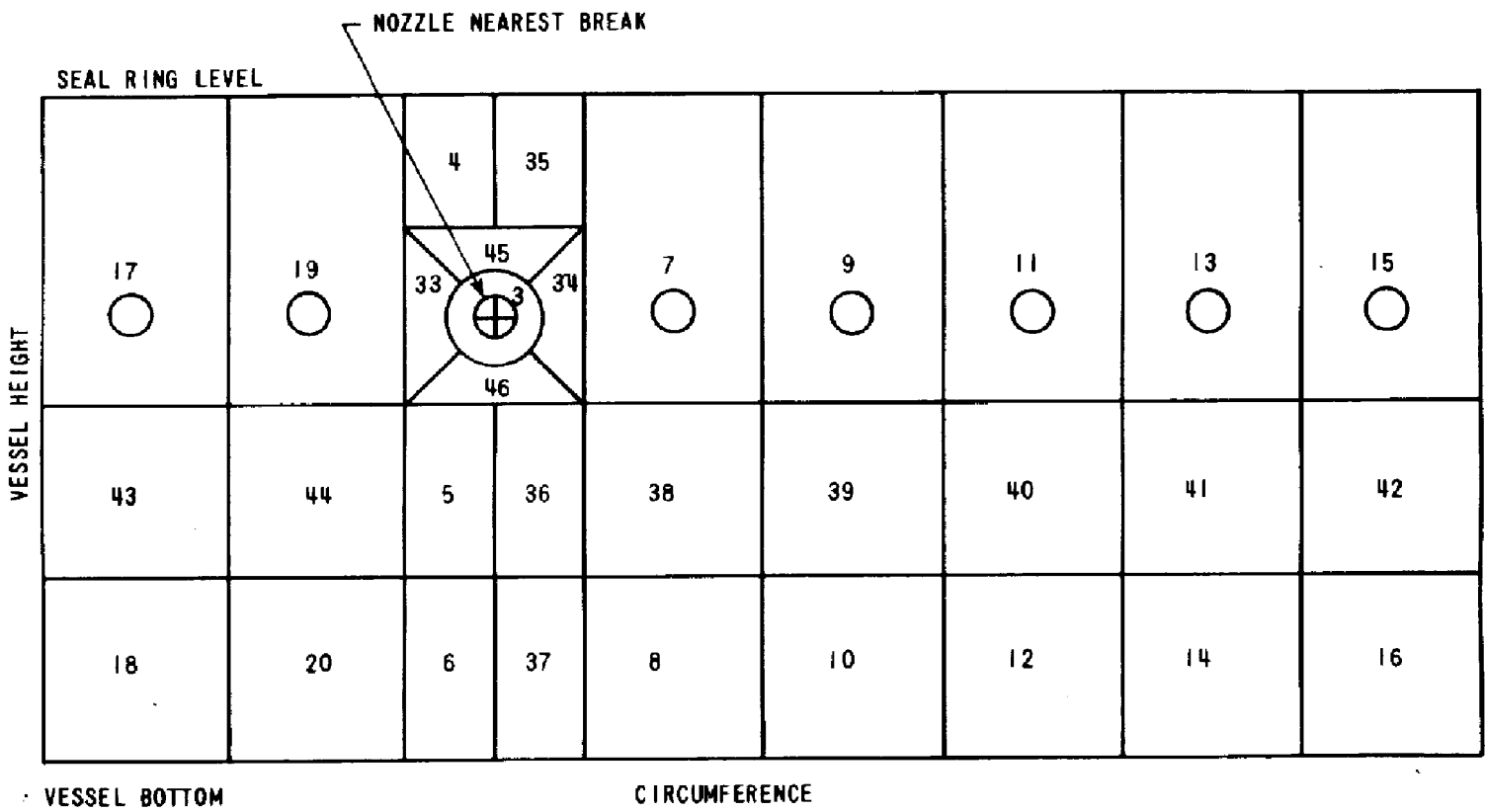


Figure 6-40. Flowpath Connections for the Reactor Cavity Analysis

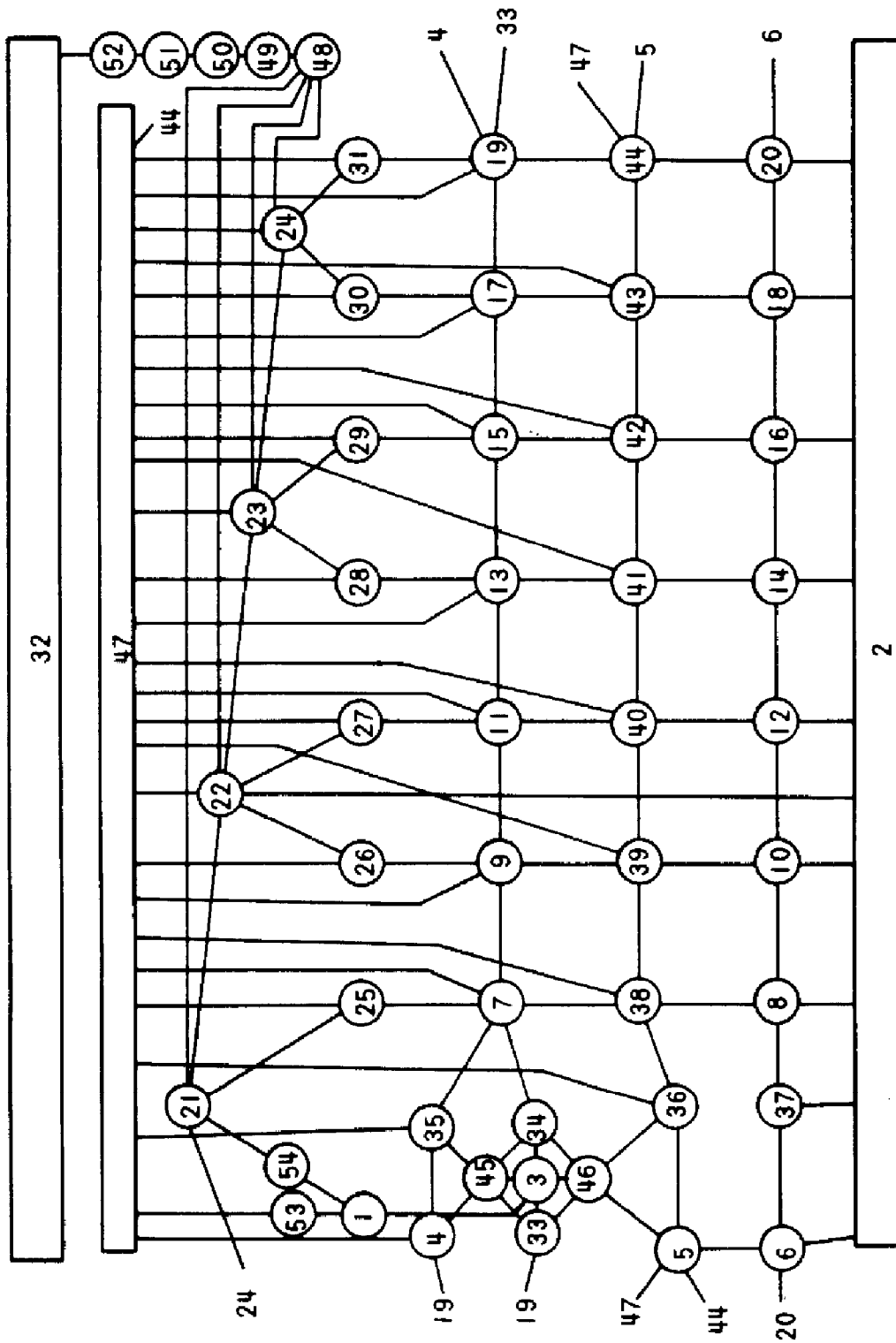


Figure 6-41. Containment Model for the Reactor Cavity Analysis

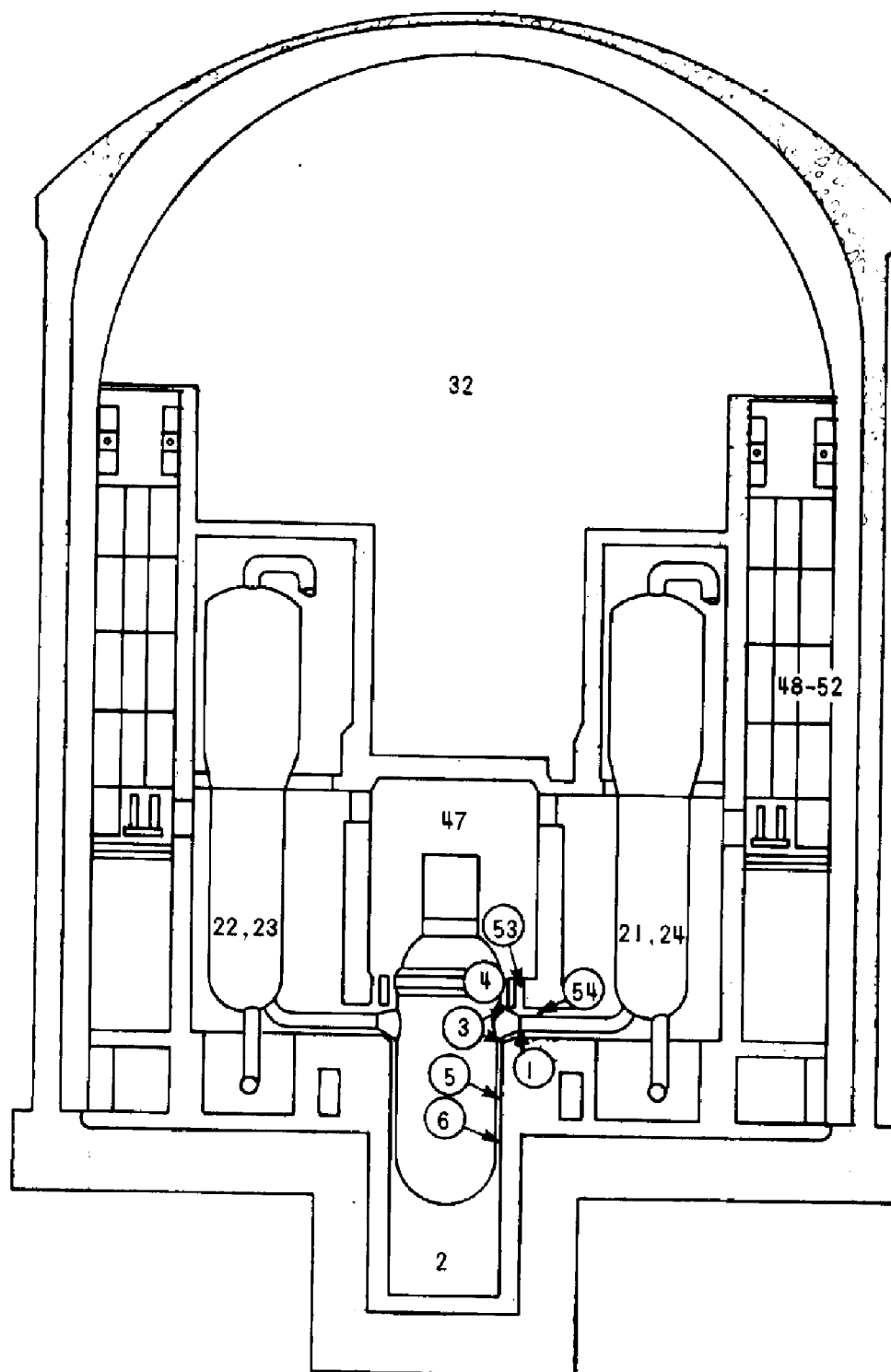
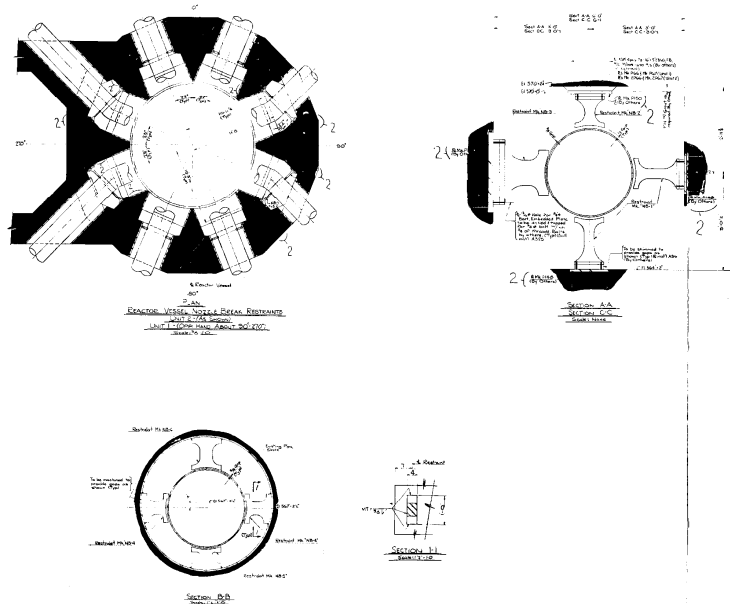


Figure 6-42. Reactor Vessel Nozzle Break Restraints



REACTOR VESSEL NOZZLE  
BREAK SUPPORTS  
CATAWBA NUCLEAR STATION  
Figure 6.2.1-37

Figure 6-43. Reactor Cavity Analysis, Element 1

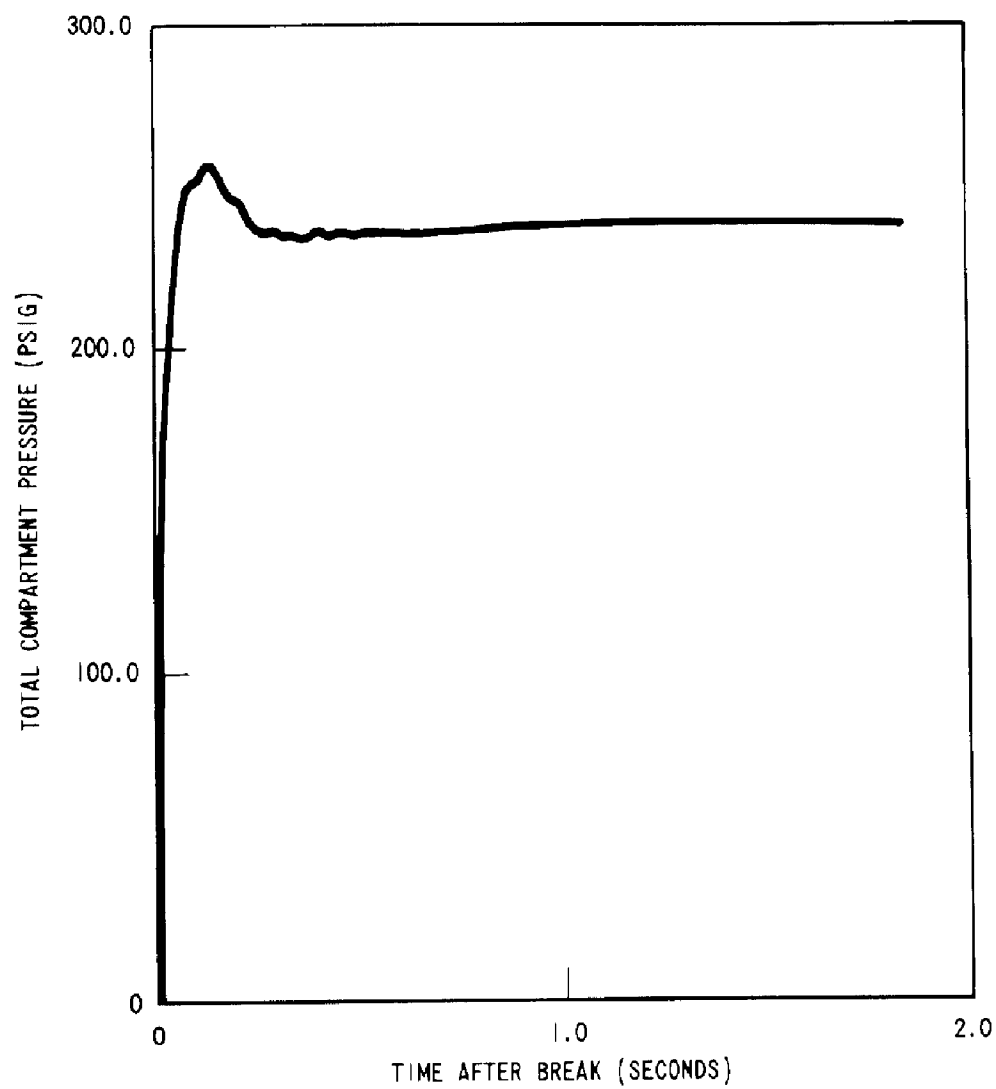
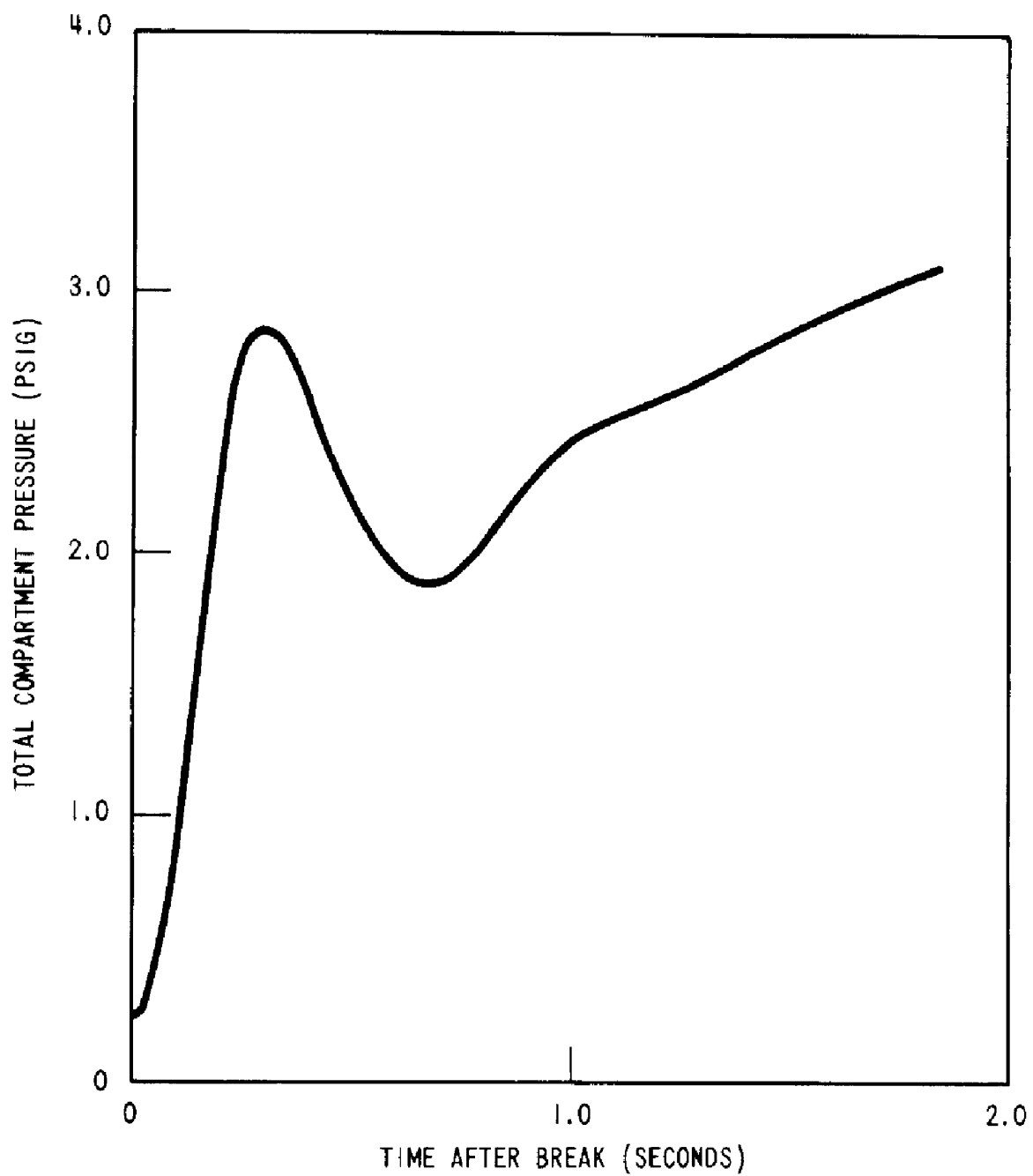




Figure 6-44. Reactor Cavity Analysis, Element 2



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Figure 6-45. Reactor Cavity Analysis, Element 3

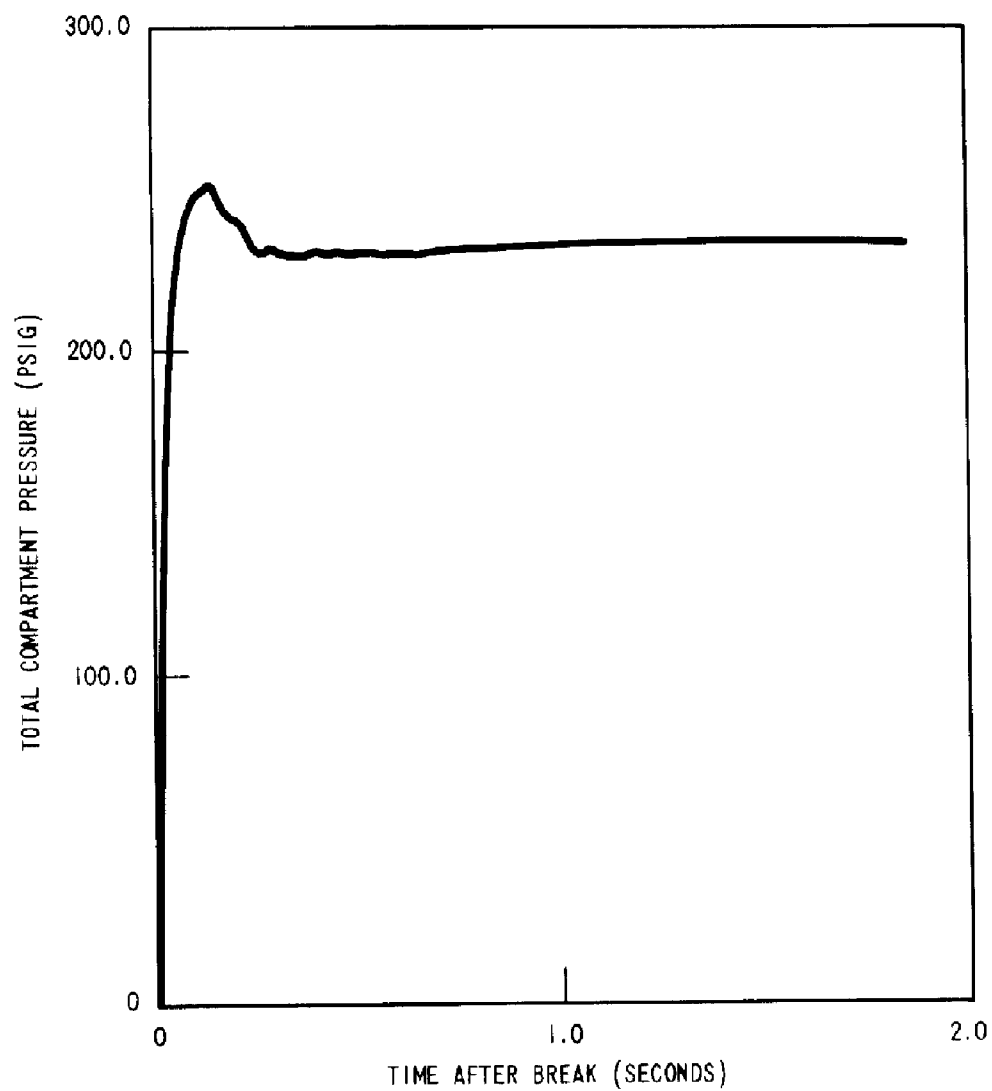


Figure 6-46. Reactor Cavity Analysis, Element 4

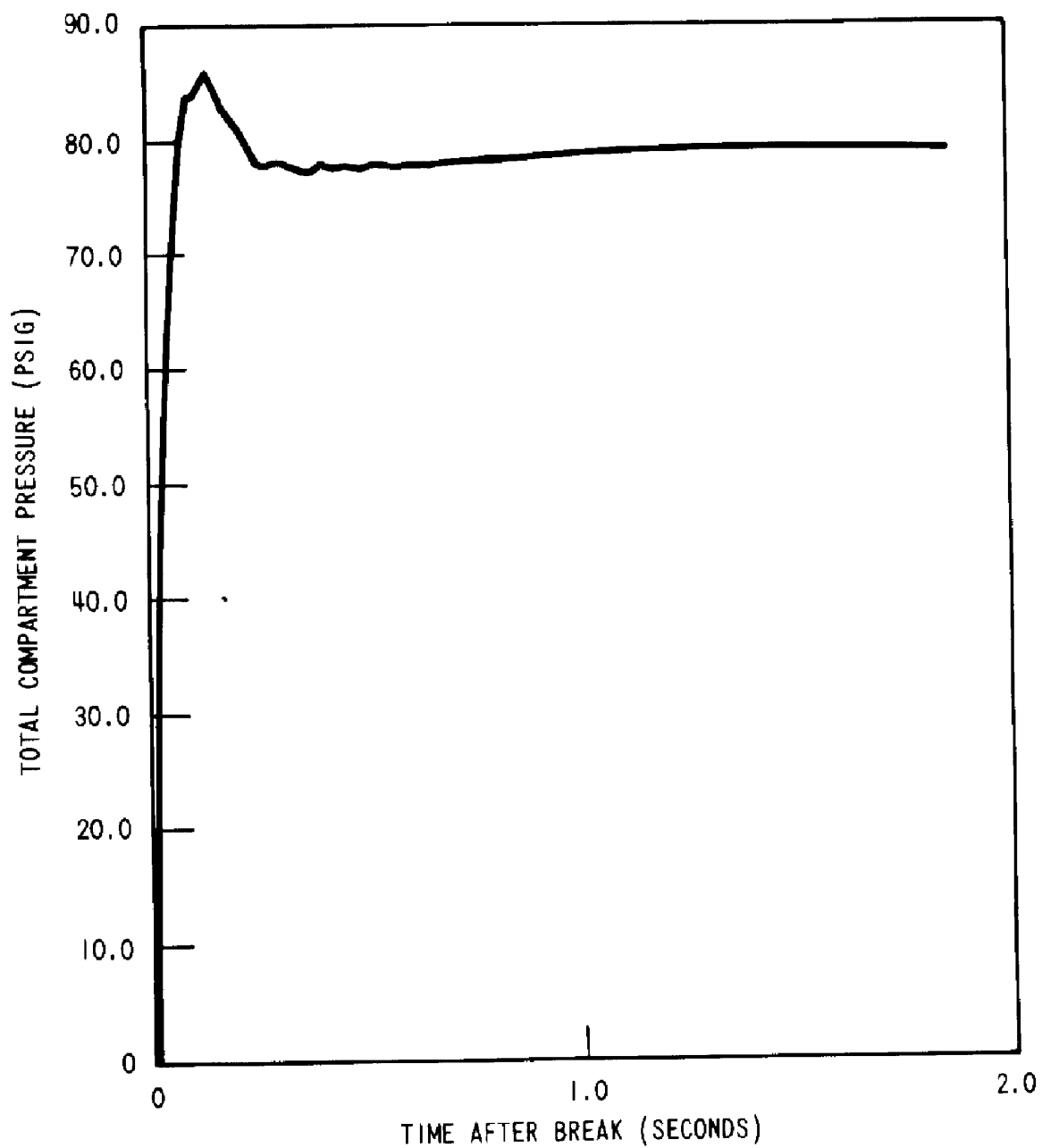


Figure 6-47. Reactor Cavity Analysis, Element 5

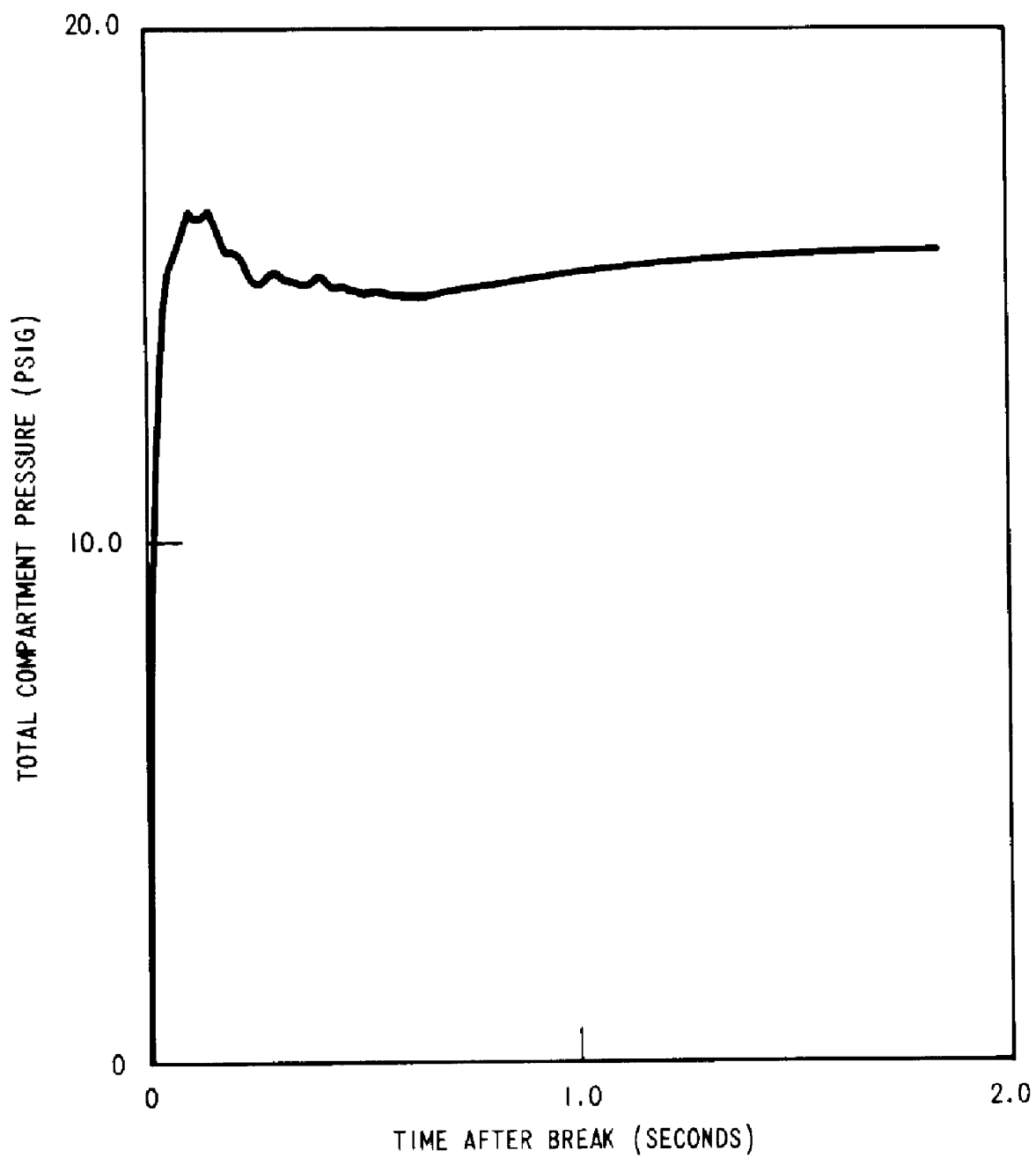


Figure 6-48. Reactor Cavity Analysis, Element 6

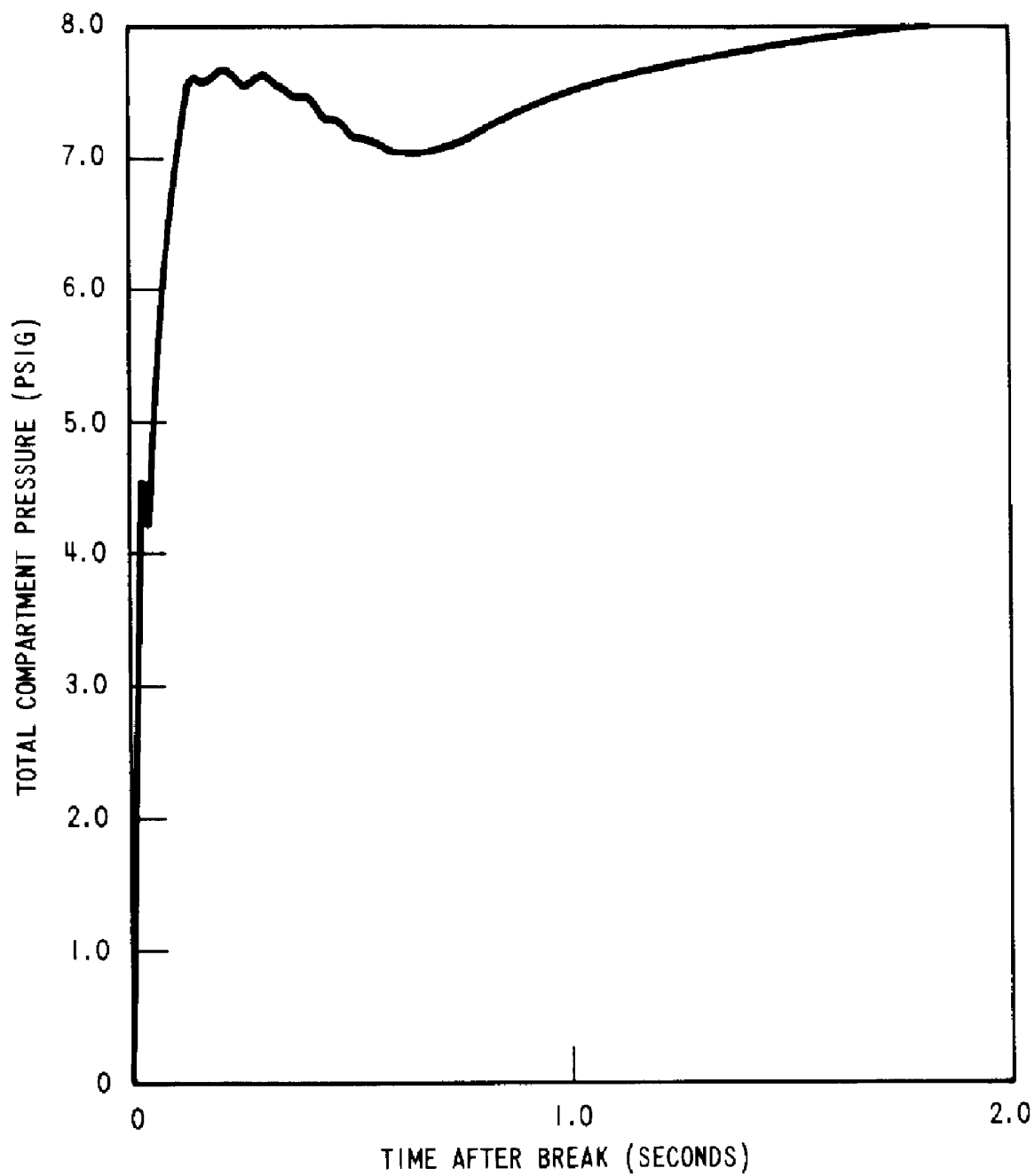


Figure 6-49. Reactor Cavity Analysis, Element 7

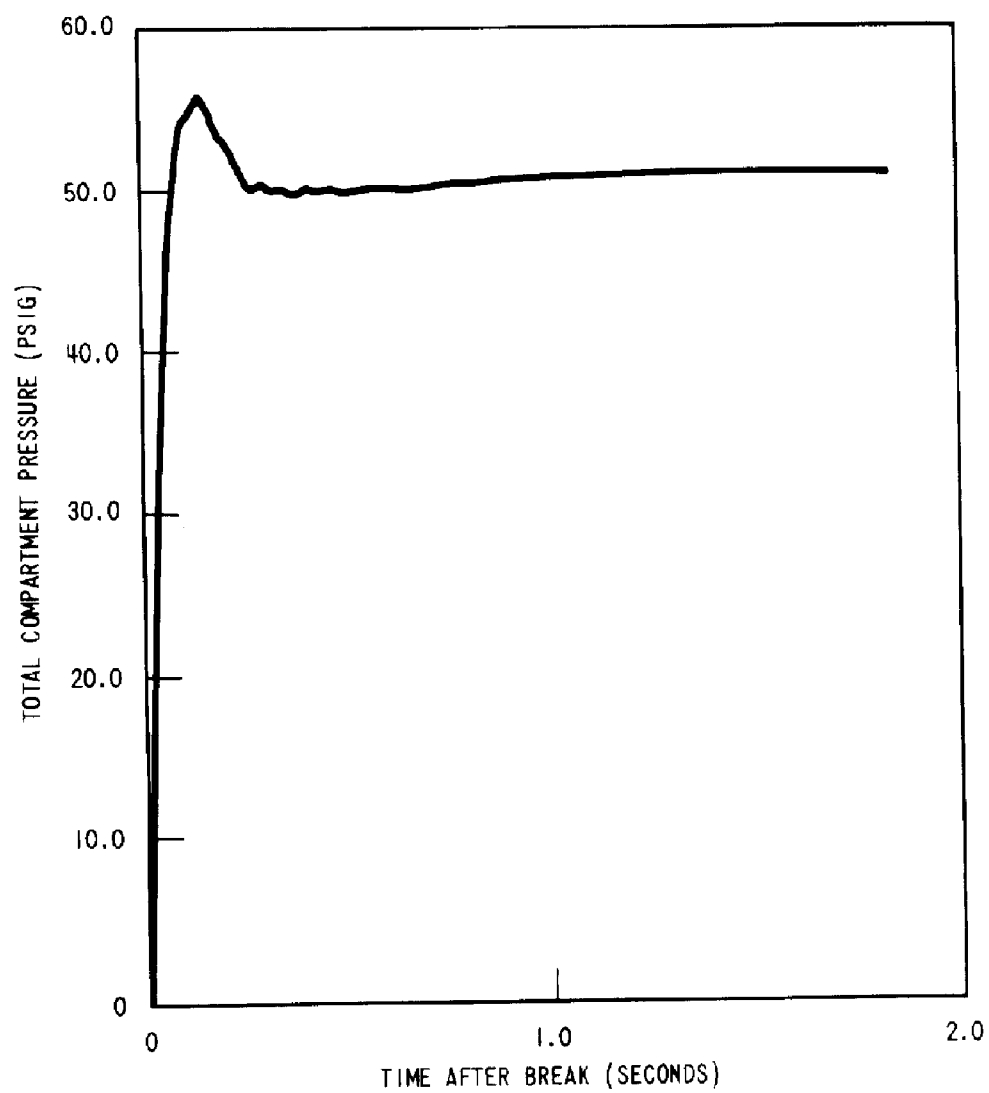


Figure 6-50. Reactor Cavity Analysis, Element 8

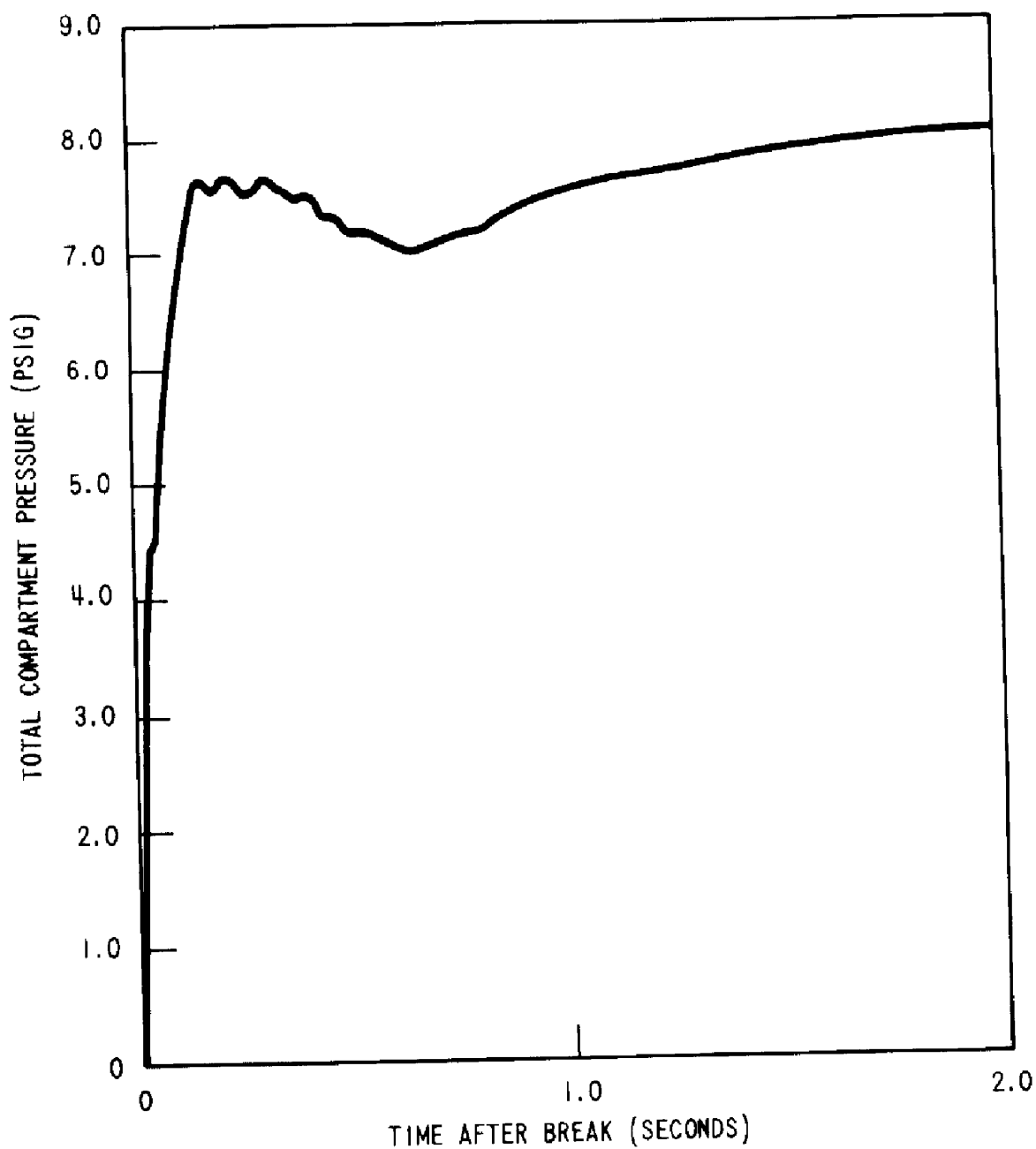


Figure 6-51. Reactor Cavity Analysis, Element 9

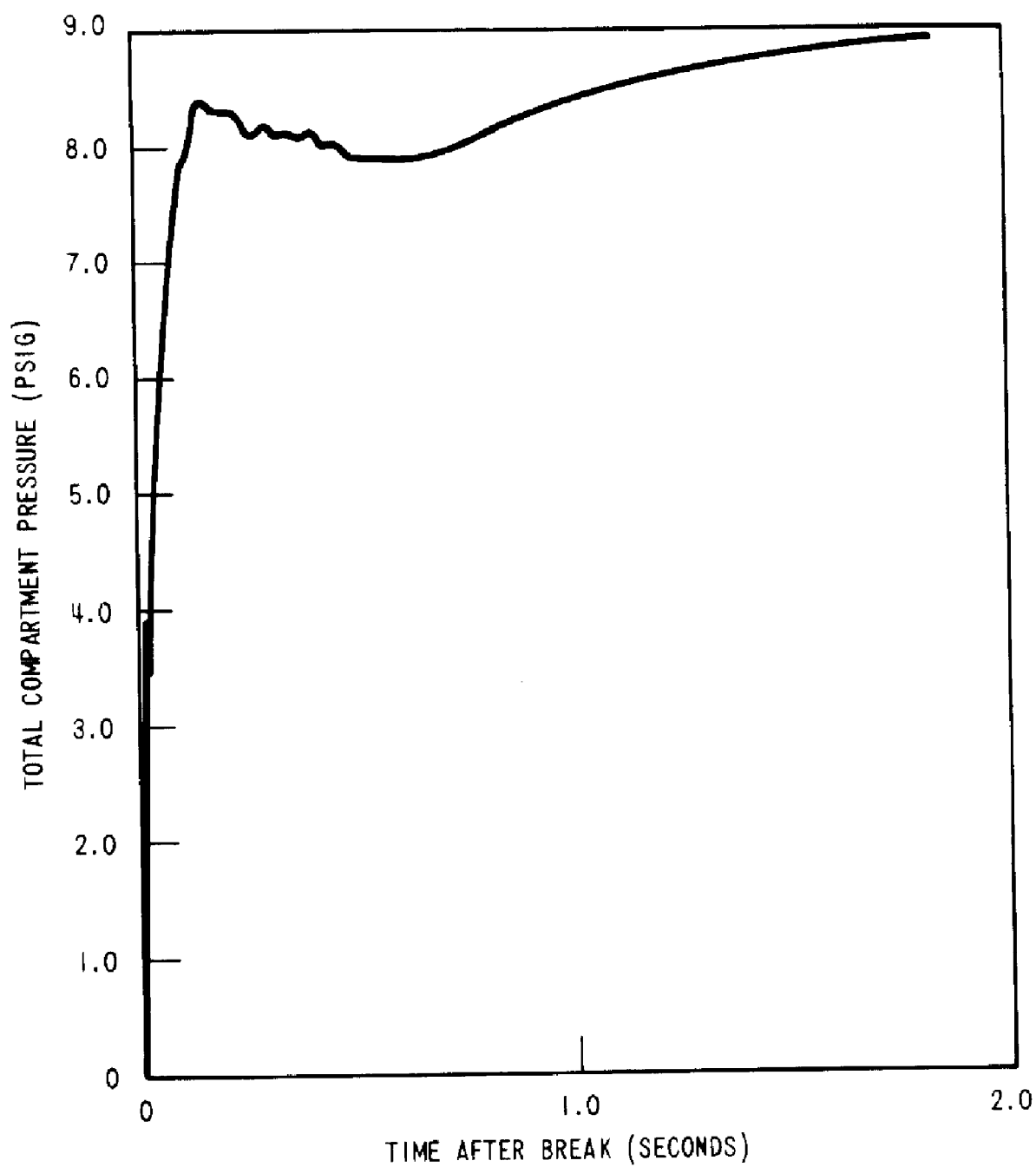




Figure 6-52. Reactor Cavity Analysis, Element 10

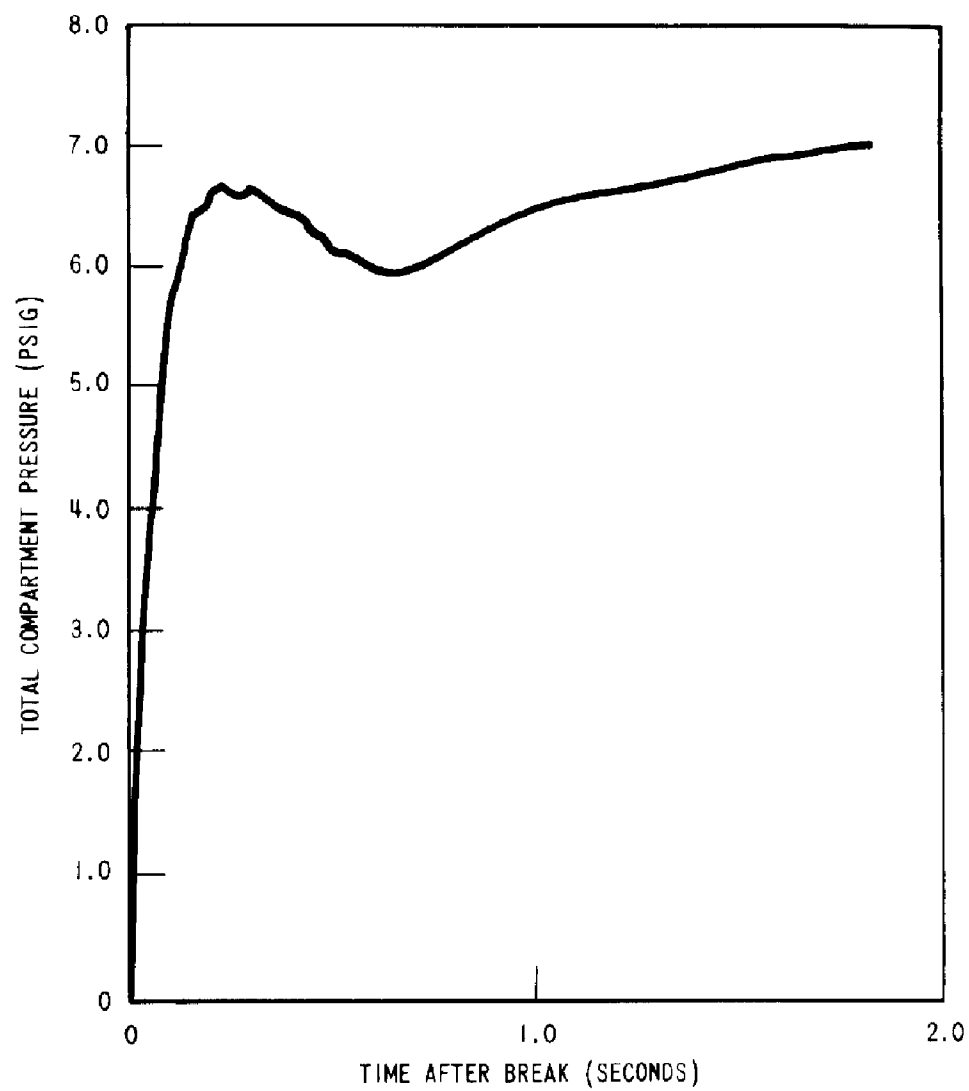


Figure 6-53. Reactor Cavity Analysis, Element 11

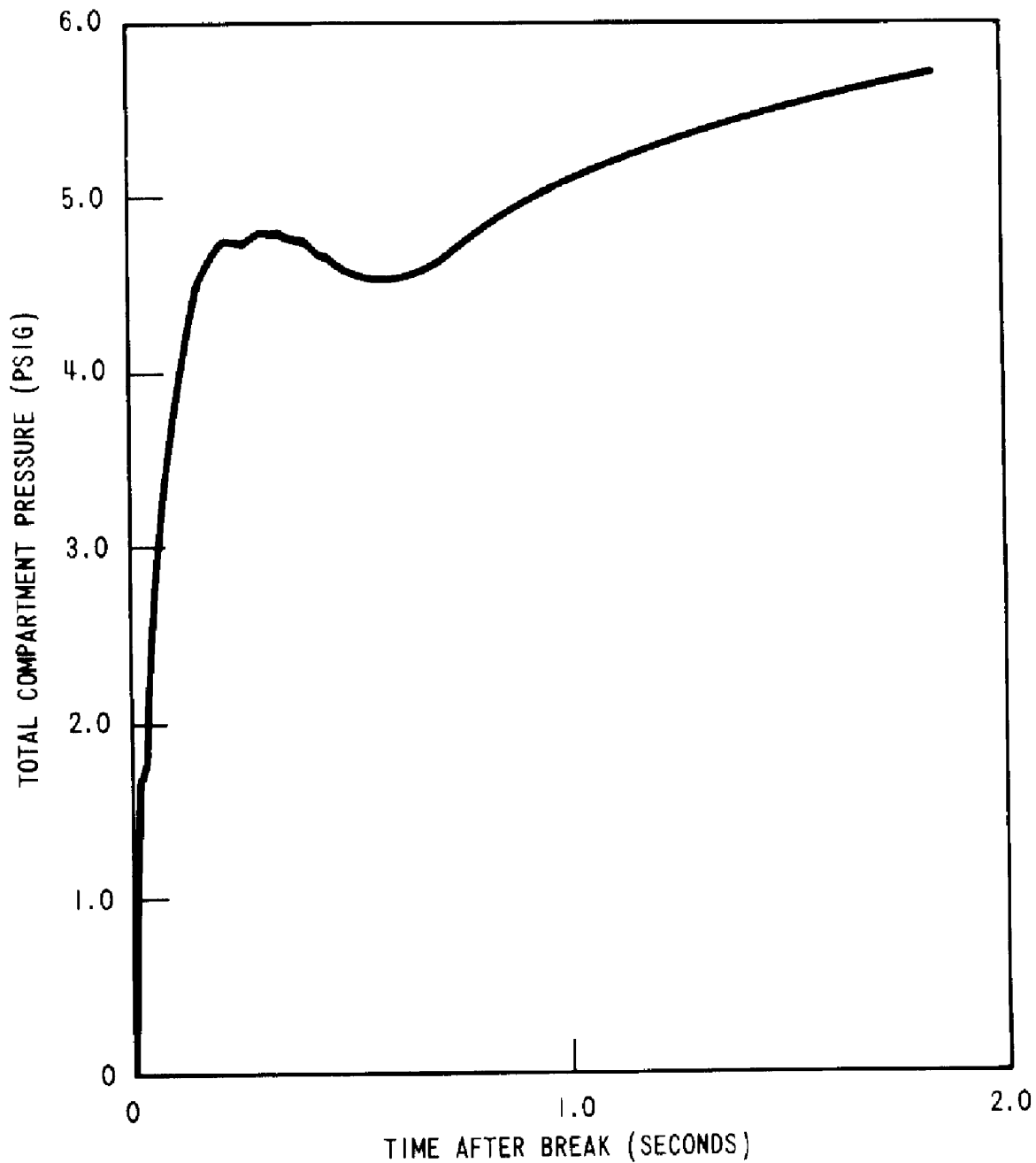


Figure 6-54. Reactor Cavity Analysis, Element 12

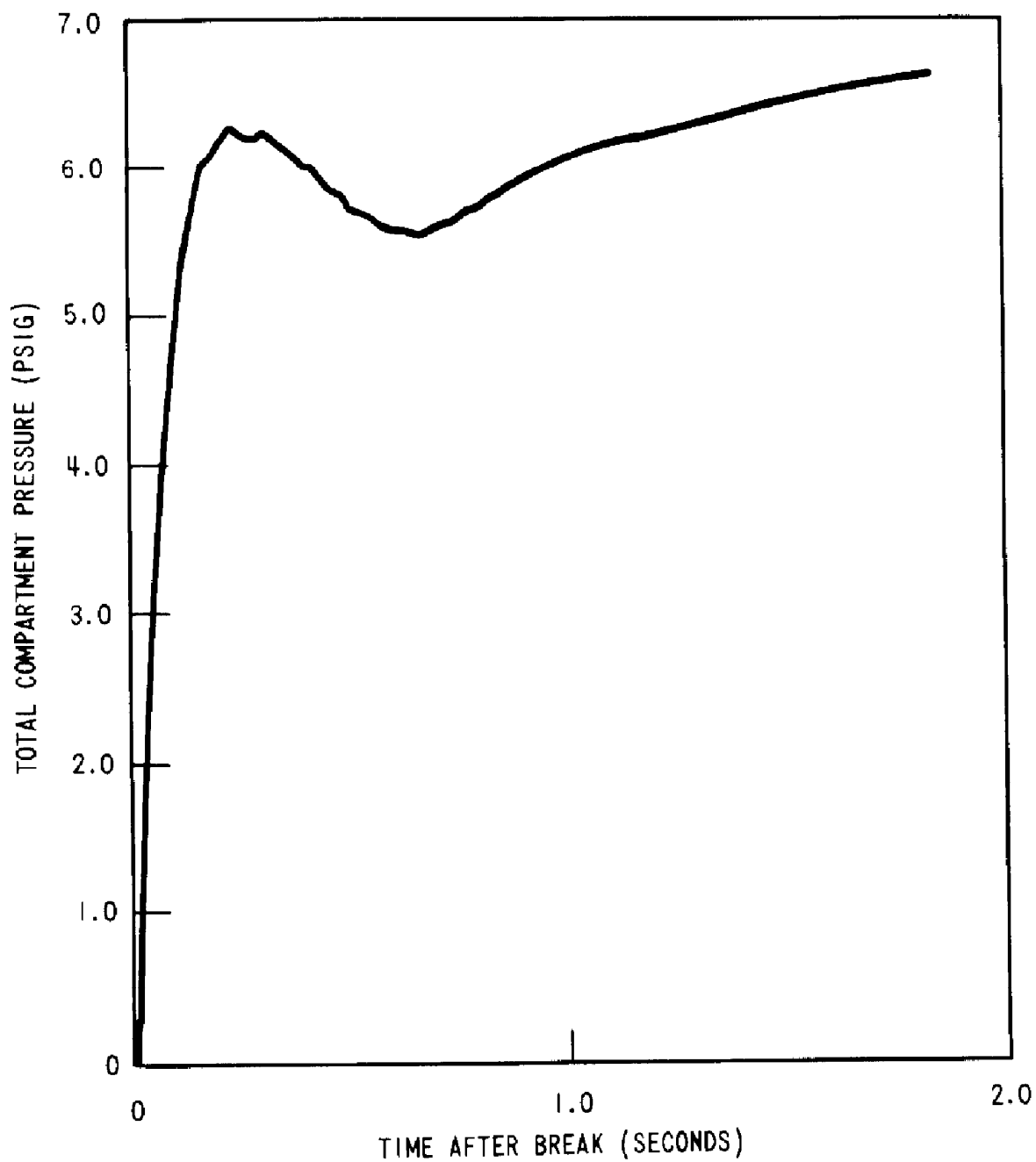
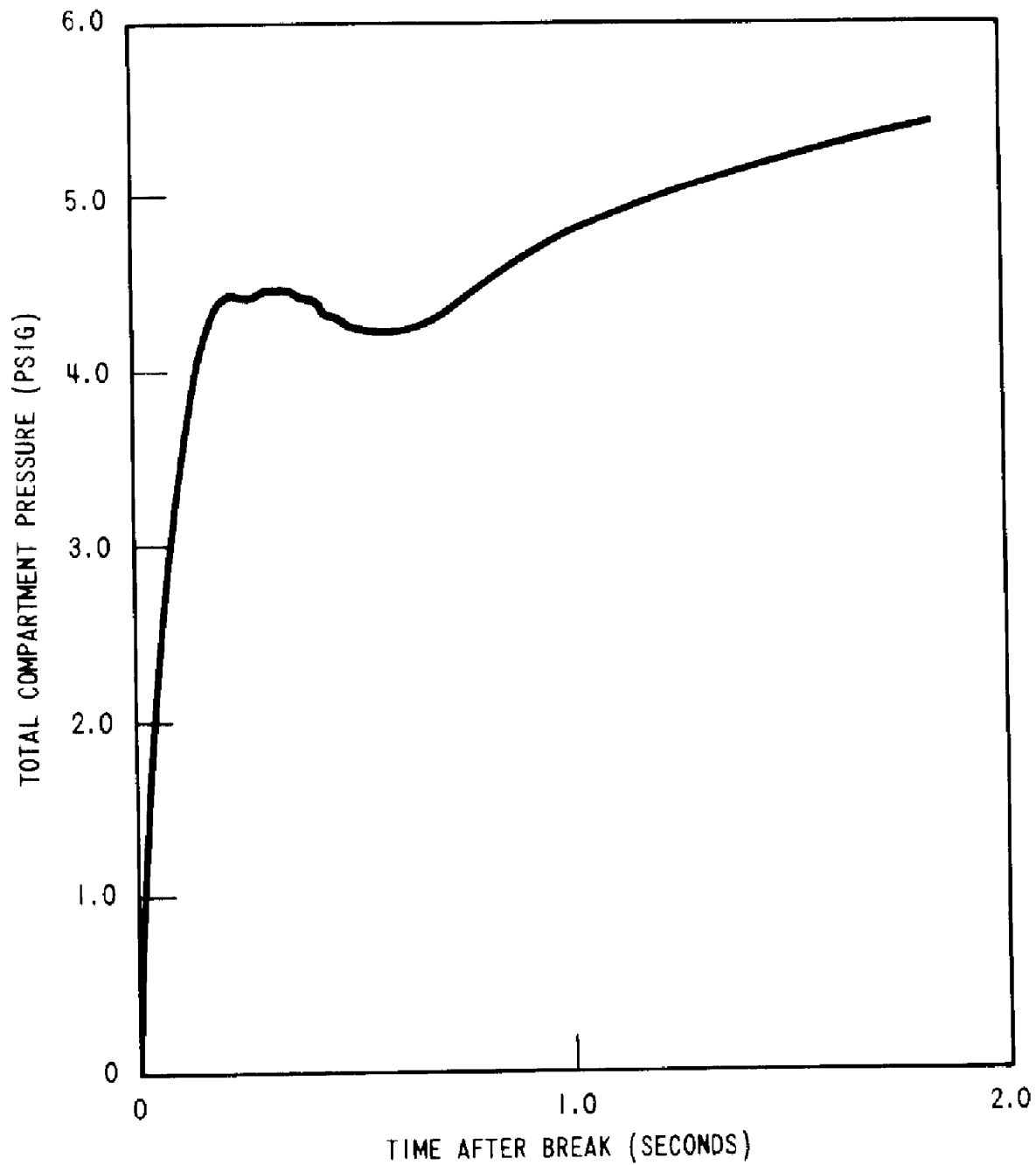


Figure 6-55. Reactor Cavity Analysis, Element 13



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Figure 6-56. Reactor Cavity Analysis, Element 14

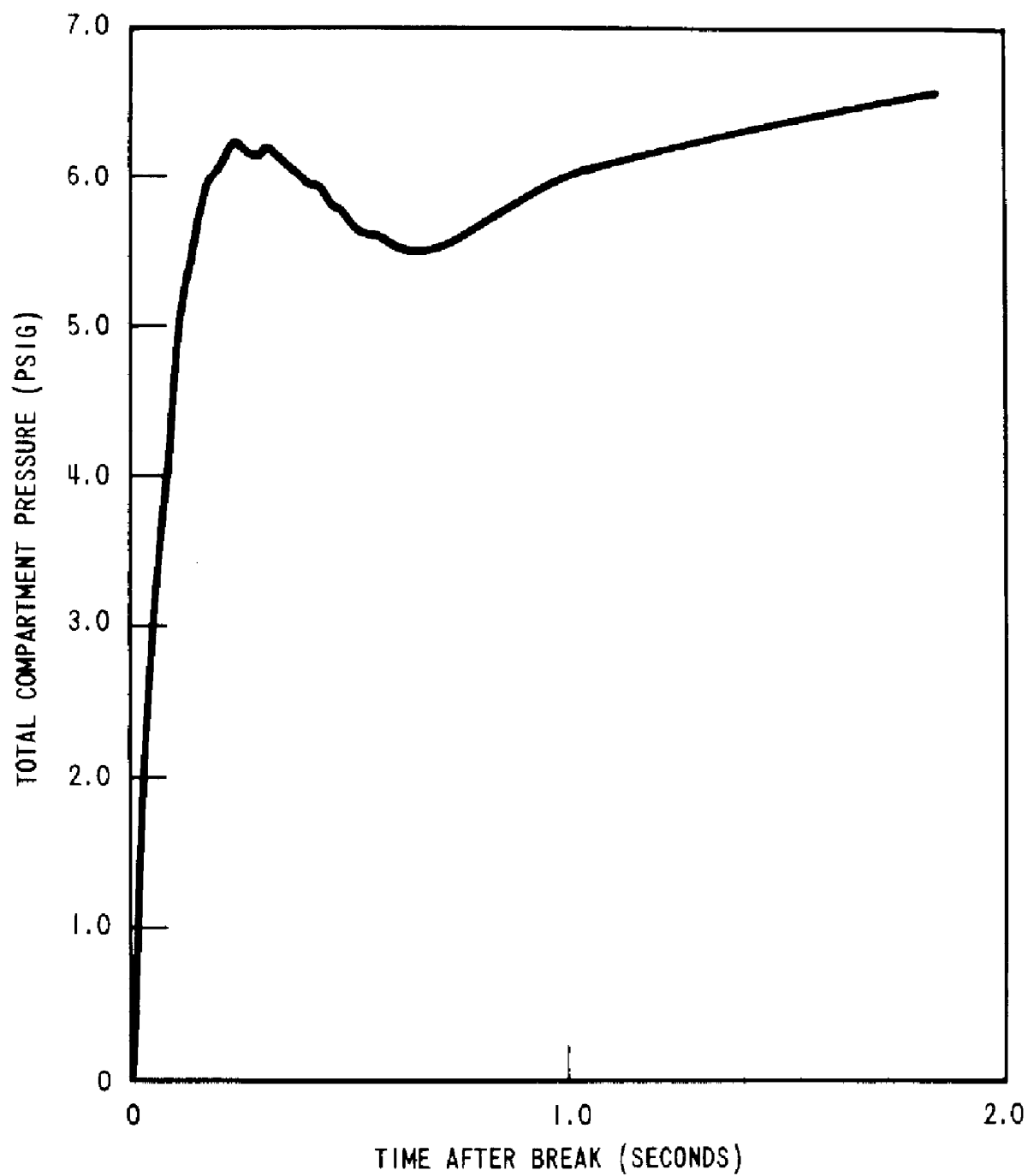


Figure 6-57. Reactor Cavity Analysis, Element 15

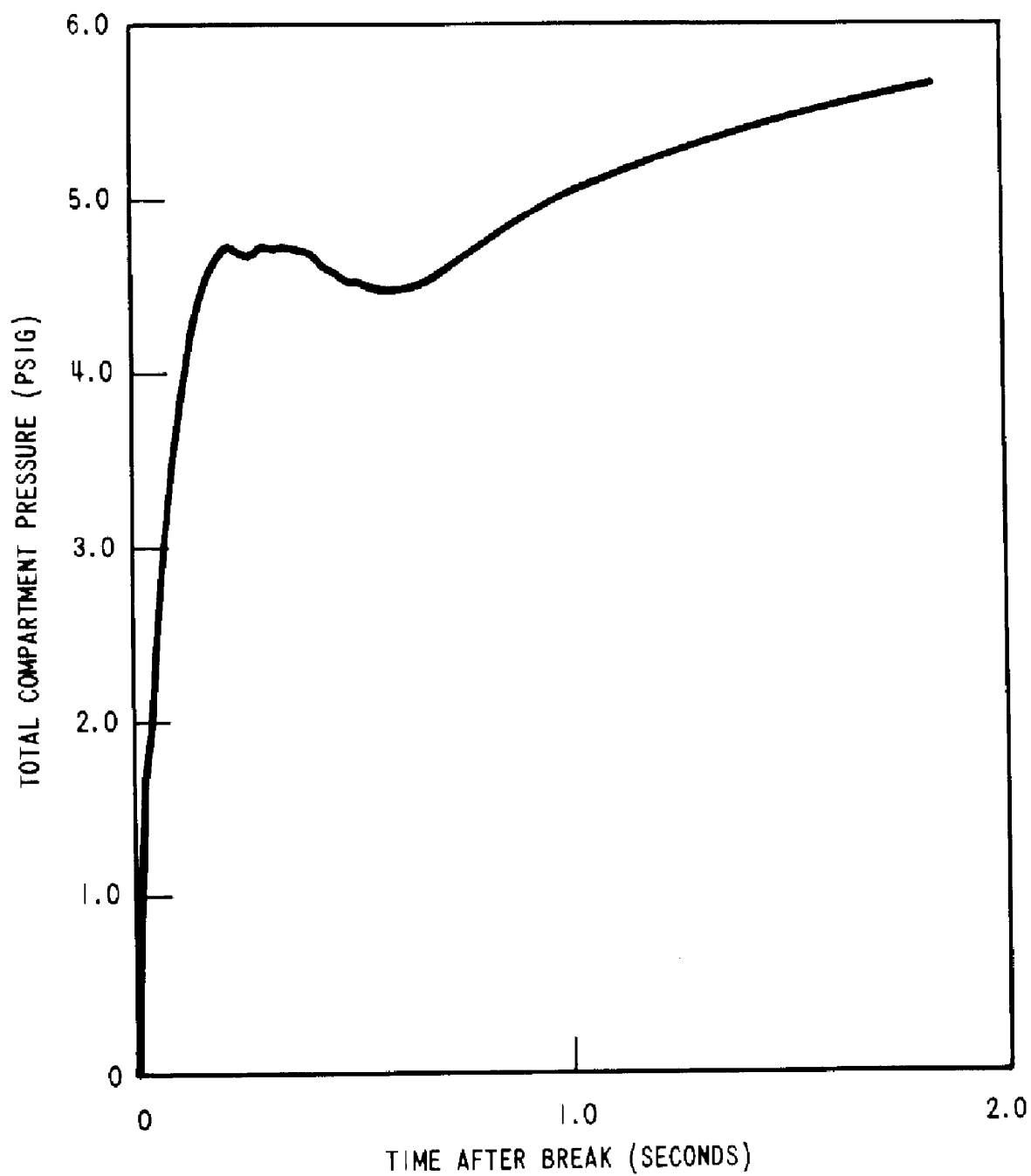


Figure 6-58. Reactor Cavity Analysis, Element 16

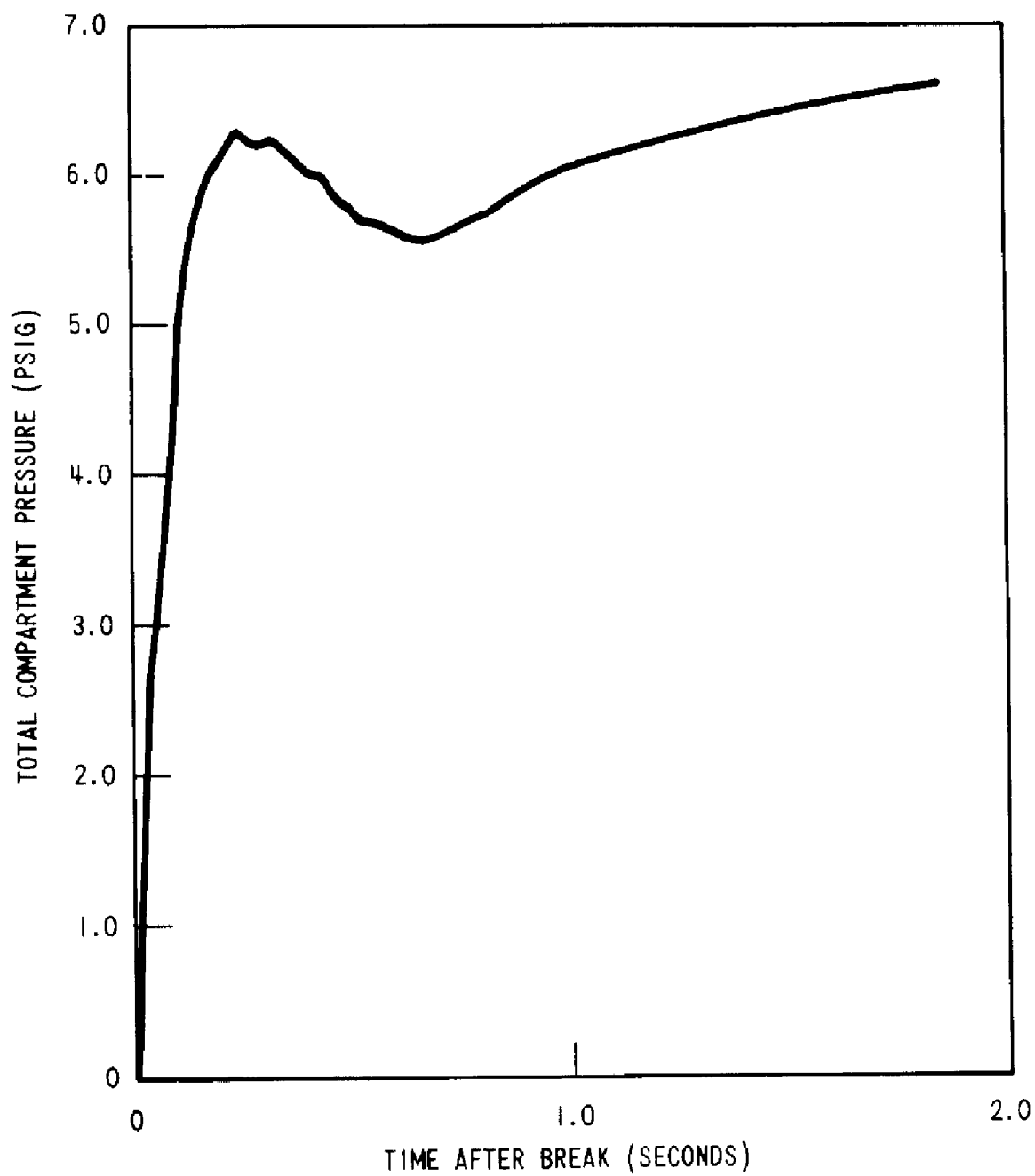


Figure 6-59. Reactor Cavity Analysis, Element 17

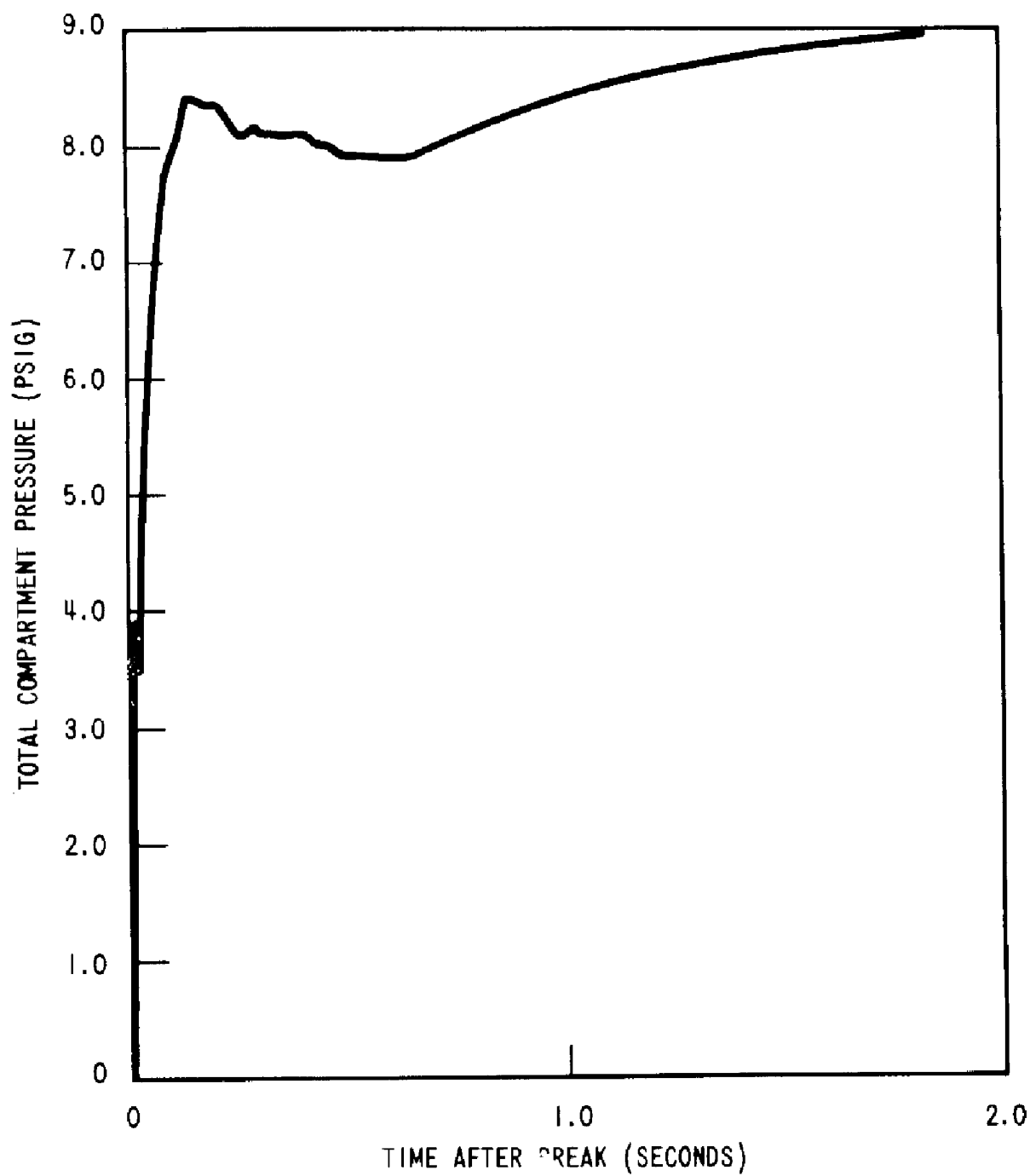
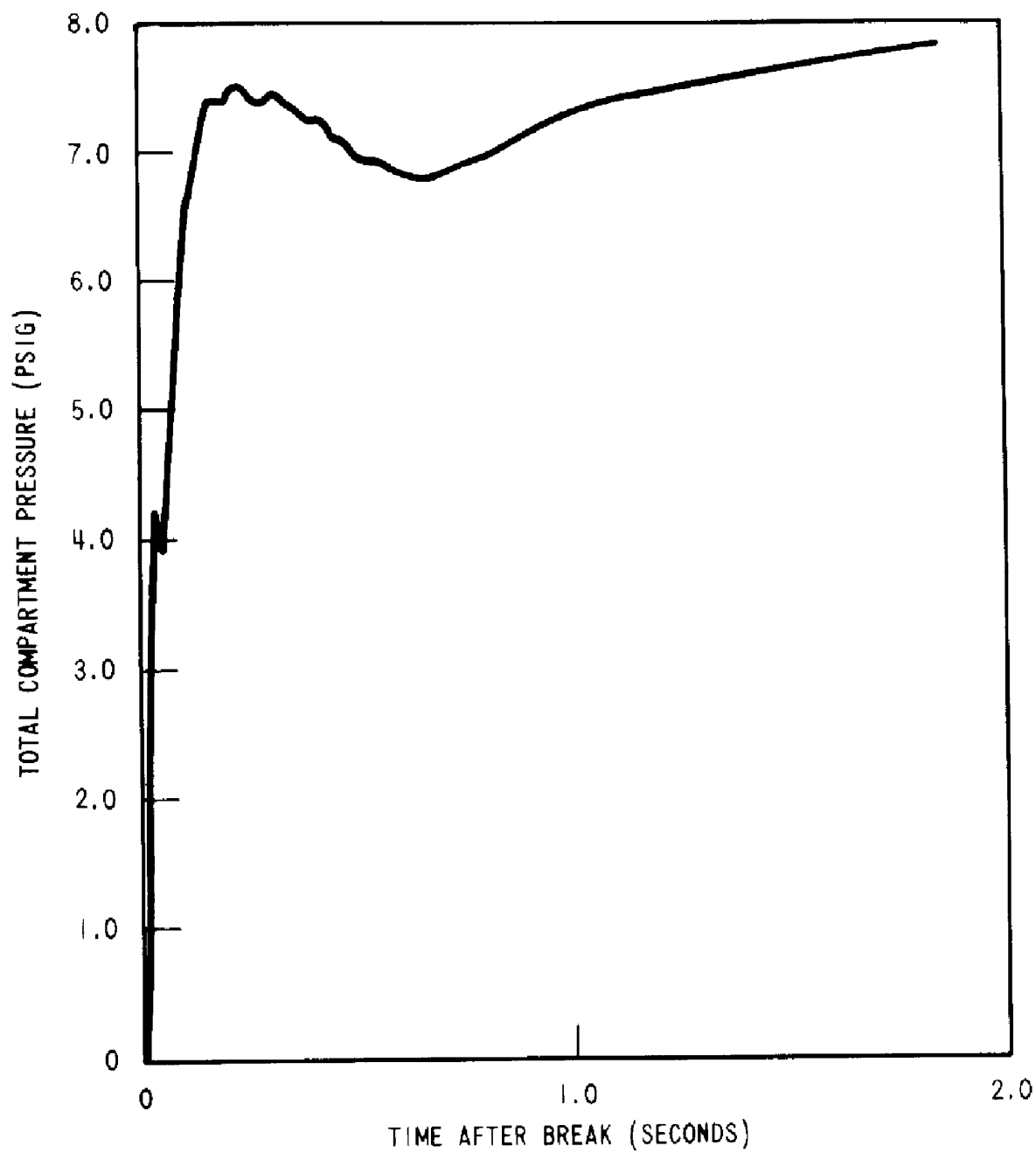




Figure 6-60. Reactor Cavity Analysis, Element 18



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Figure 6-61. Reactor Cavity Analysis, Element 19

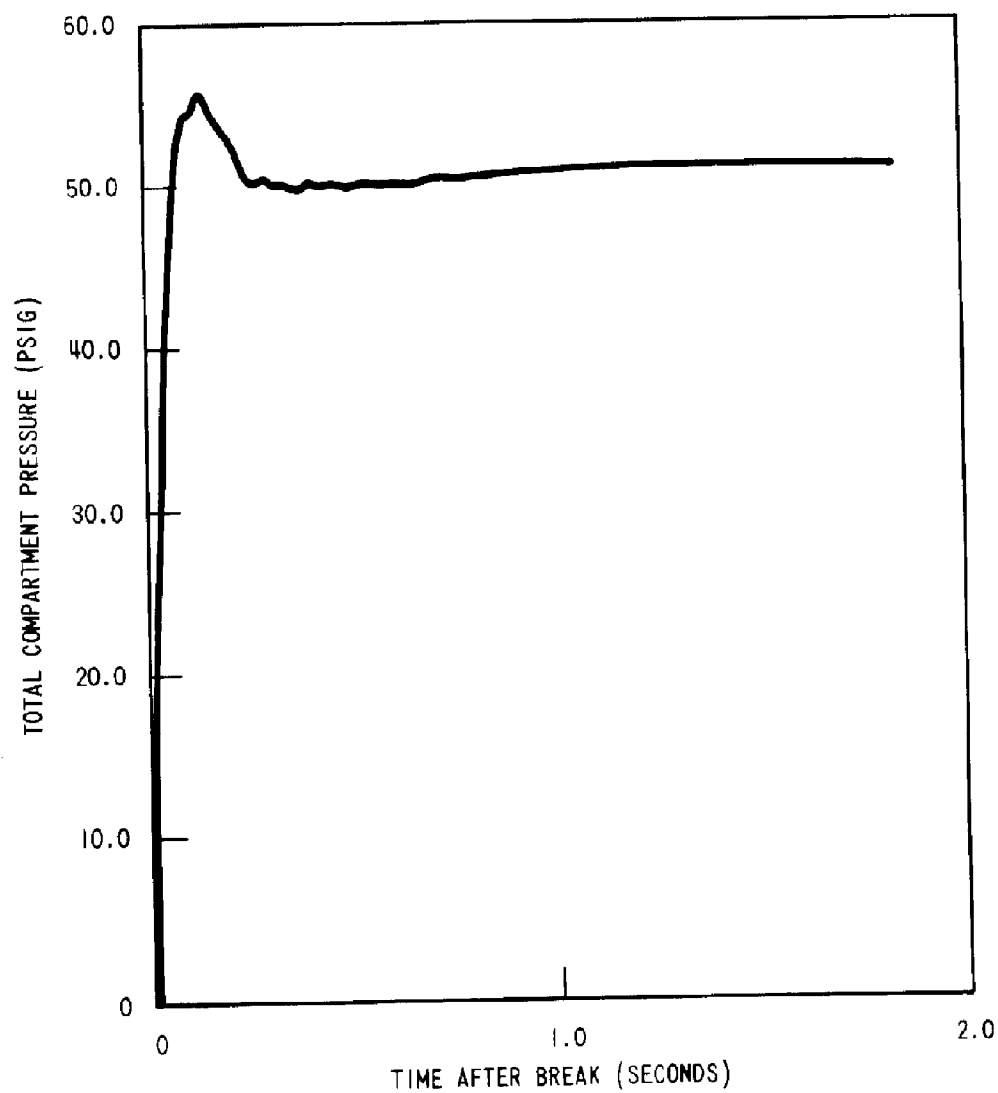


Figure 6-62. Reactor Cavity Analysis, Element 20

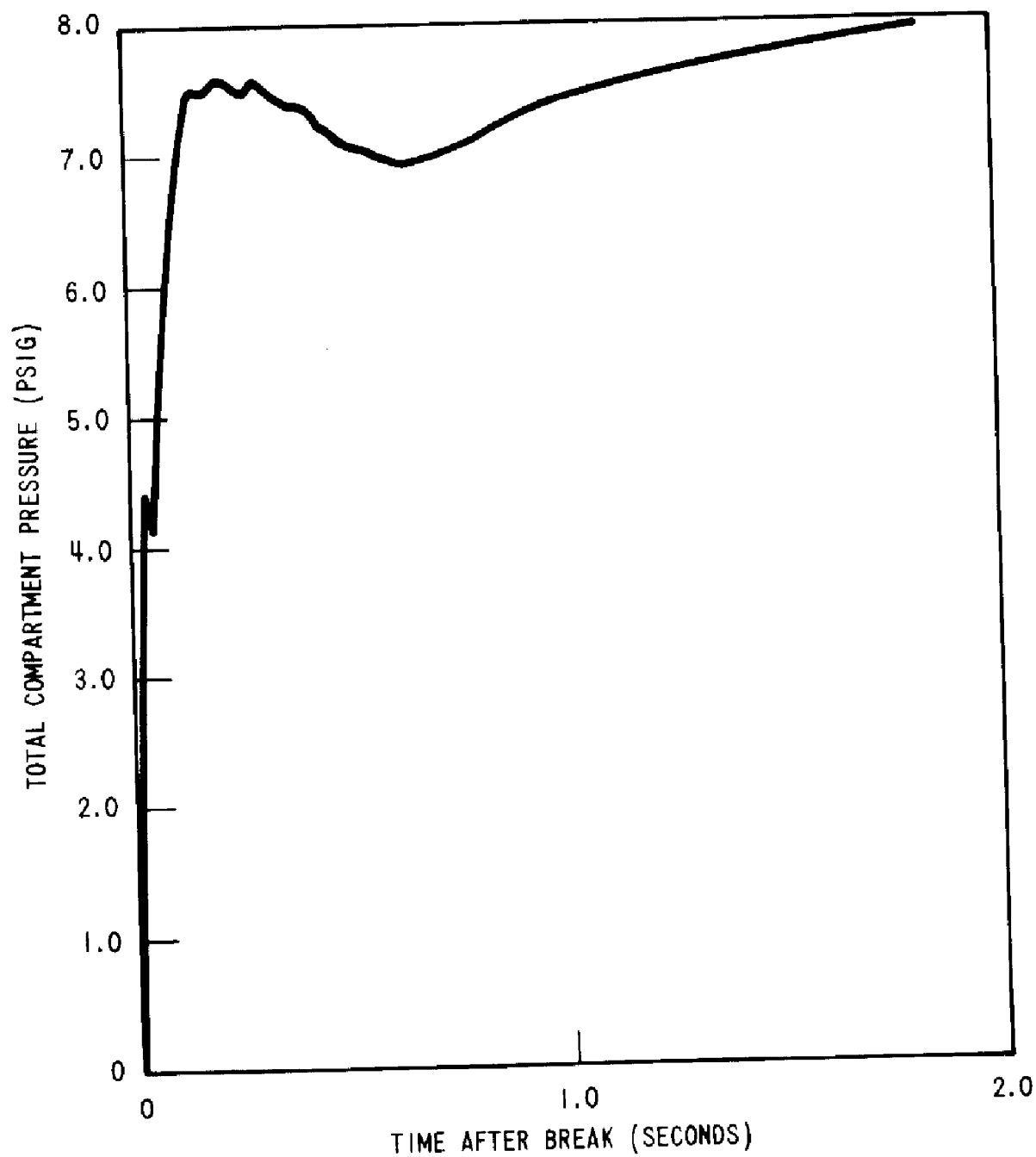
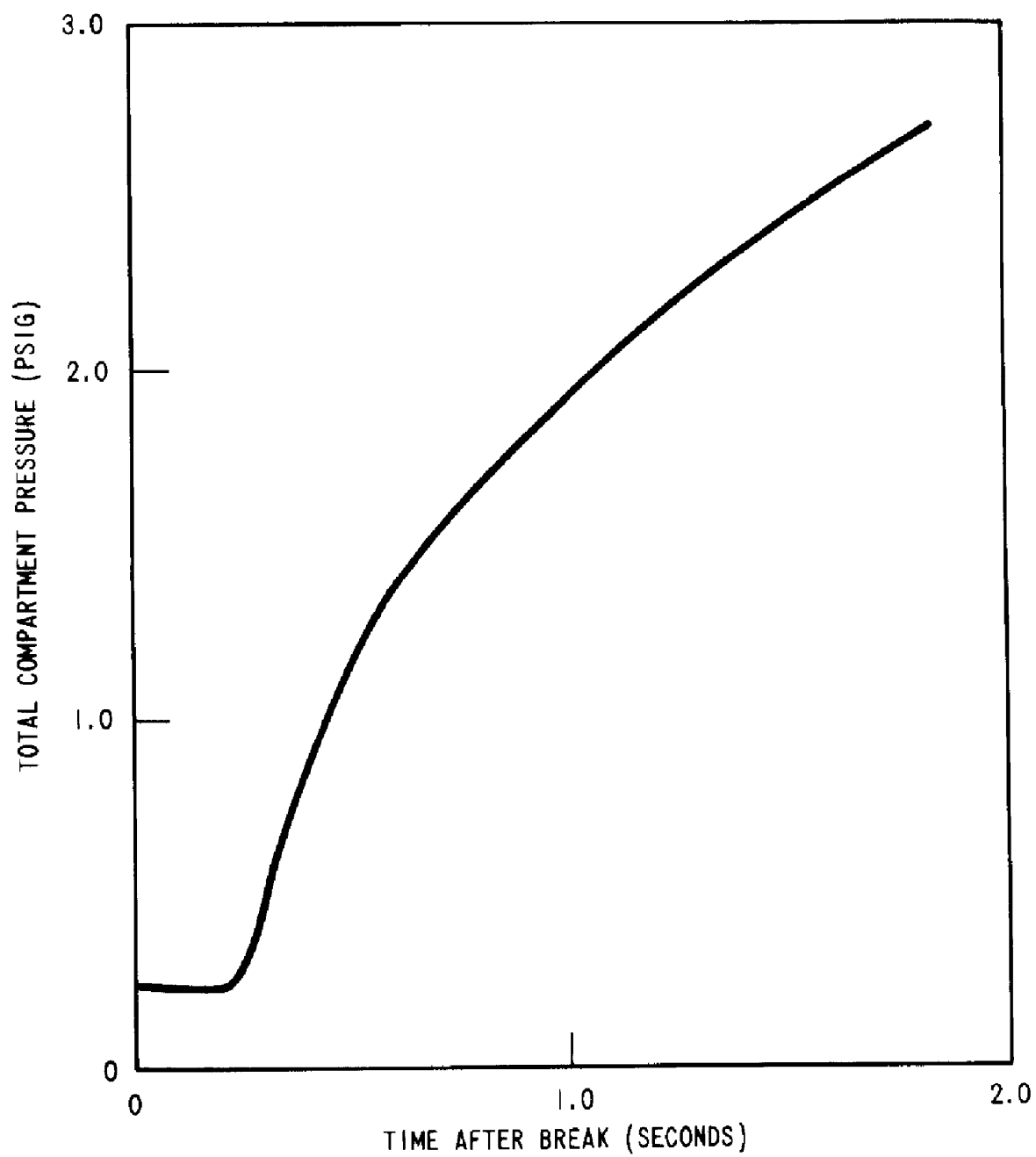


Figure 6-63. Reactor Cavity Analysis, Element 32



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Figure 6-64. Reactor Cavity Analysis, Element 33

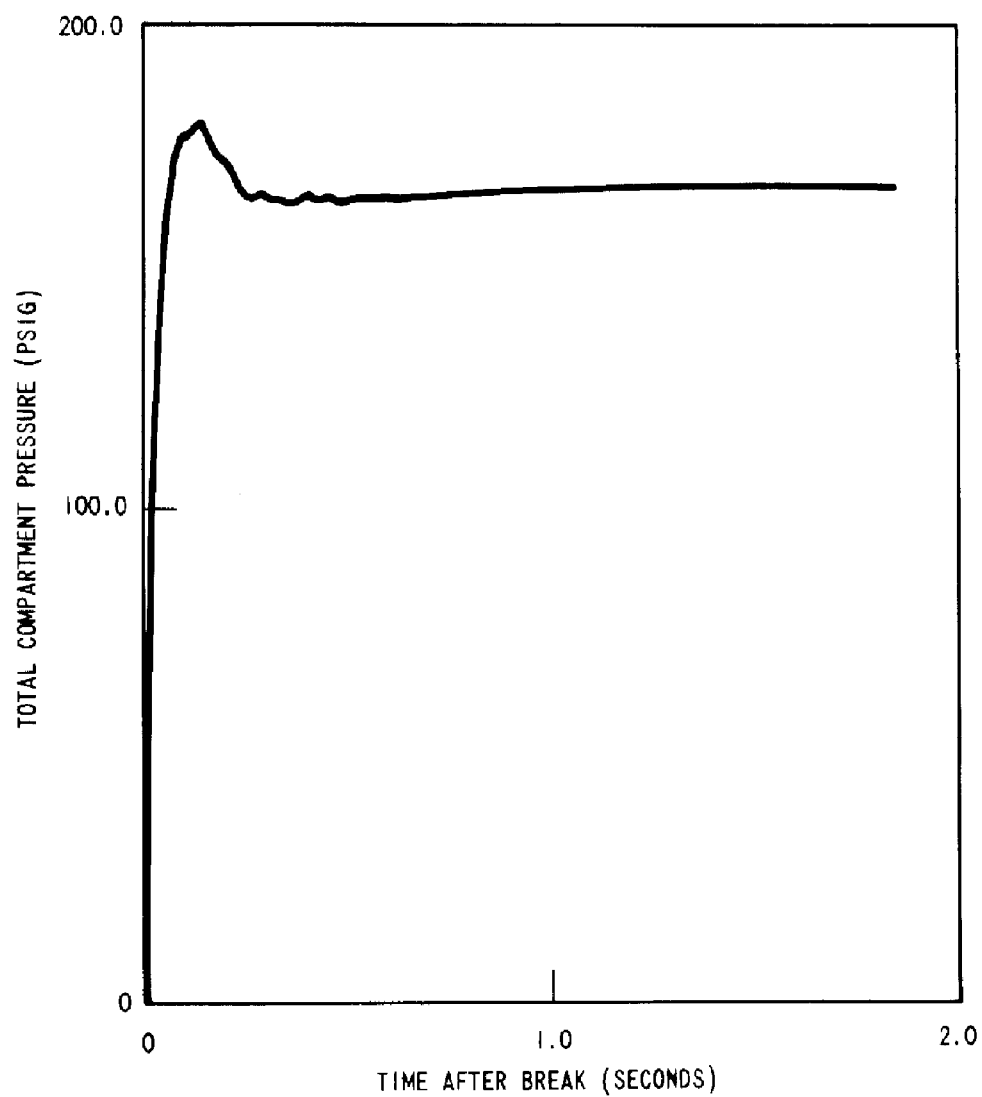


Figure 6-65. Reactor Cavity Analysis, Element 34

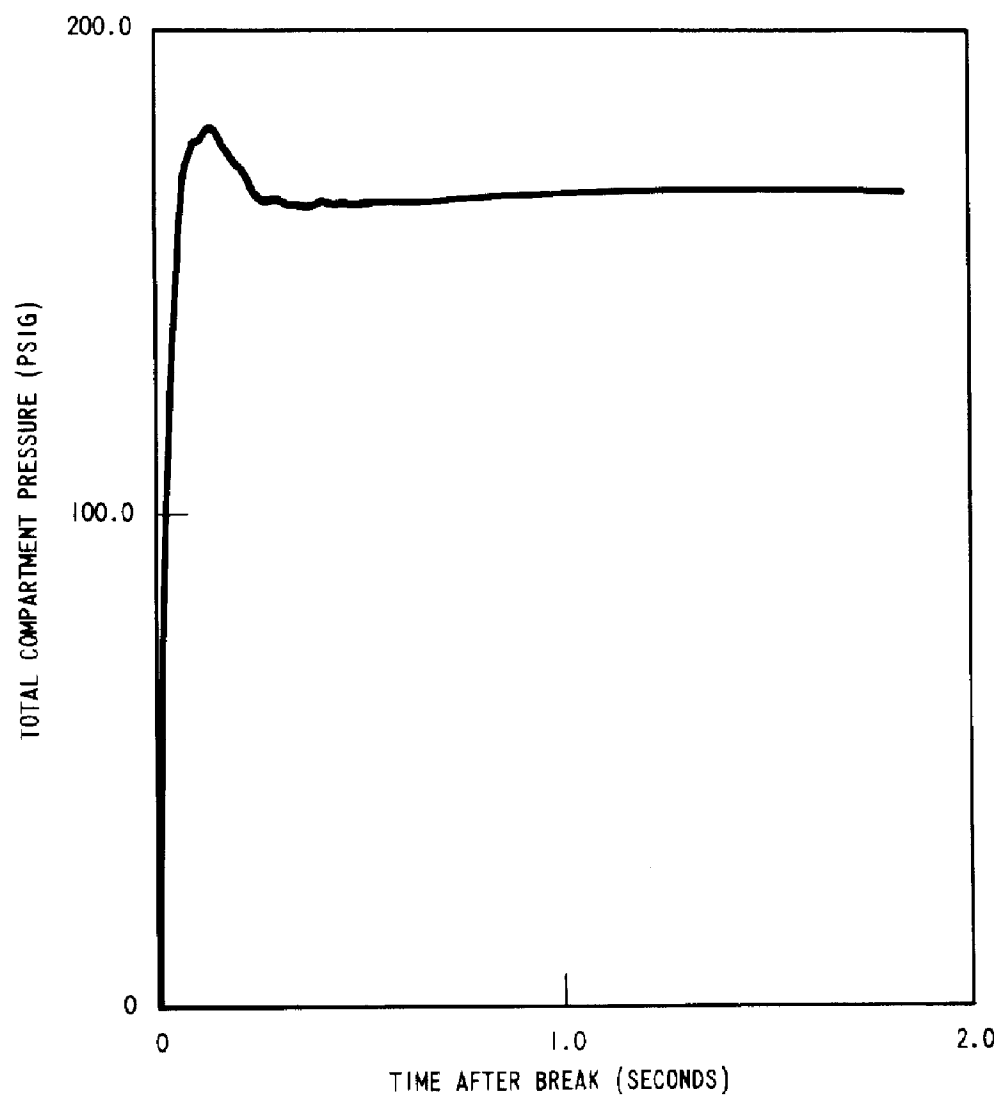


Figure 6-66. Reactor Cavity Analysis, Element 35

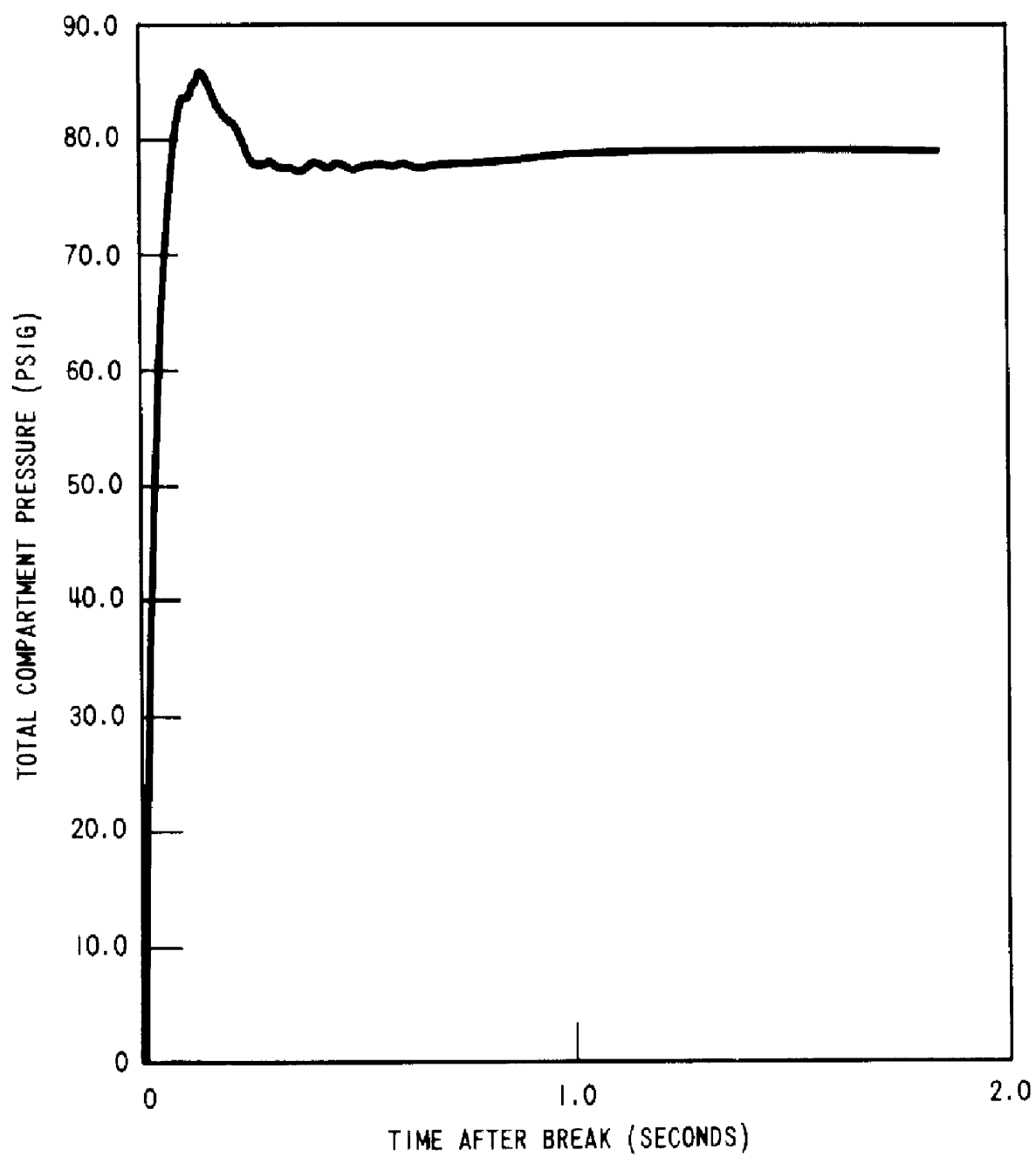


Figure 6-67. Reactor Cavity Analysis, Element 36

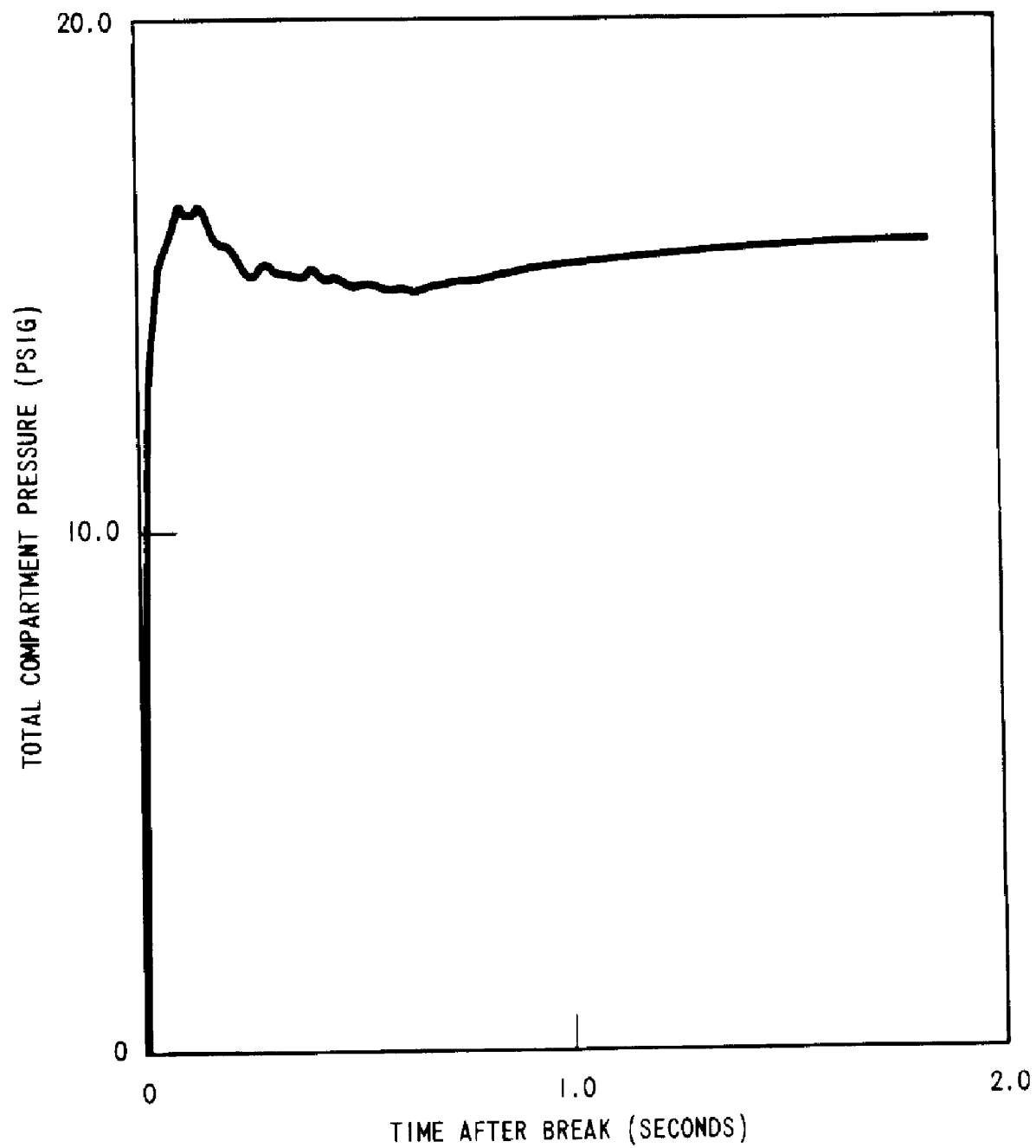




Figure 6-68. Reactor Cavity Analysis, Element 37

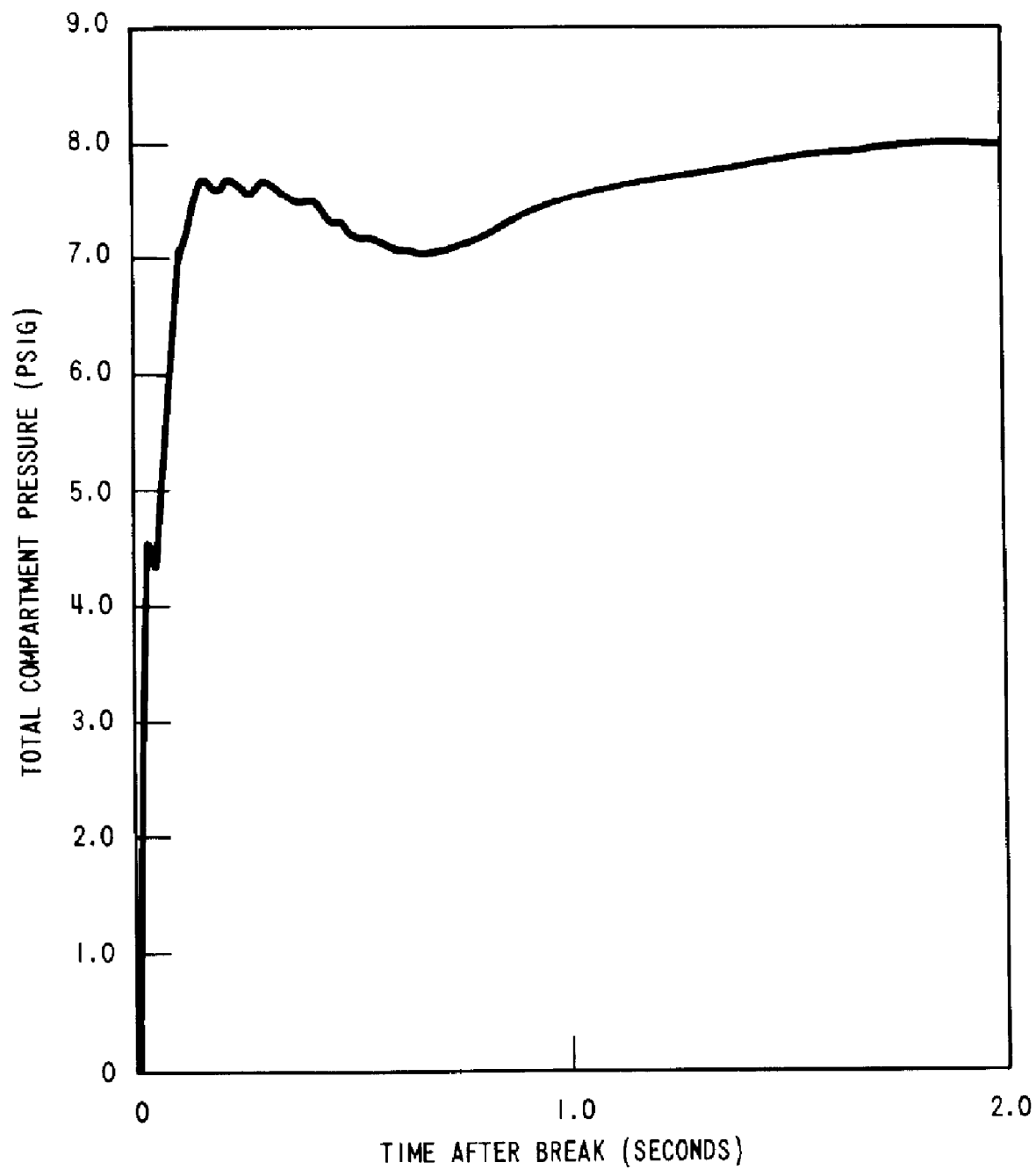


Figure 6-69. Reactor Cavity Analysis, Element 38

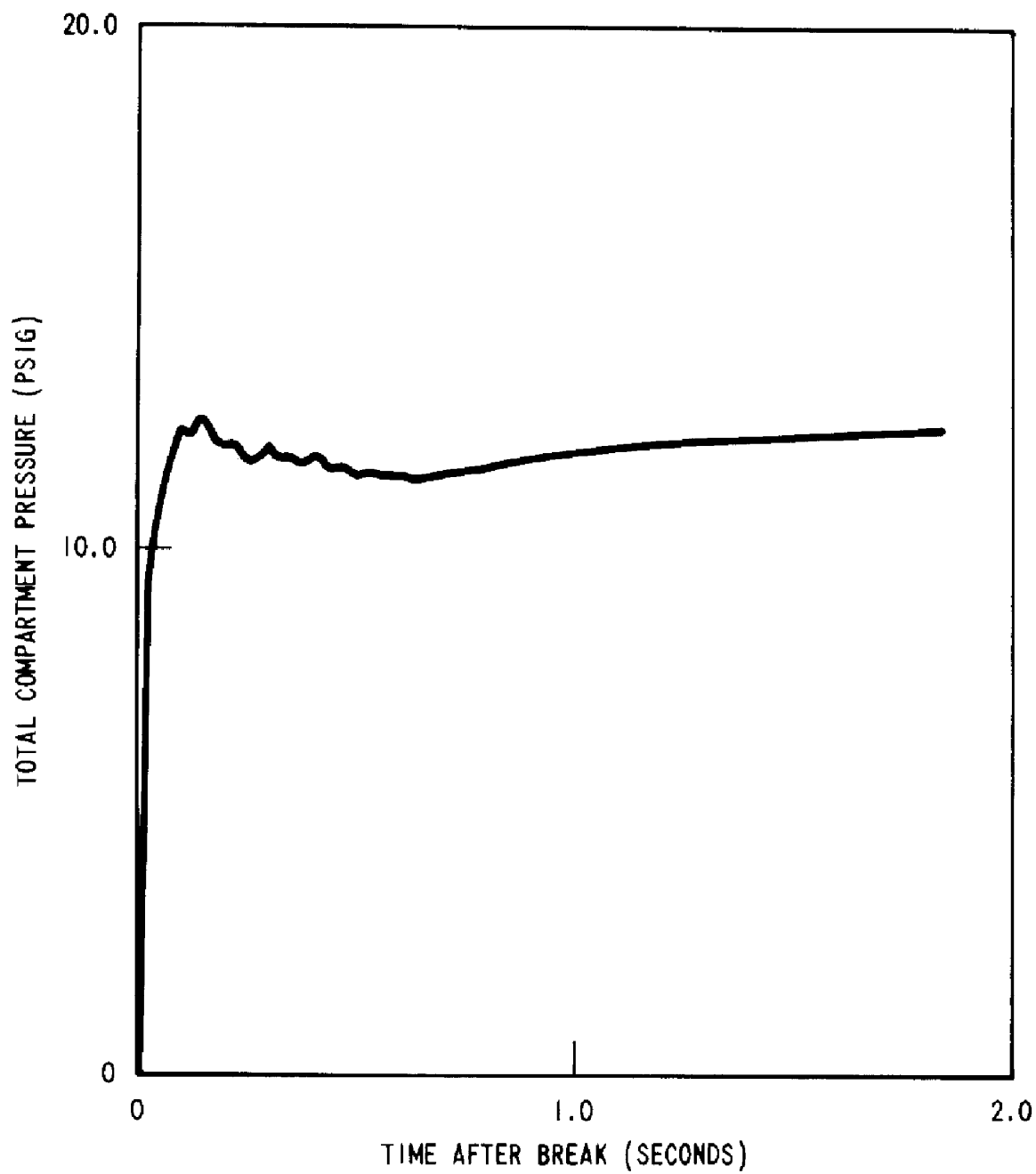


Figure 6-70. Reactor Cavity Analysis, Element 39

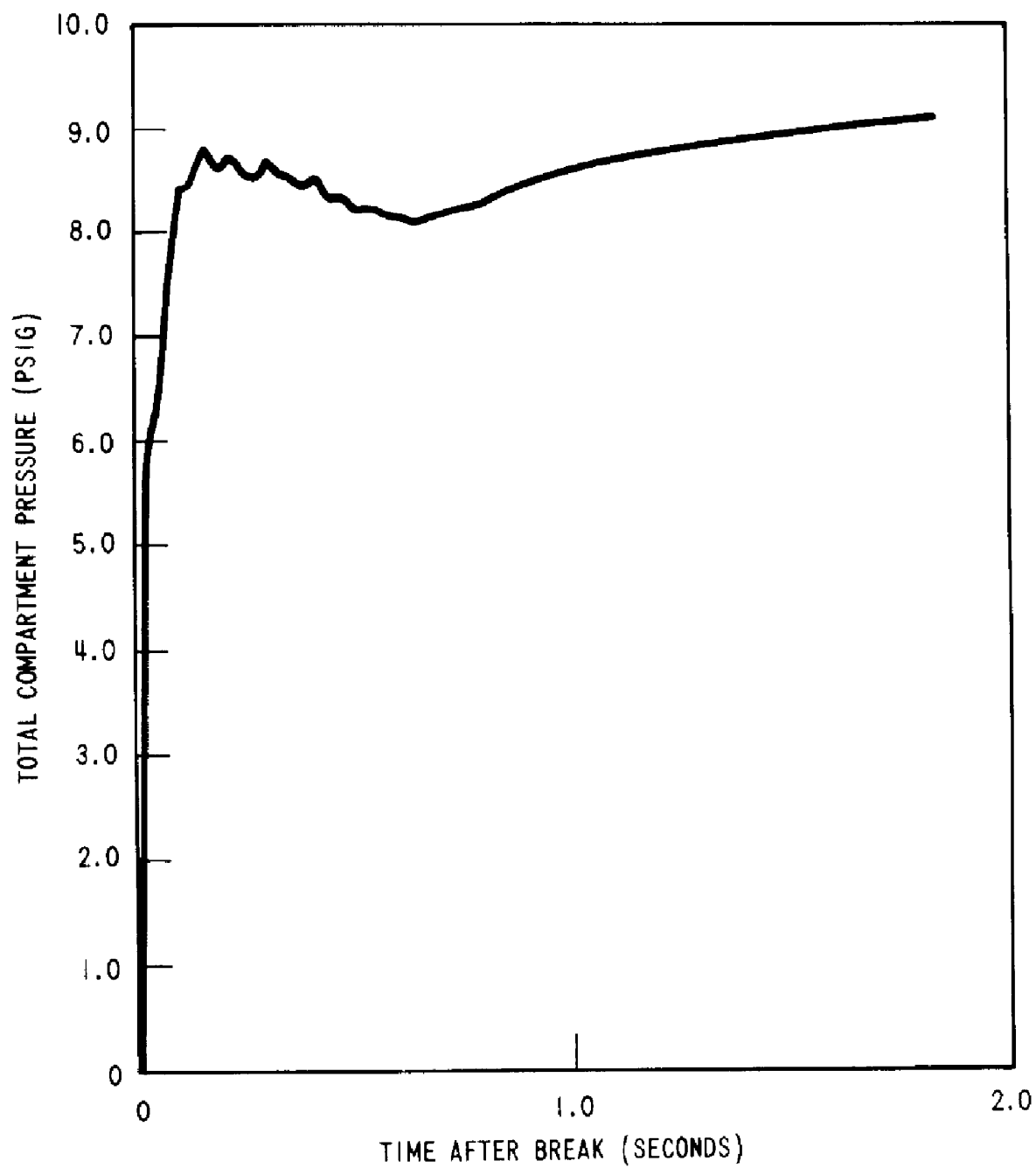
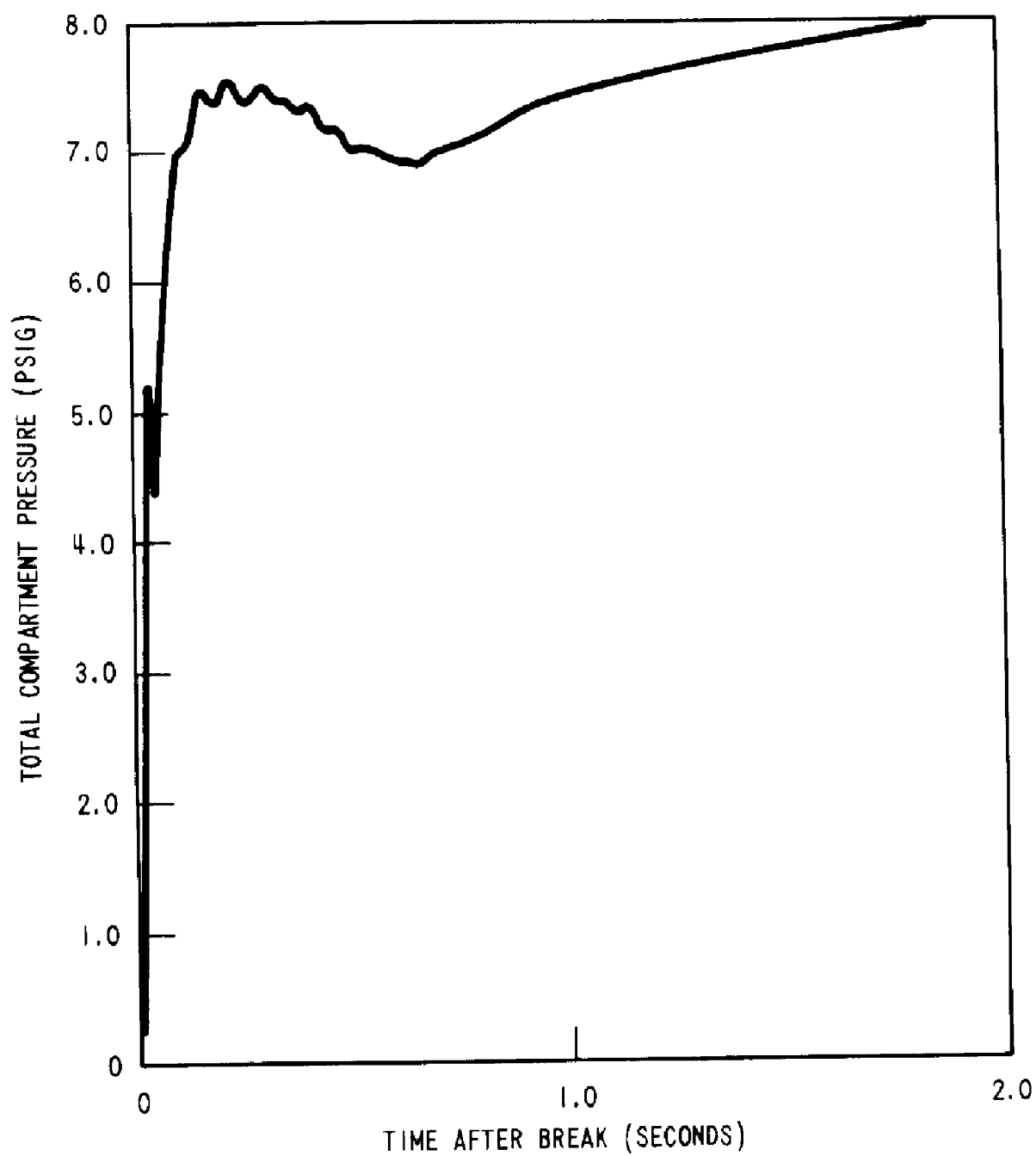
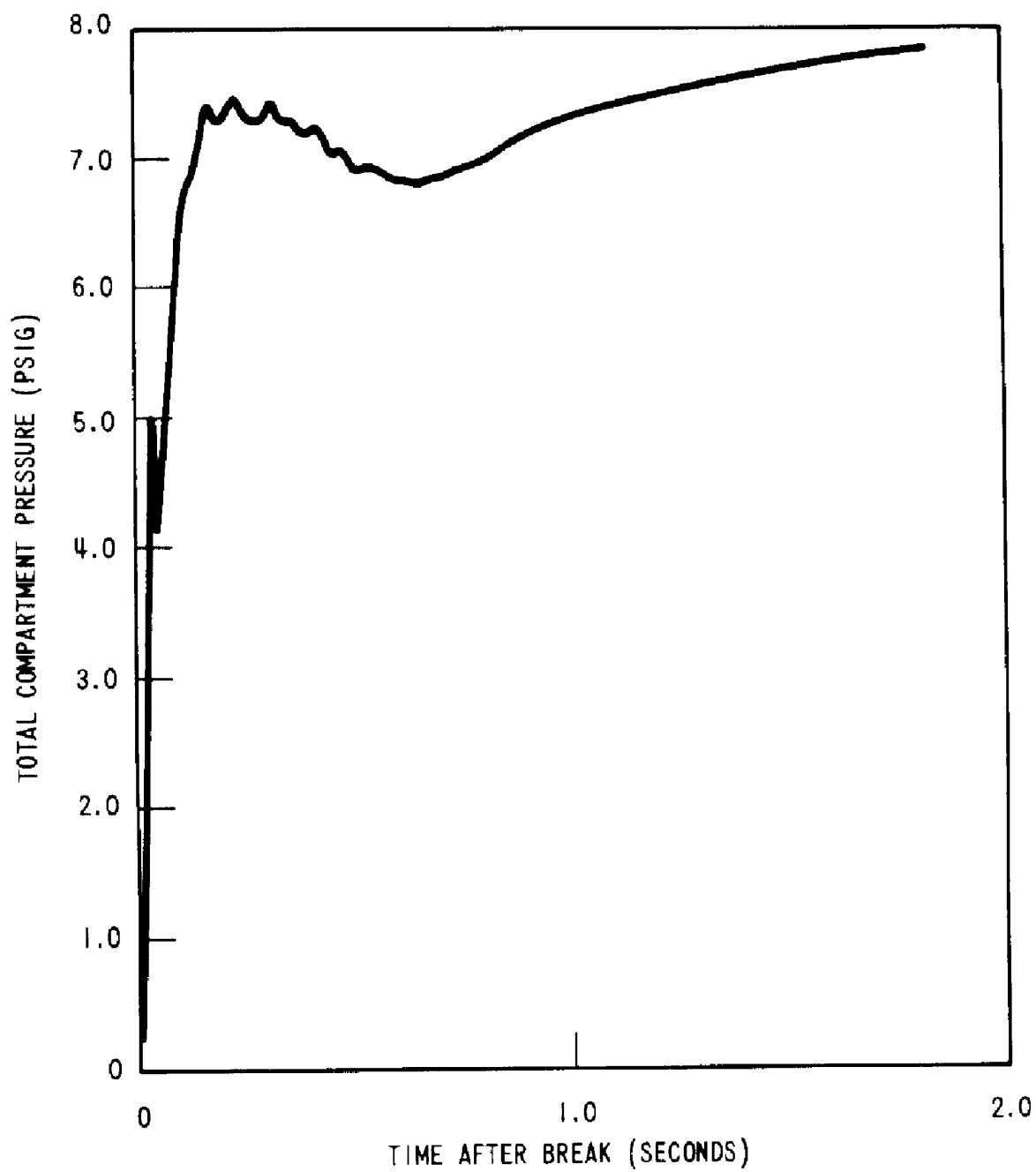


Figure 6-71. Reactor Cavity Analysis, Element 40



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Figure 6-72. Reactor Cavity Analysis, Element 41



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Figure 6-73. Reactor Cavity Analysis, Element 42

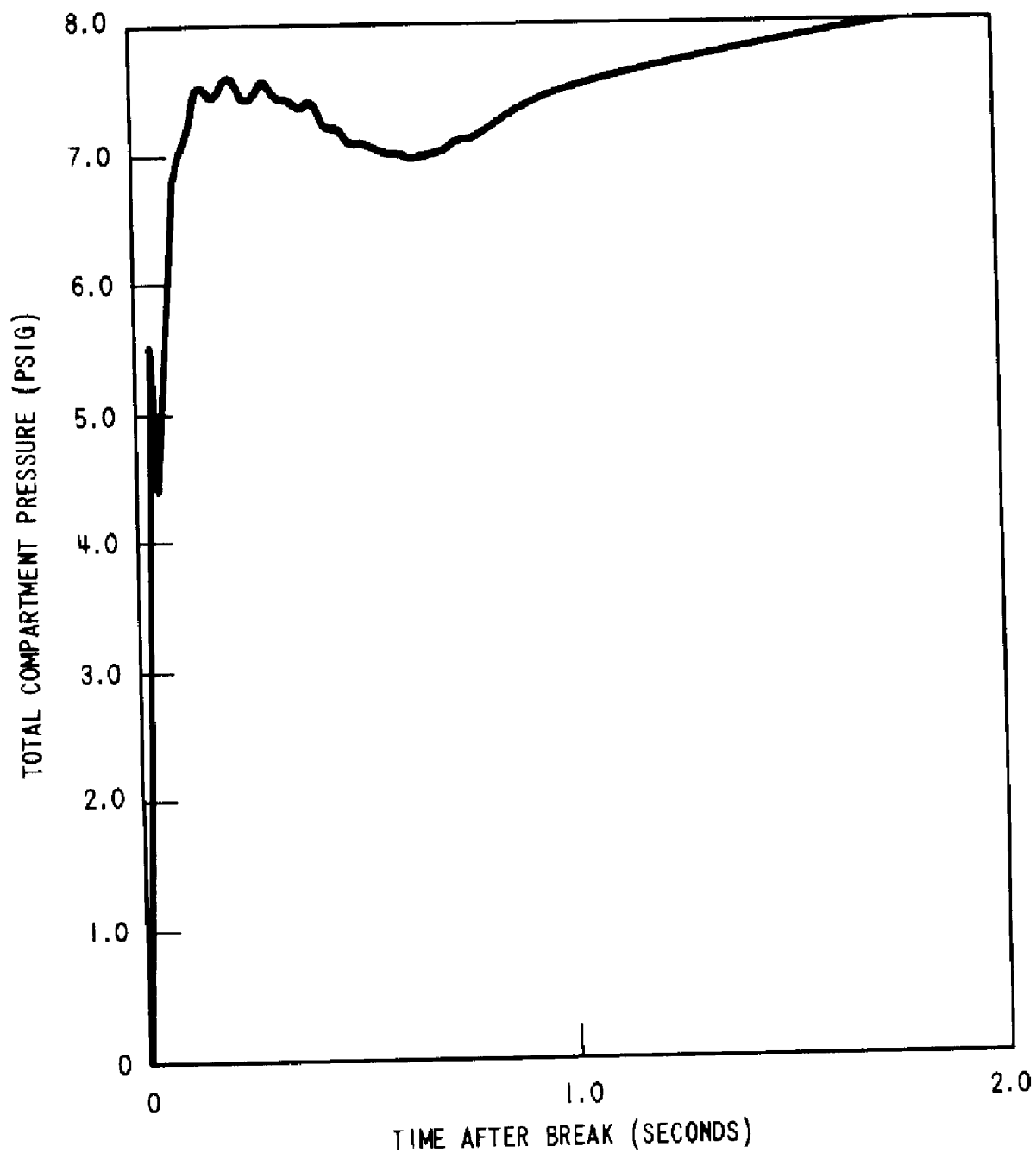


Figure 6-74. Reactor Cavity Analysis, Element 43

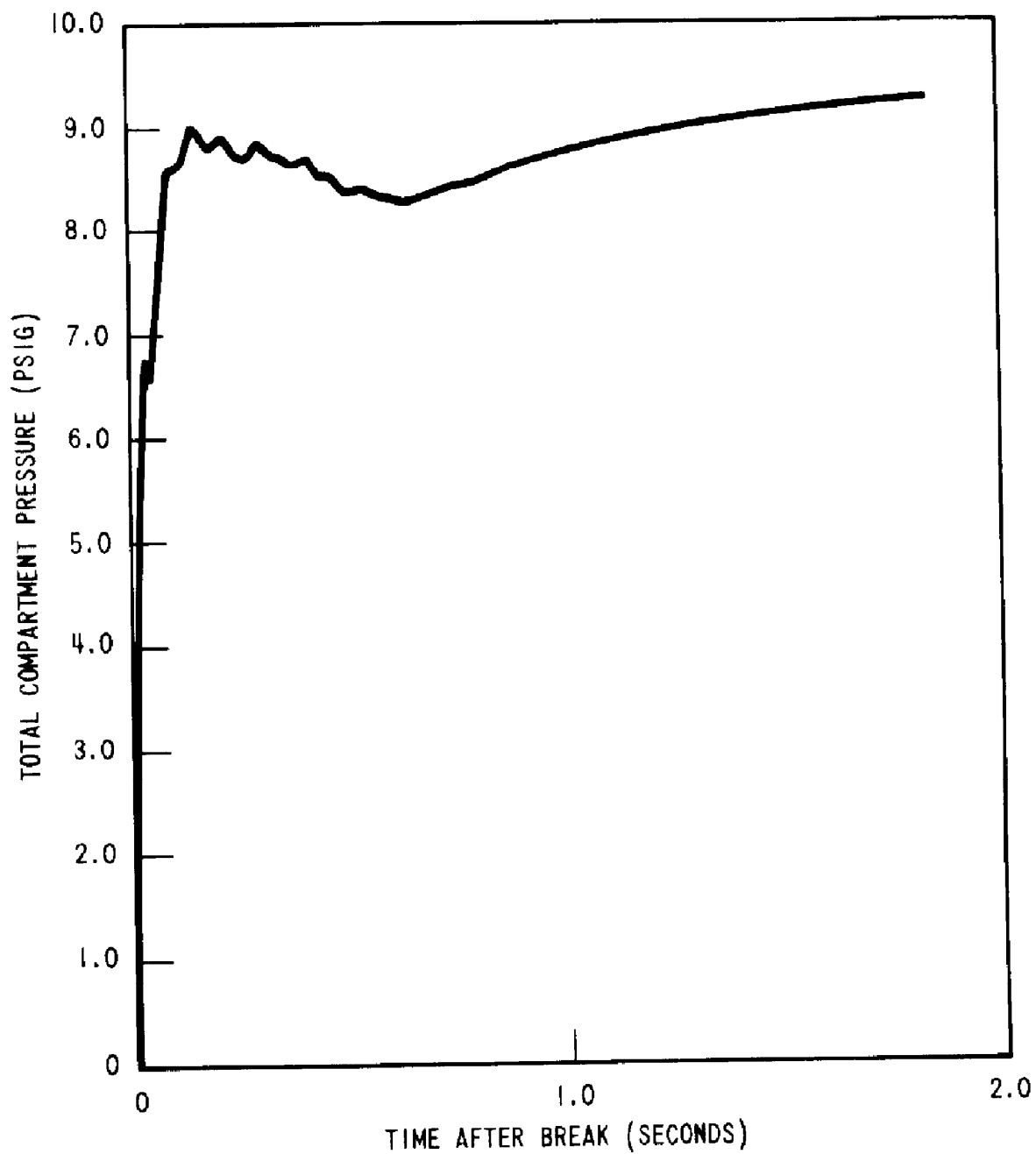
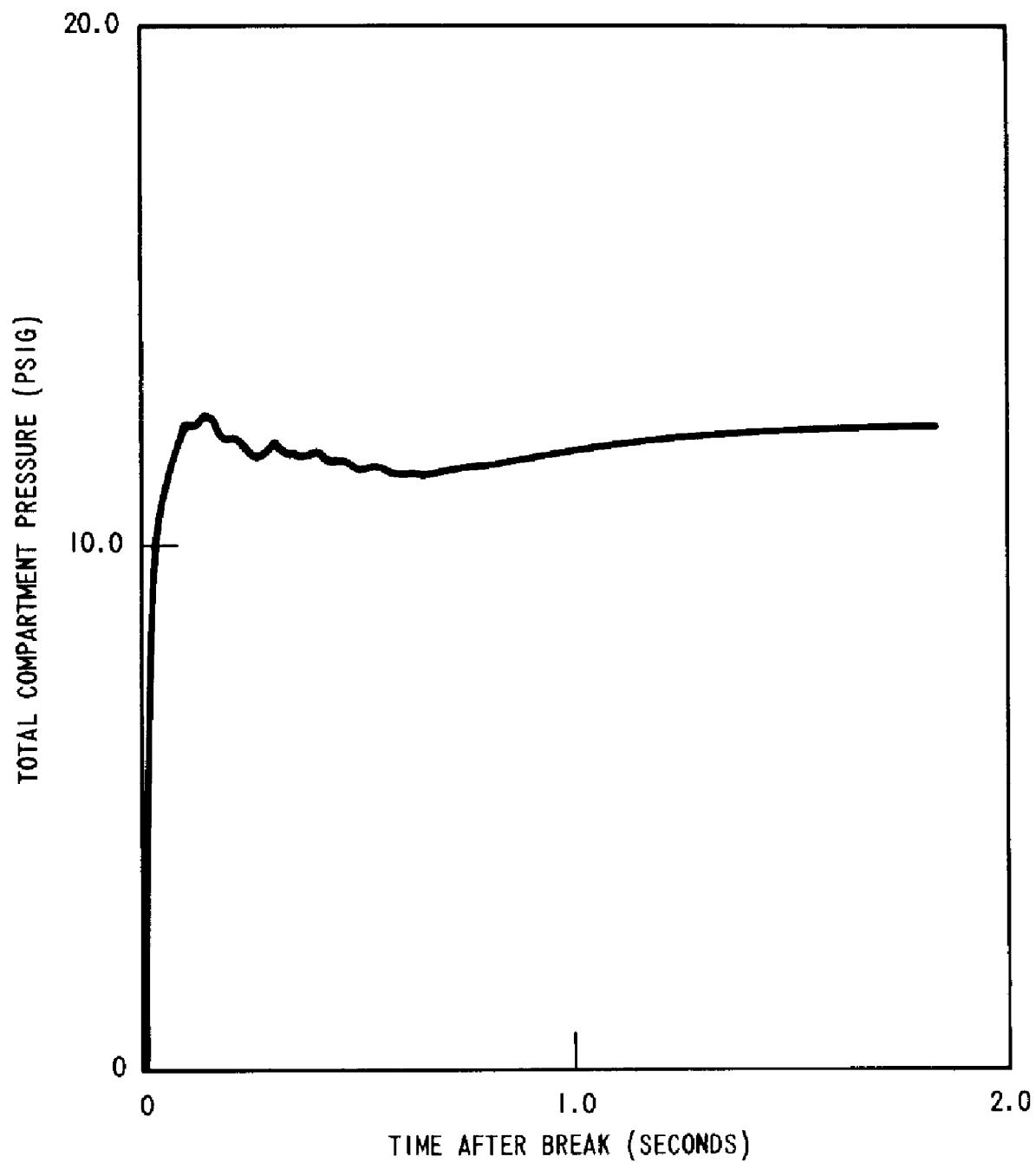


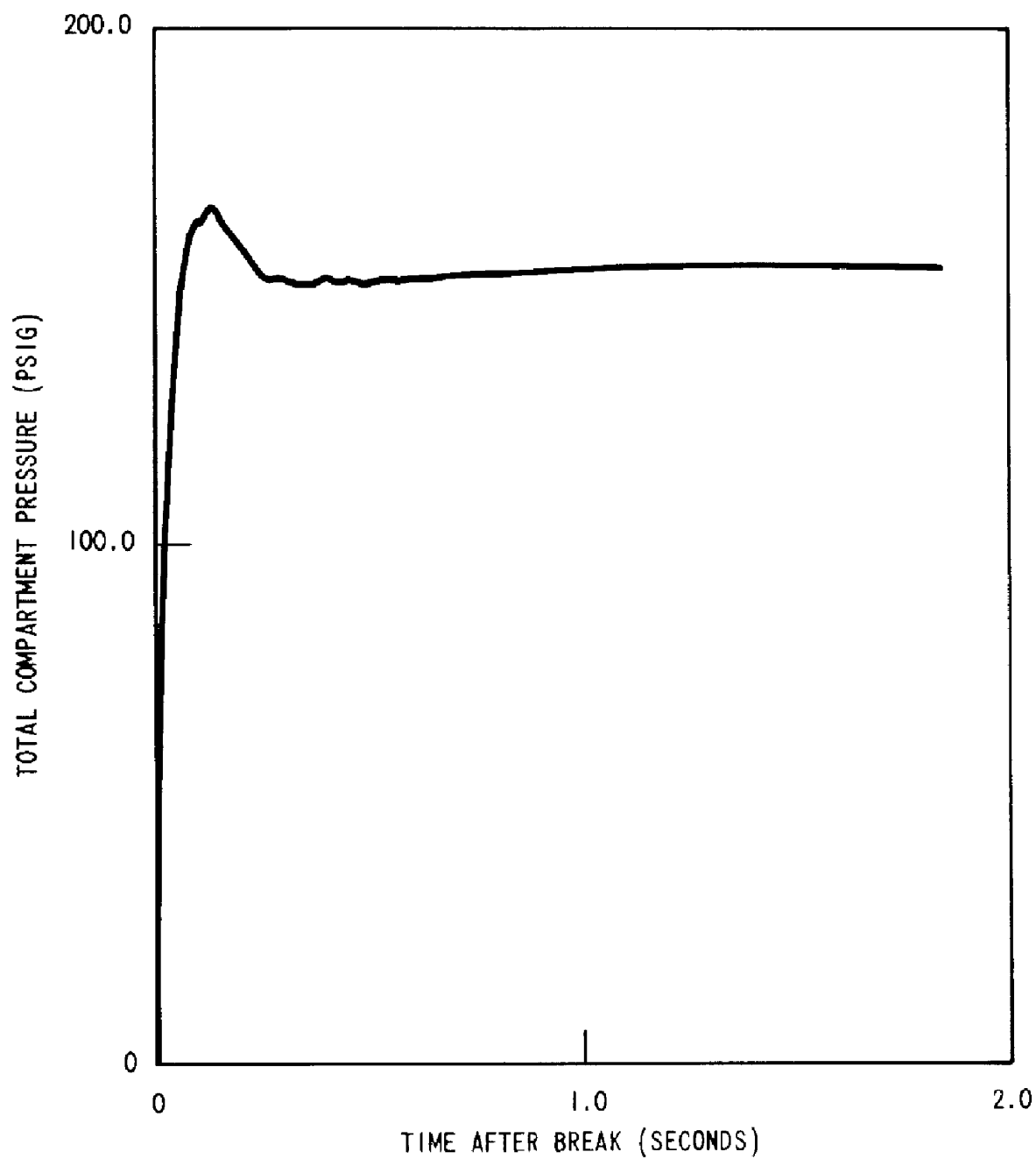
Figure 6-75. Reactor Cavity Analysis, Element 44



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Figure 6-76. Reactor Cavity Analysis, Element 45



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Figure 6-77. Reactor Cavity Analysis, Element 46

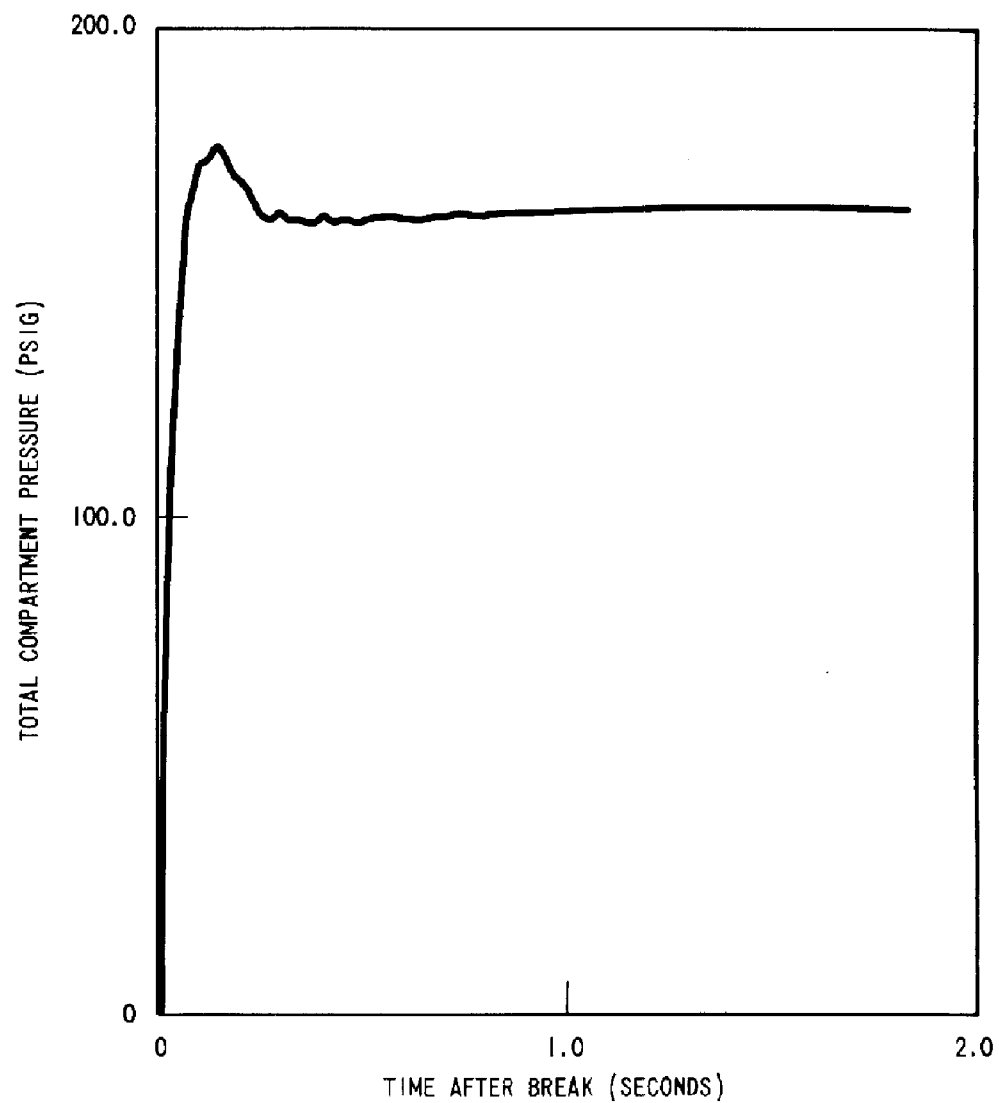


Figure 6-78. Reactor Cavity Analysis, Element 47

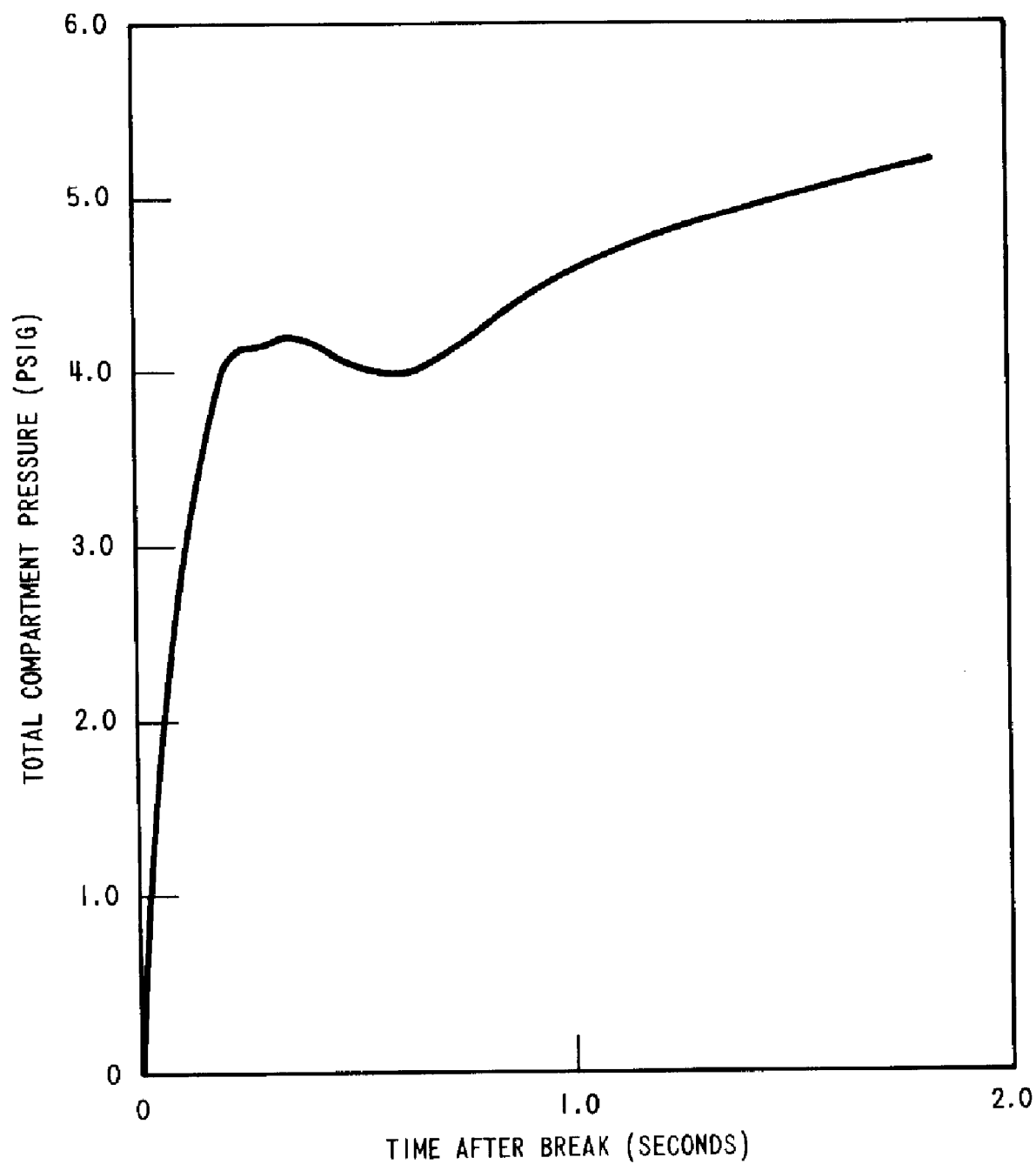
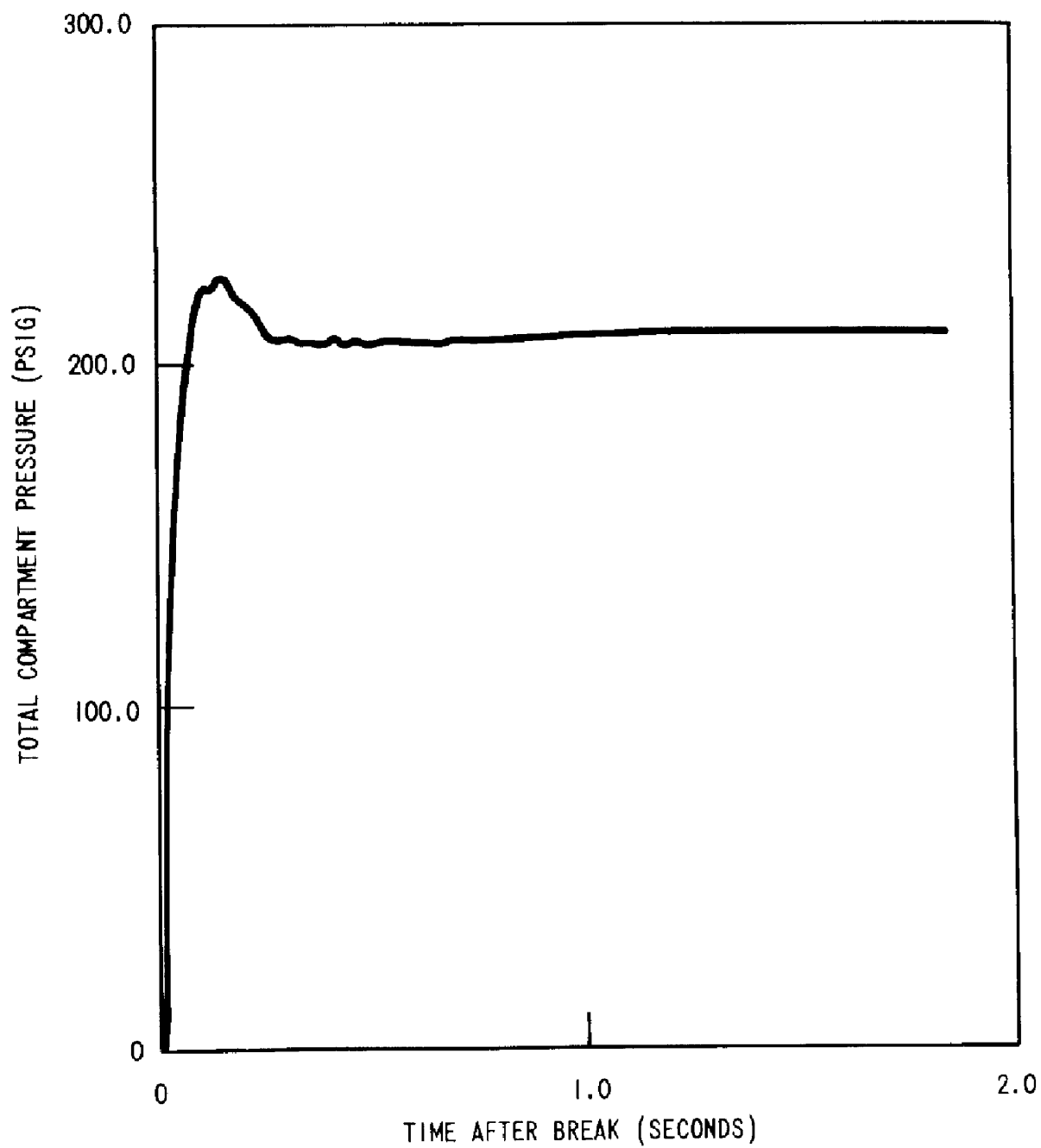


Figure 6-79. Reactor Cavity Analysis, Element 53



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Figure 6-80. Reactor Cavity Analysis, Element 54

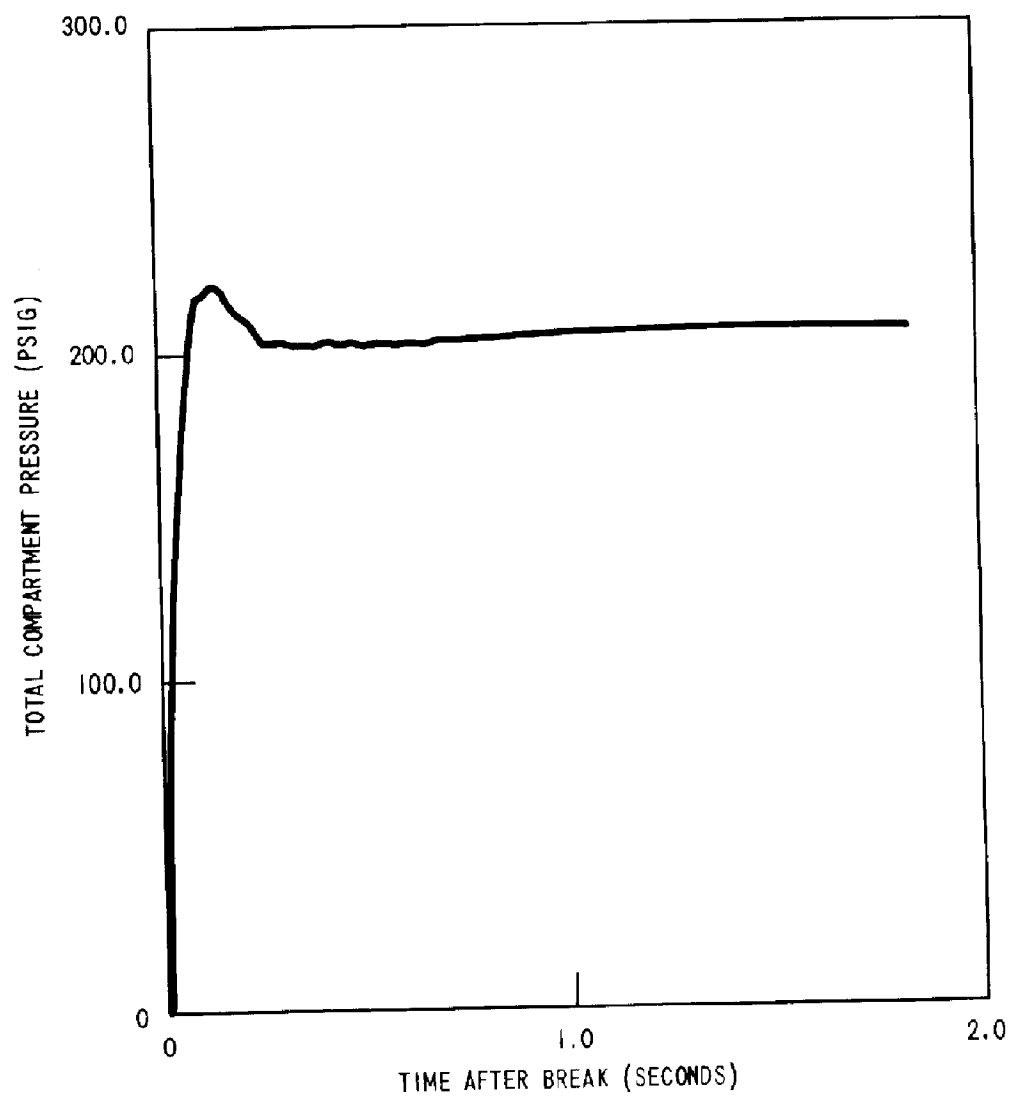


Figure 6-81. Hot Leg Double Ended Guillotine Break

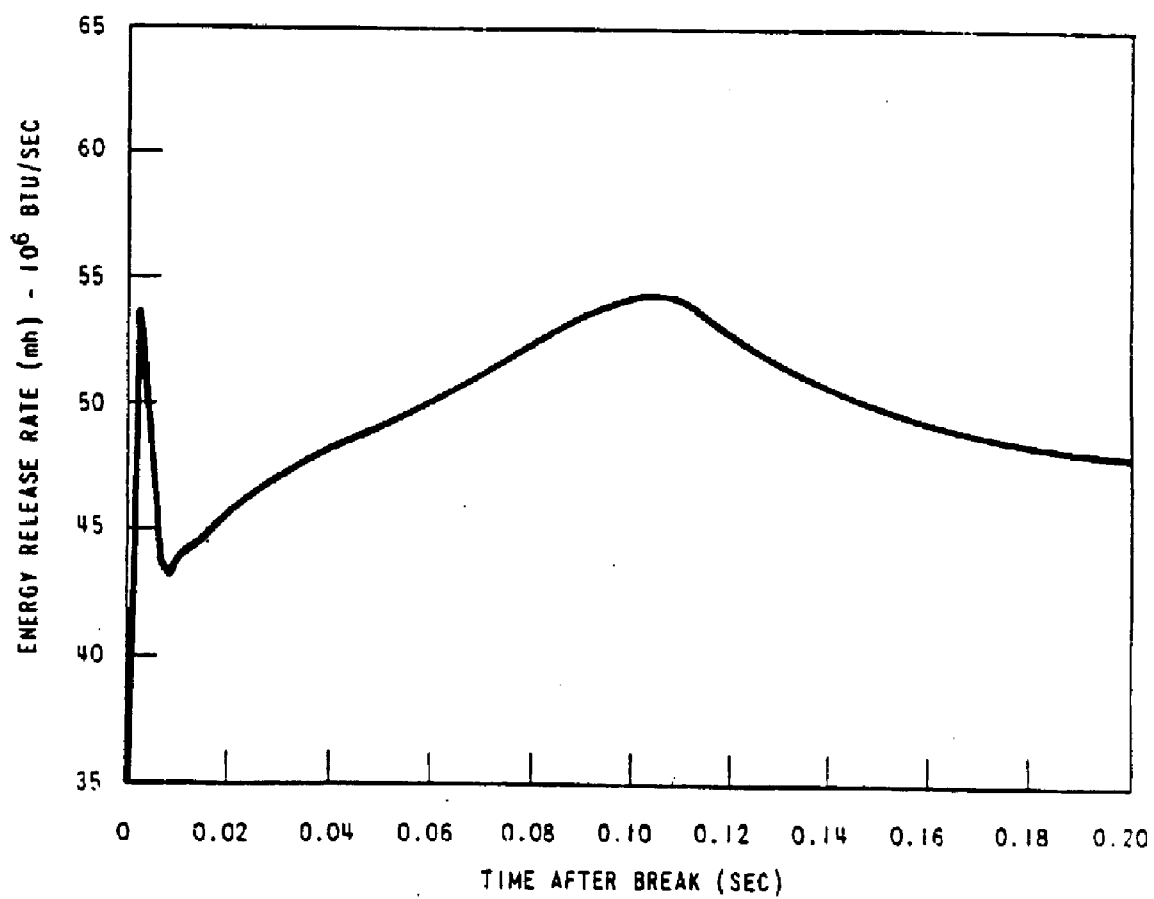


Figure 6-82. Hot Leg Double Ended Guillotine Break

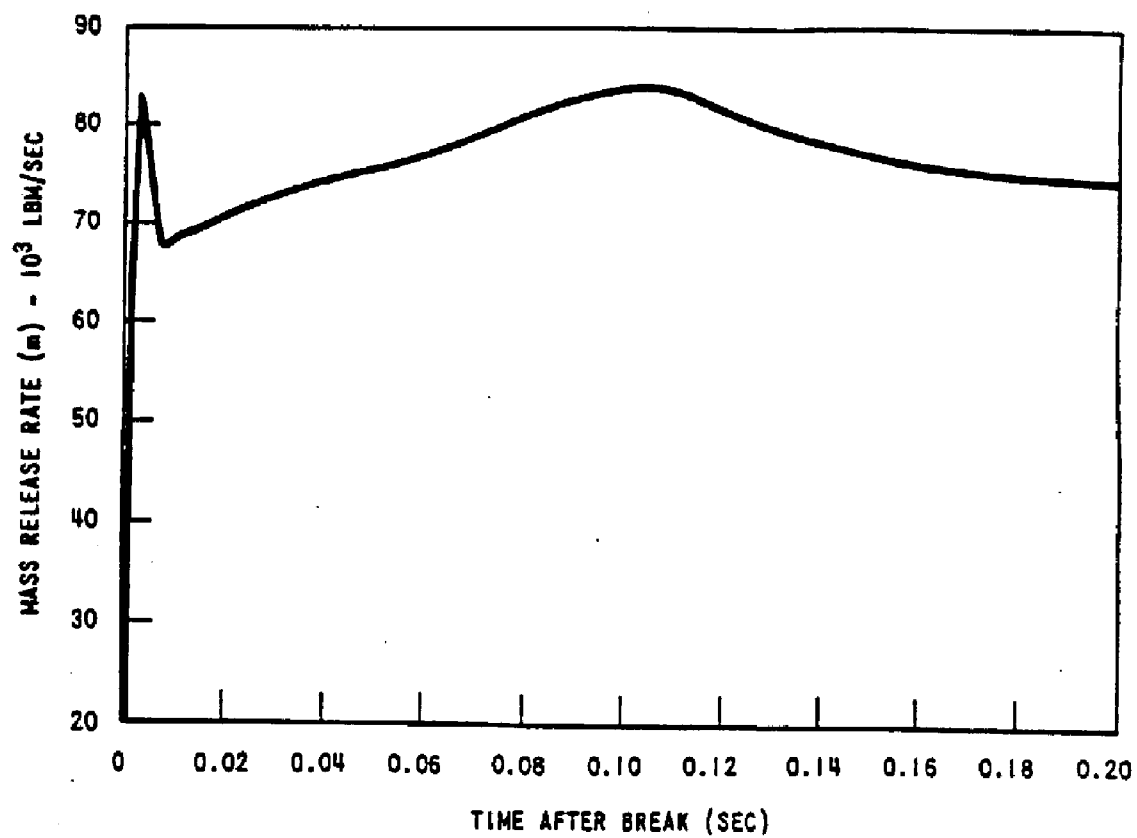


Figure 6-83. Cold Leg Double Ended Guillotine Break

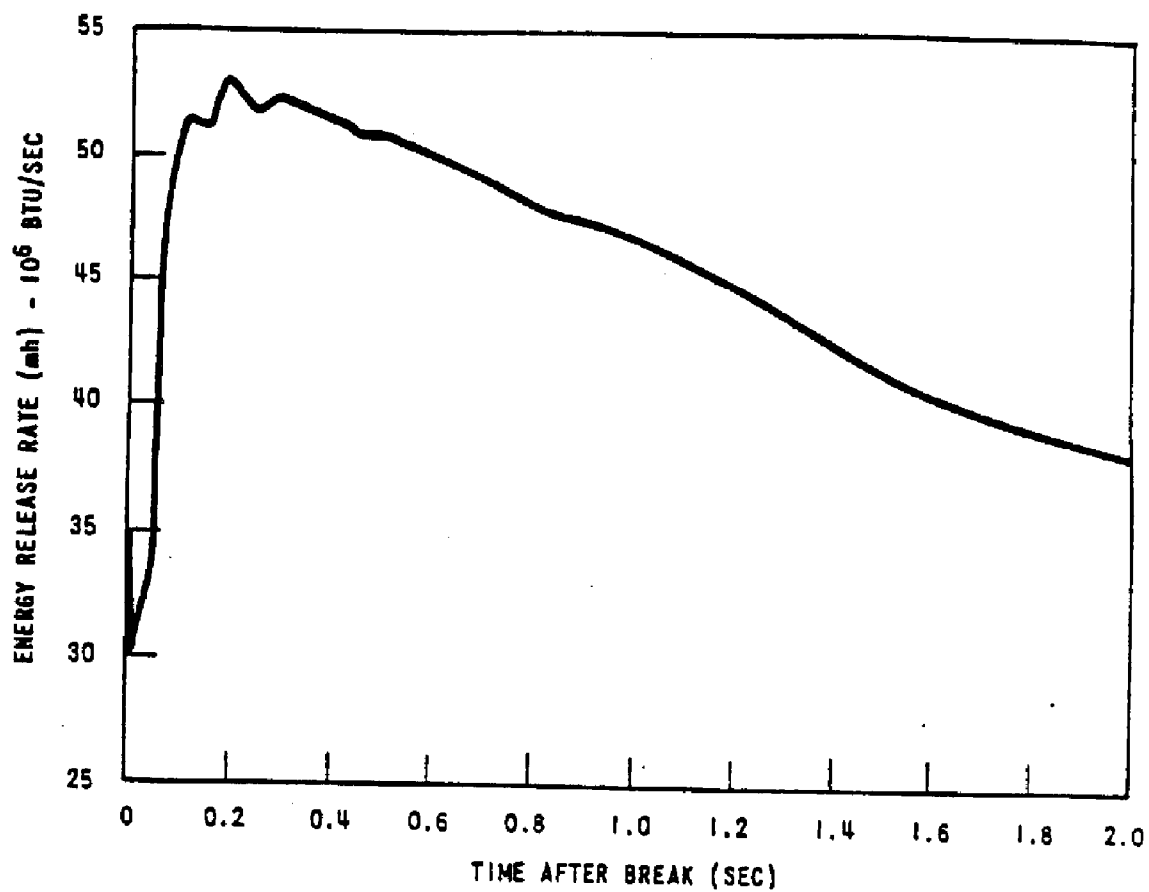




Figure 6-84. Cold Leg Double Ended Guillotine Break

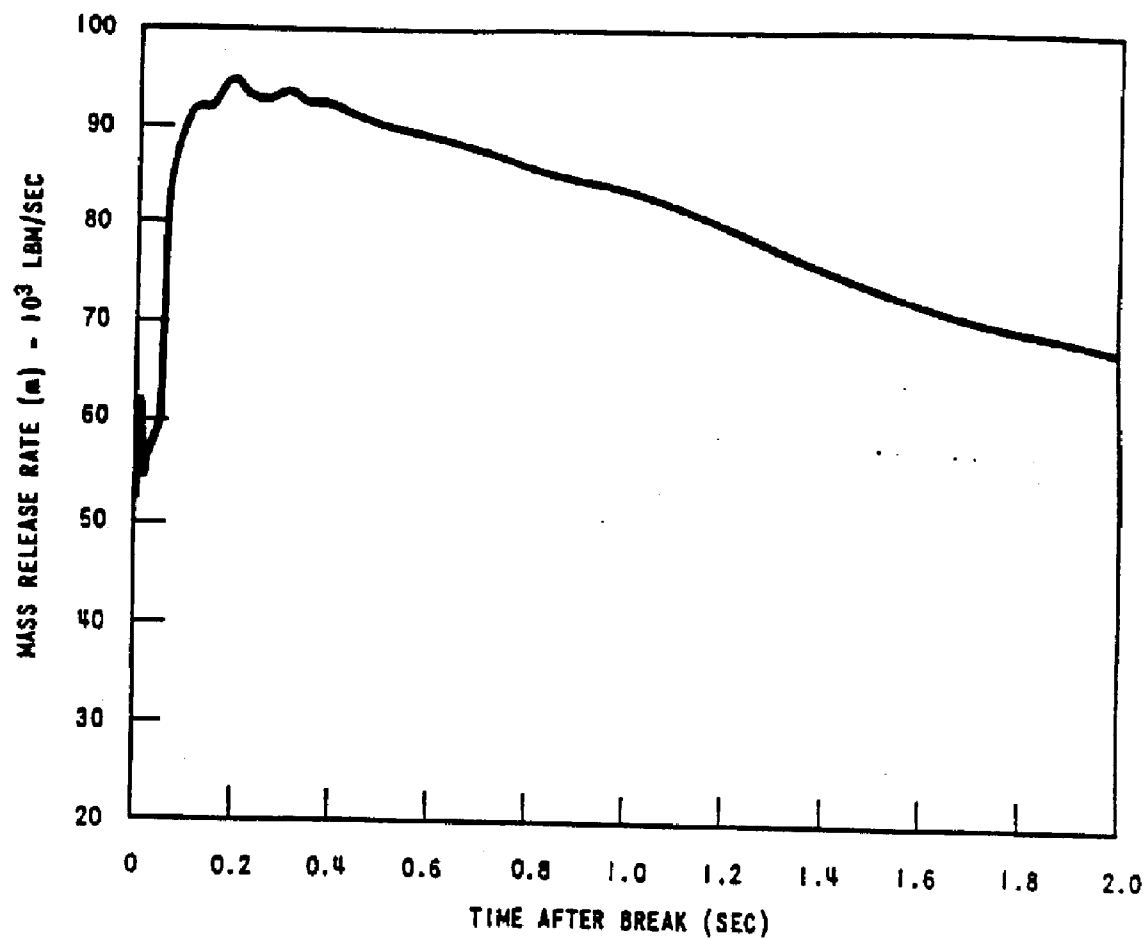


Figure 6-85. Hot Leg Single Ended Split Break

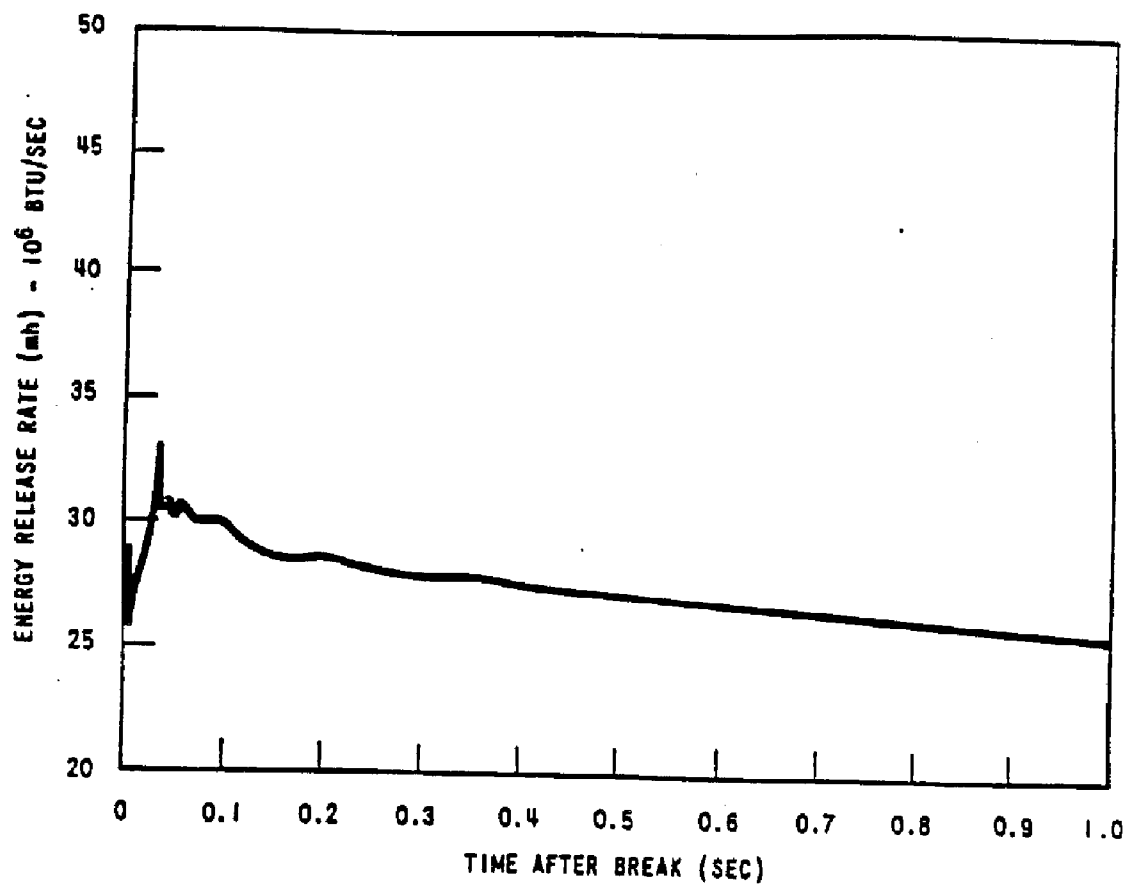


Figure 6-86. Hot Leg Single Ended Split Break

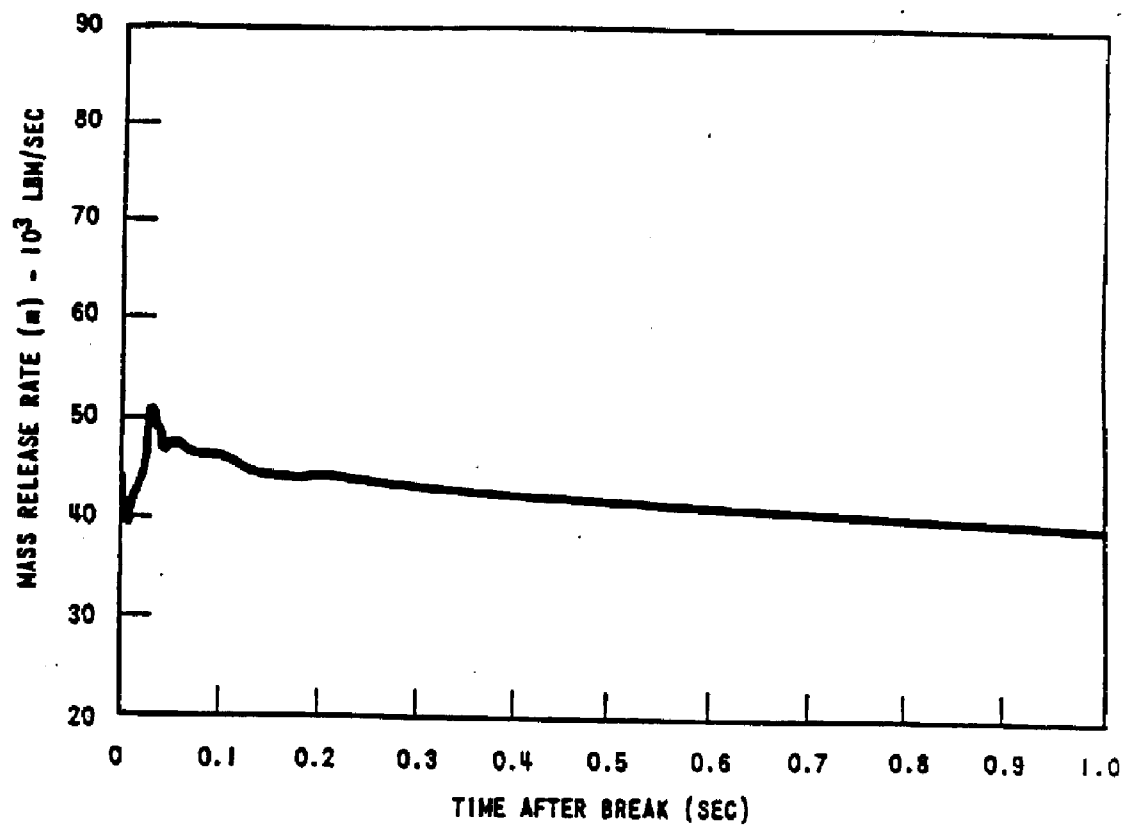


Figure 6-87. Cold Leg Single Ended Split Break

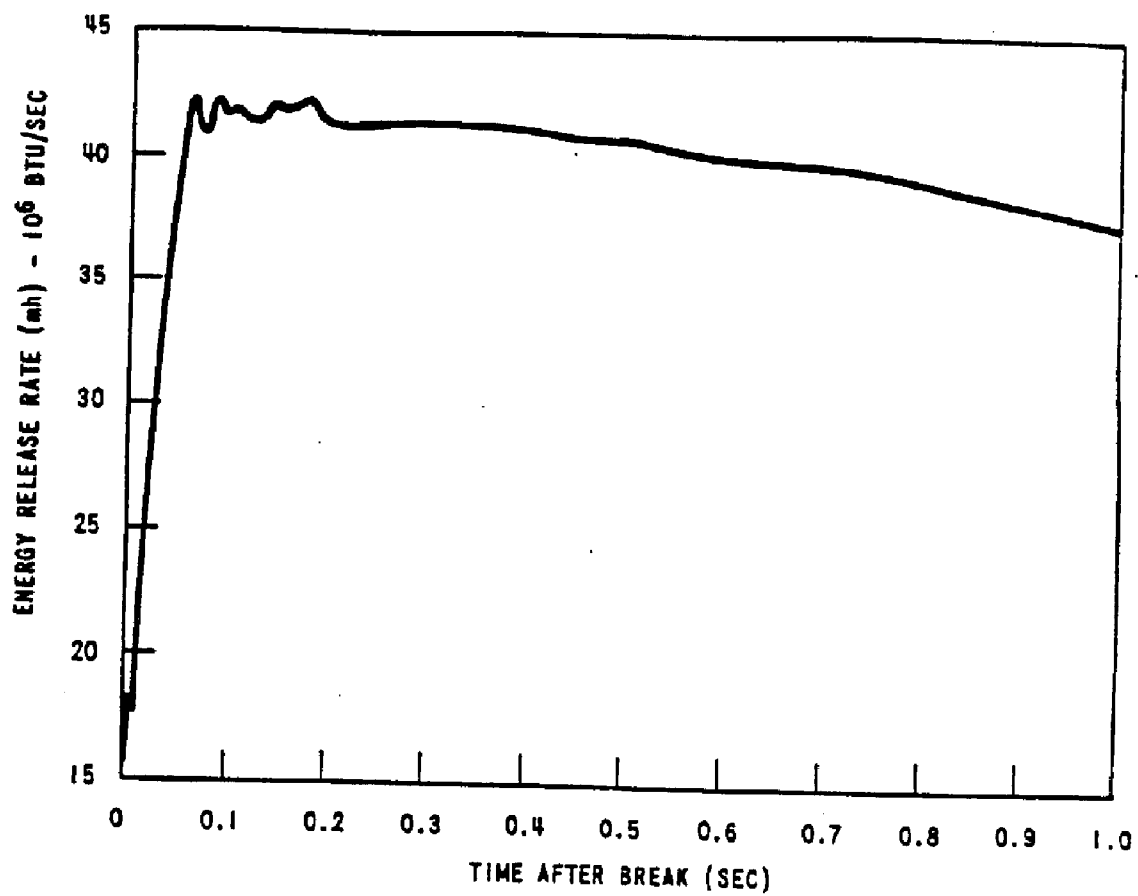


Figure 6-88. Cold Leg Single Ended Split Break

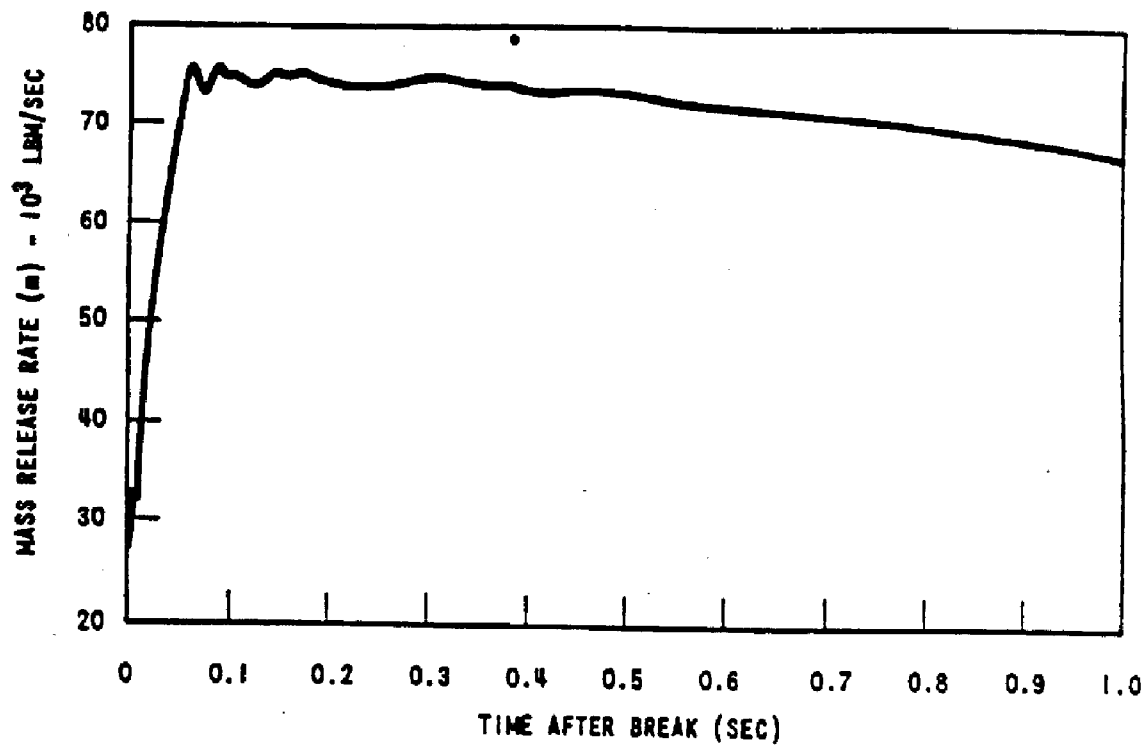


Figure 6-89. Comparison of Satan to Henry Fauske

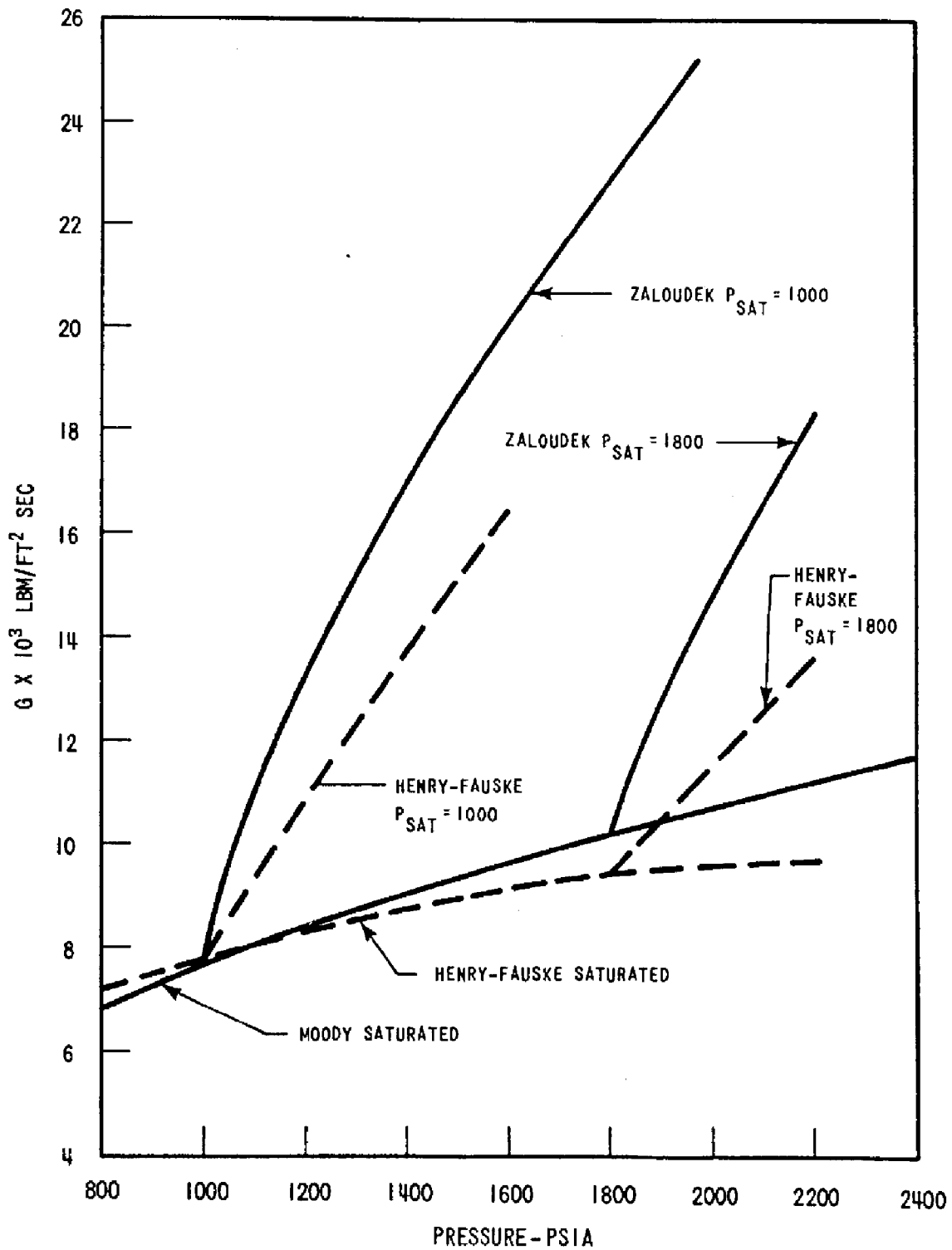
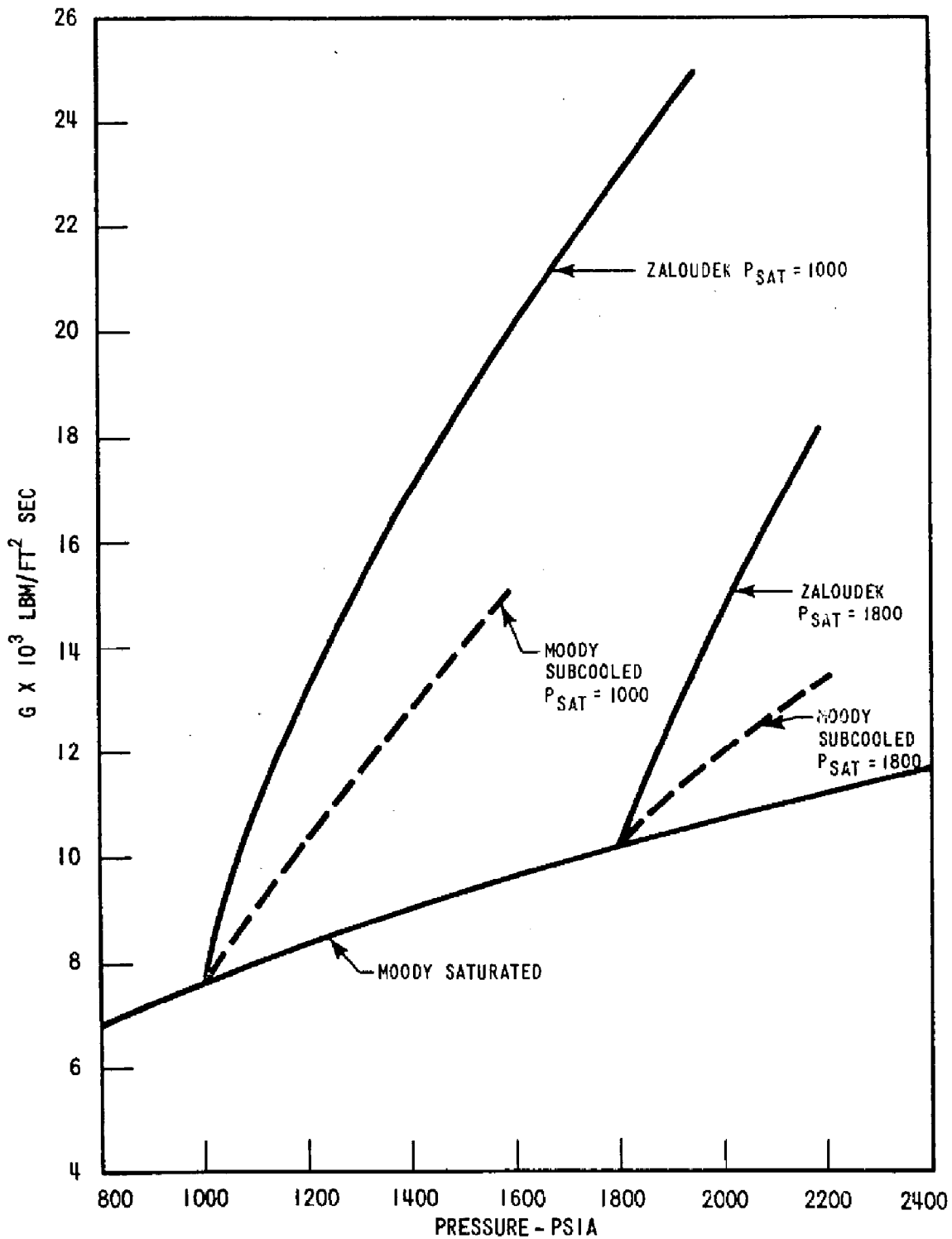


Figure 6-90. Comparison of Satan to Moody Subcooled



(22 OCT 2001)

Figure 6-91. Zaloudek Measured Data Versus Modified Zaloudek Correlation

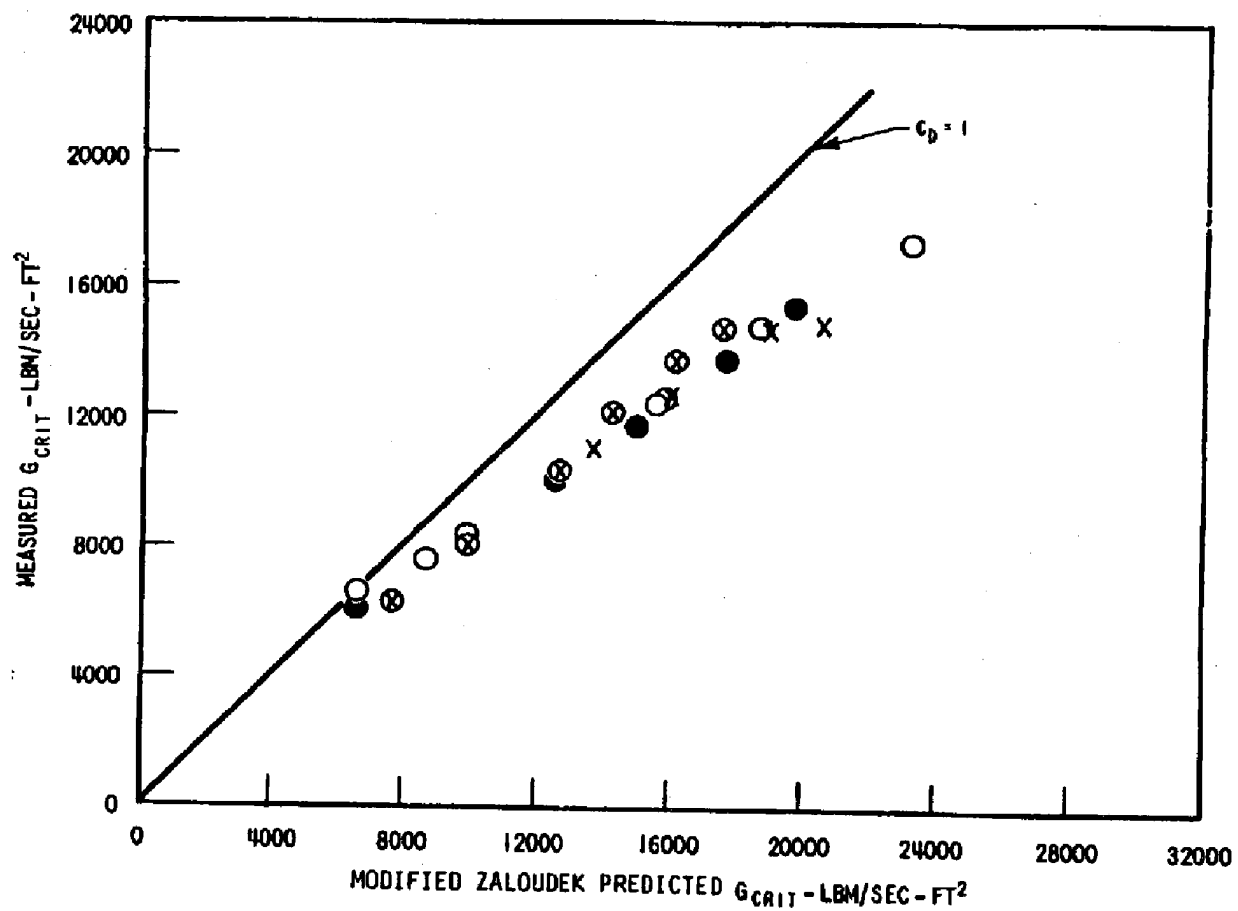
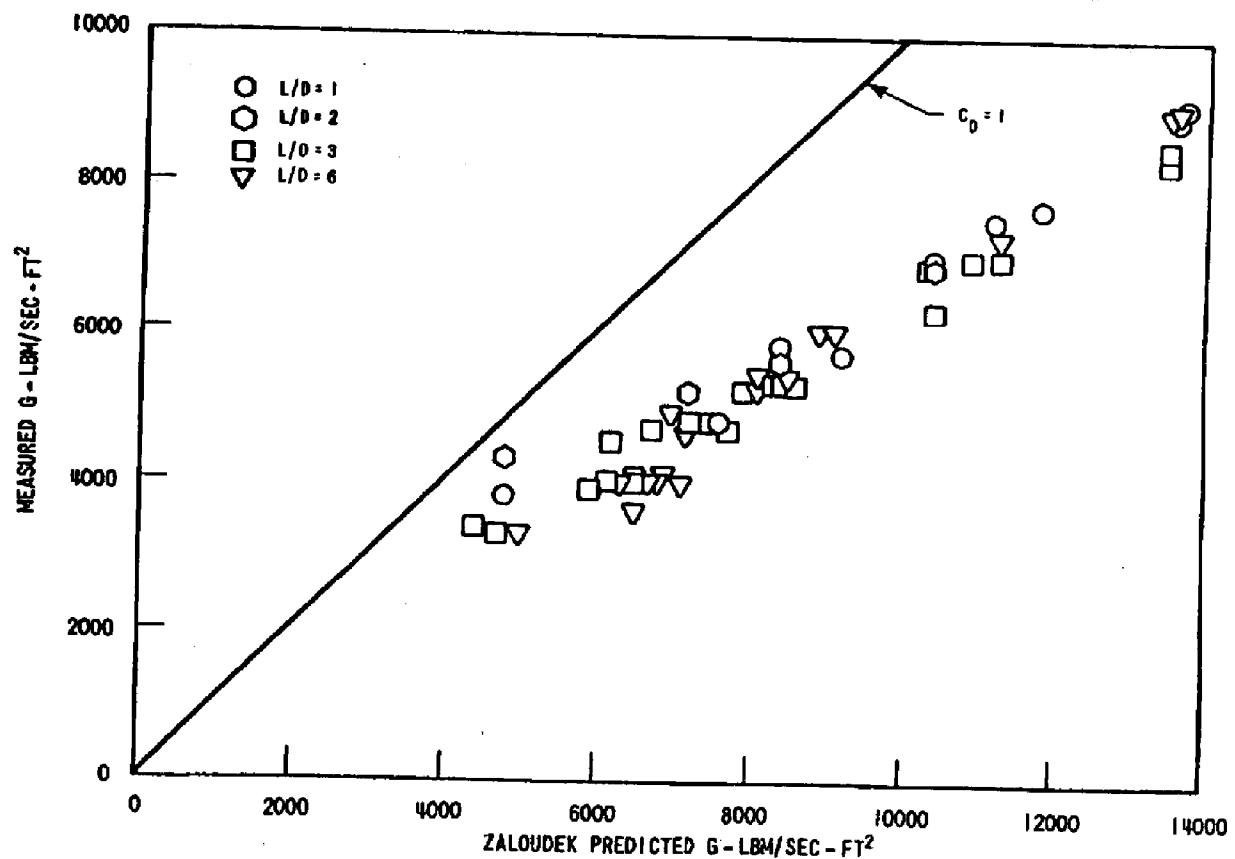




Figure 6-92. Zaloudek Short Tube Data



(22 OCT 2001)

Figure 6-93. Exit Plane Quality as a Function of Upstream Pressure for Saturated Liquid

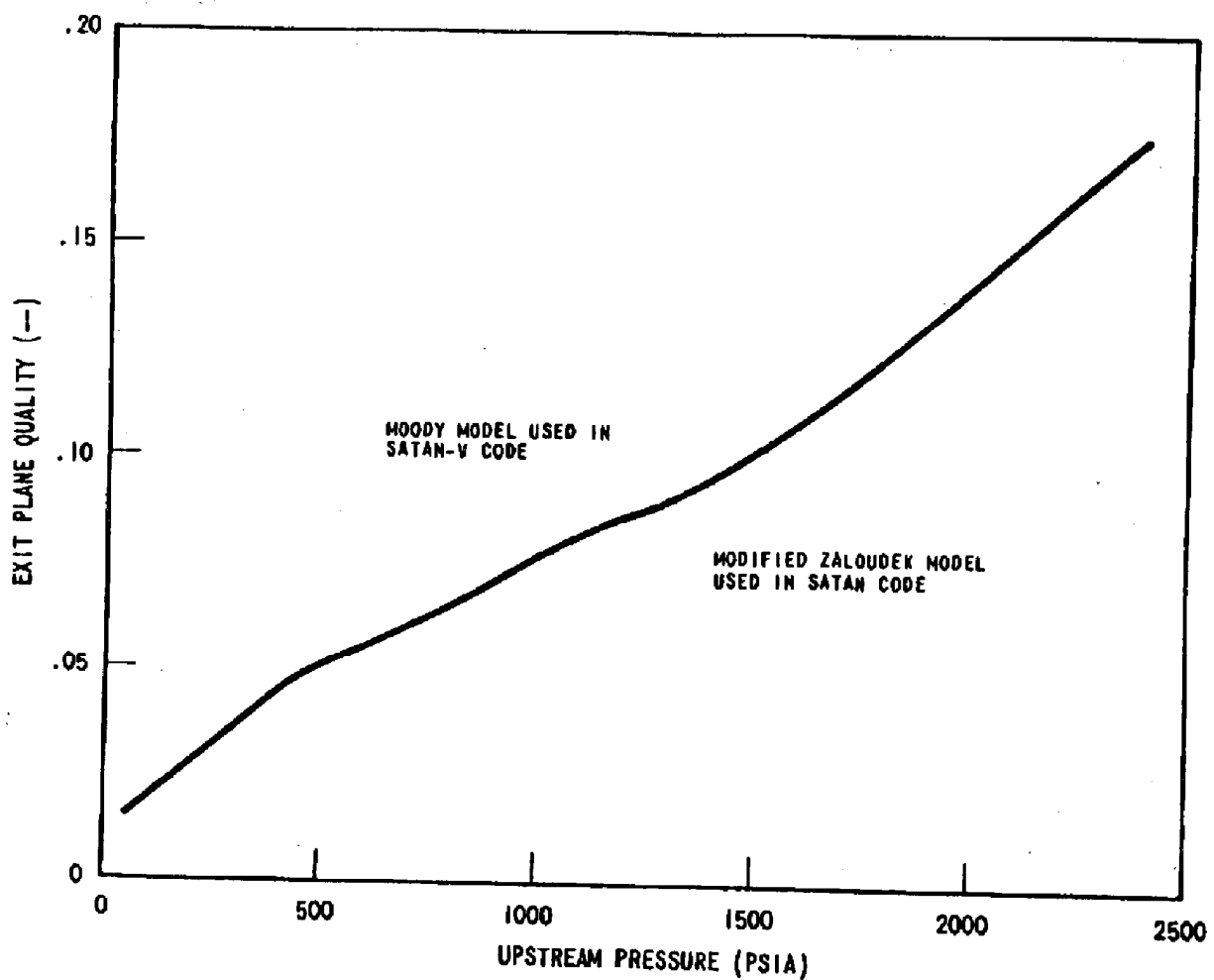
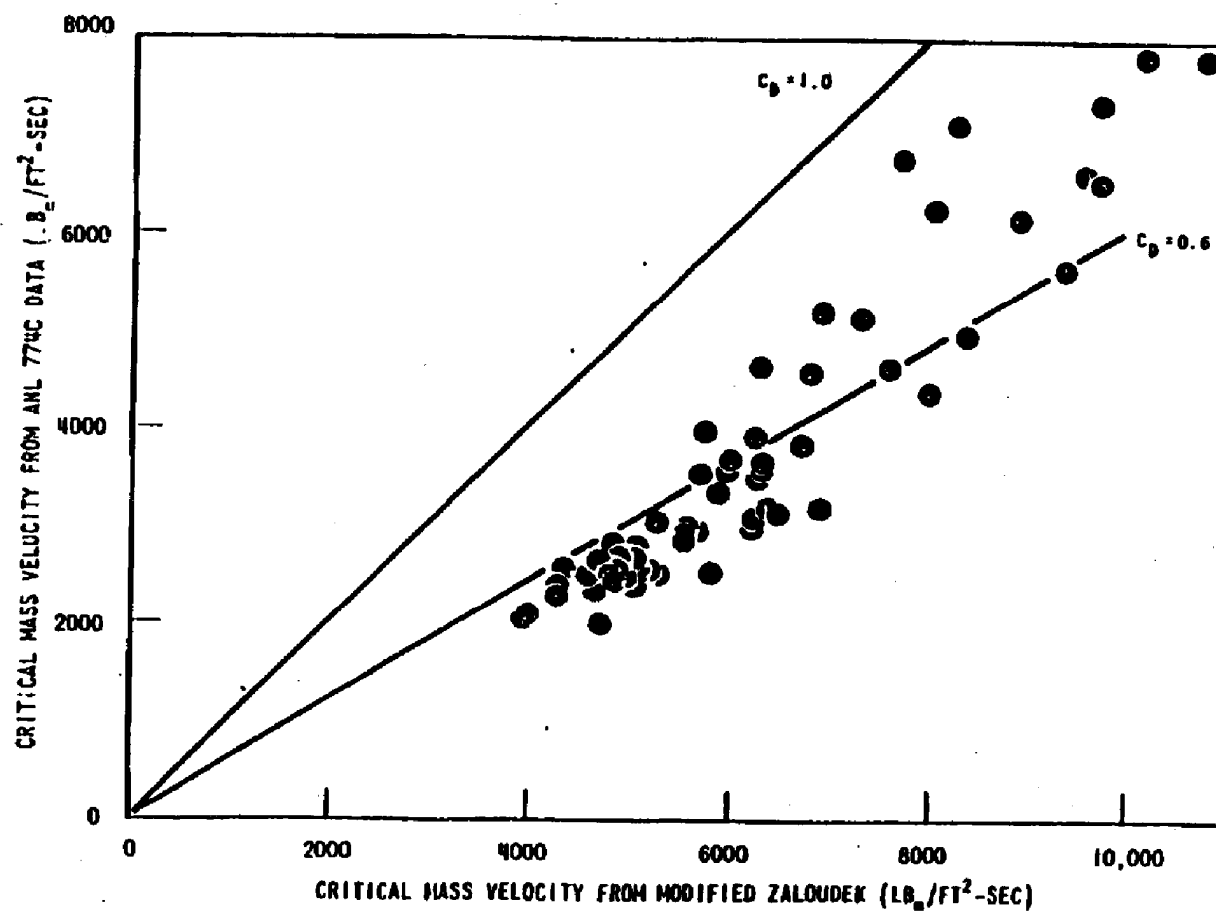
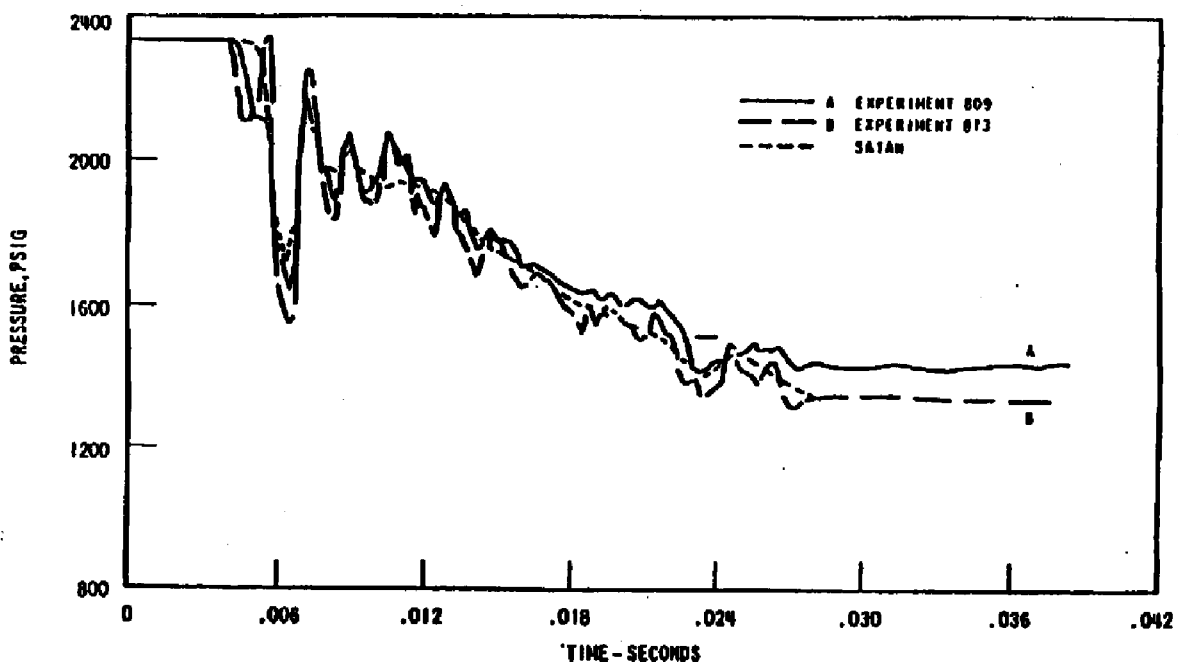


Figure 6-94. Henry ANL 7740 Data



(22 OCT 2001)

Figure 6-95. Loft Tests 809 and 813 Gage P-1



**Figure 6-96. Deleted Per 2001 Update**

**Figure 6-97. Deleted Per 2001 Update**

**Figure 6-98. Deleted Per 2001 Update**

**Figure 6-99. Deleted Per 2001 Update**

**Figure 6-100. Deleted Per 2001 Update**

**Figure 6-101. Deleted Per 2001 Update**

Figure 6-102. Illustration of Choked Flow Characteristics

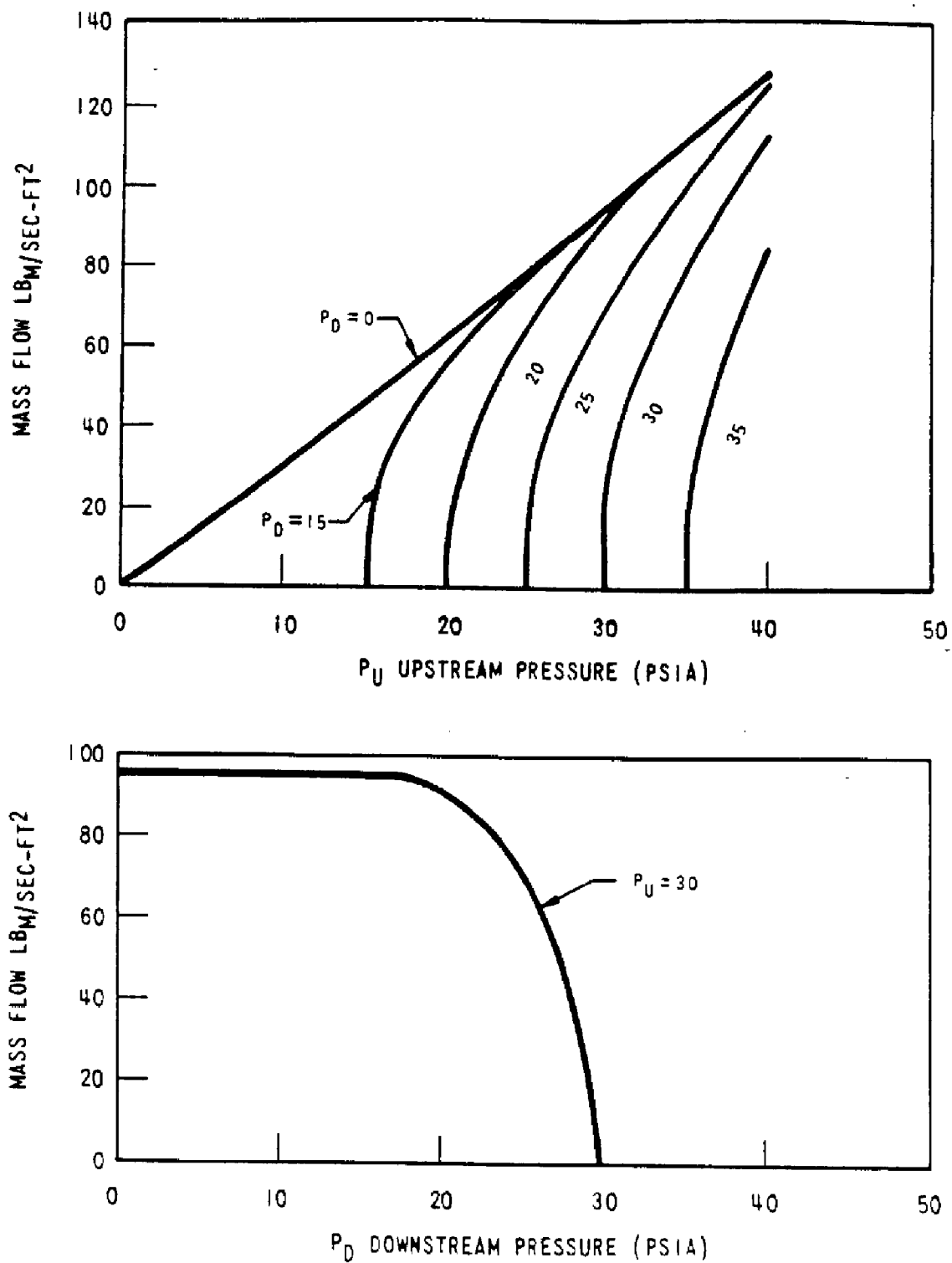
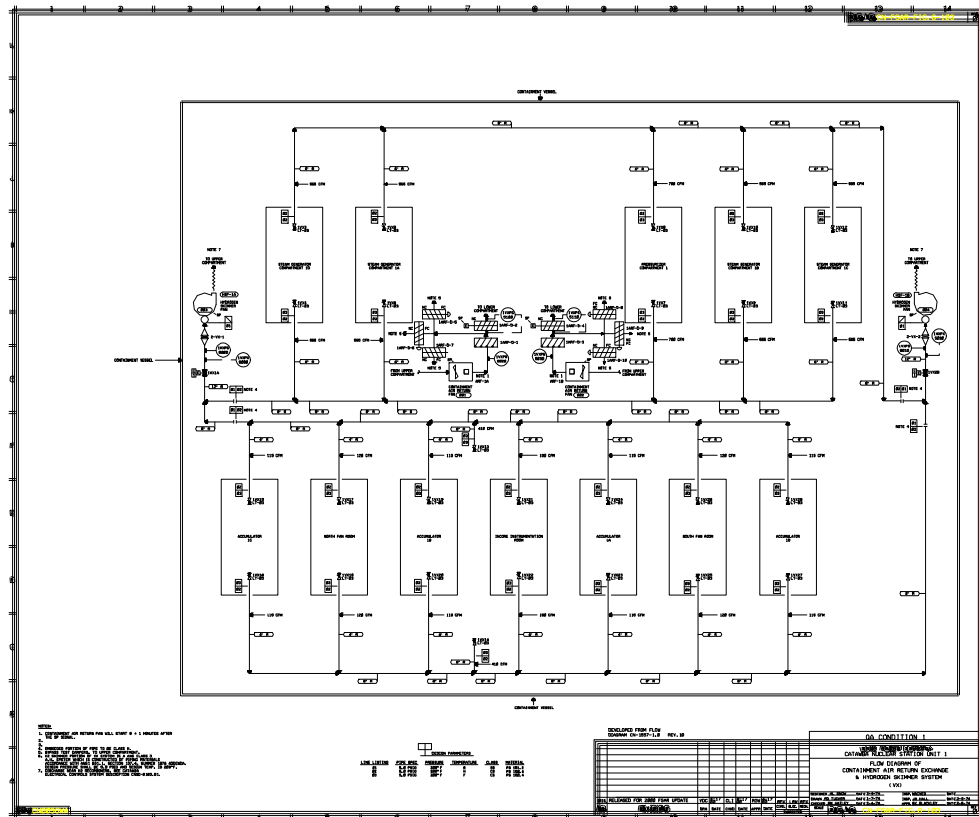
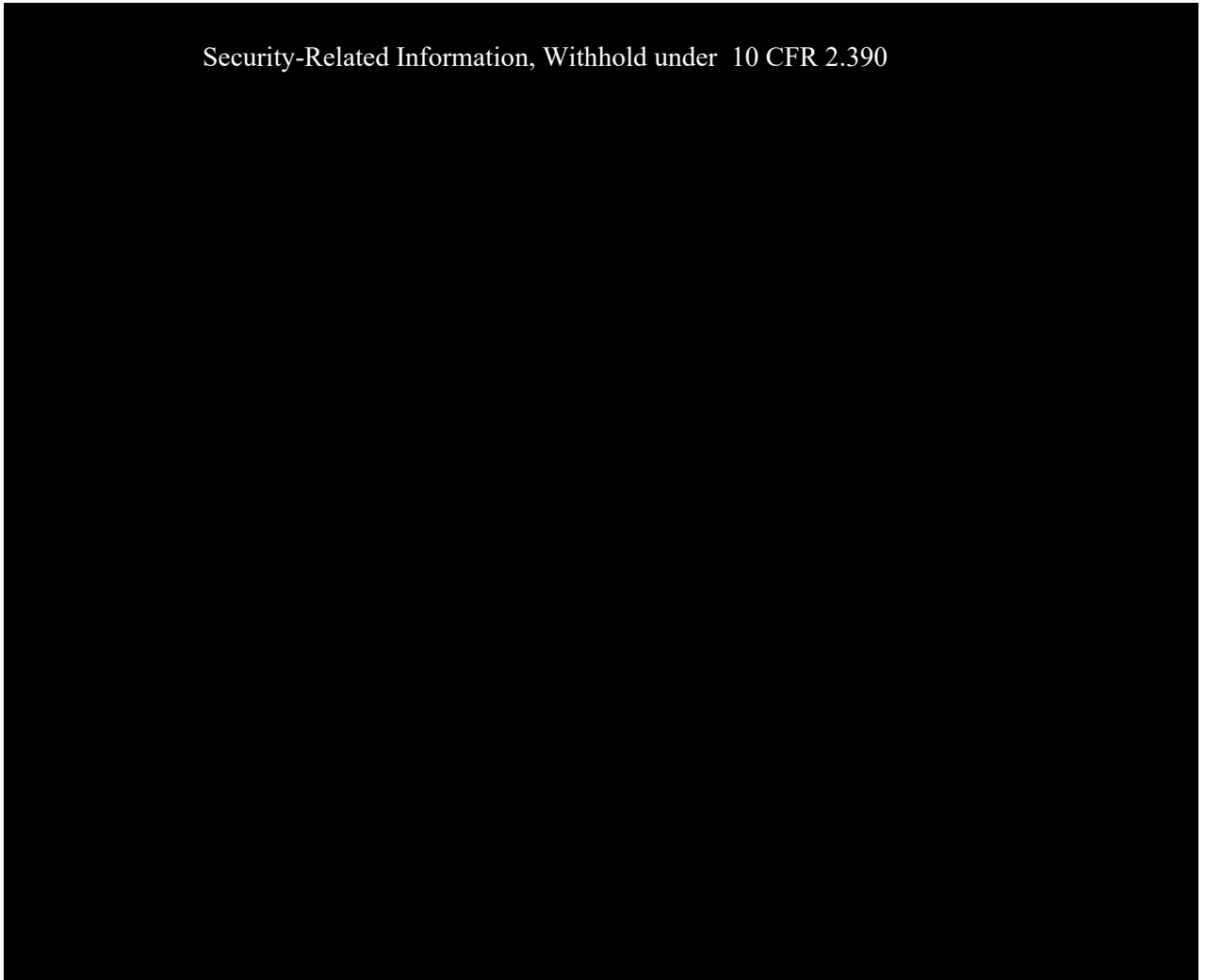


Figure 6-103. Flow Diagram of Containment Air Return Exchange &amp; Hydrogen Skimmer System



**Figure 6-104. Reactor Building Plan at Elev. 565 + 3 Hydrogen Skimmer System**

Security-Related Information, Withhold under 10 CFR 2.390





**Figure 6-105. Reactor Building Hydrogen Skimmer System**

Security-Related Information, Withhold under 10 CFR 2.390

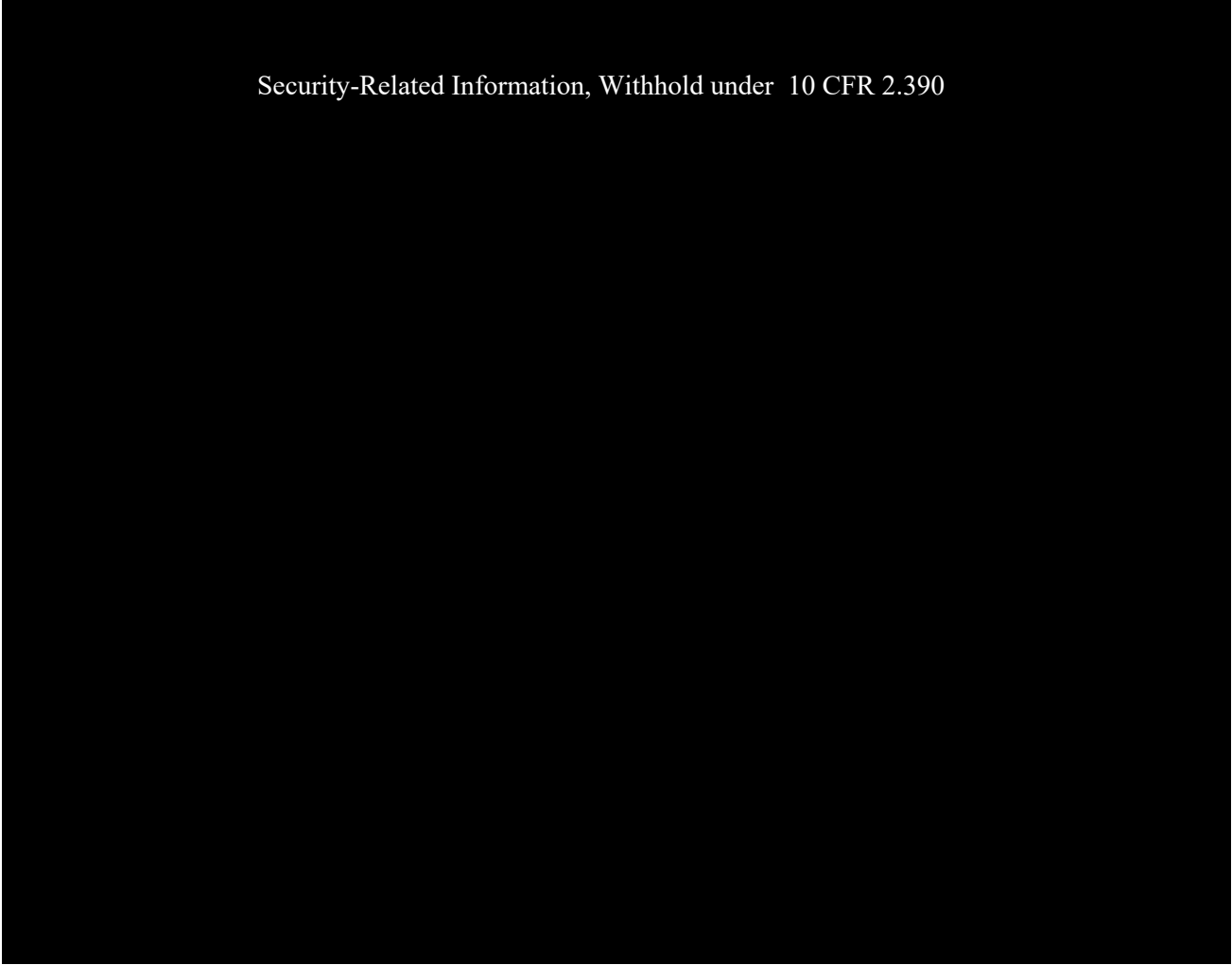


Figure 6-106. Containment Air Return Fan Performance Curve

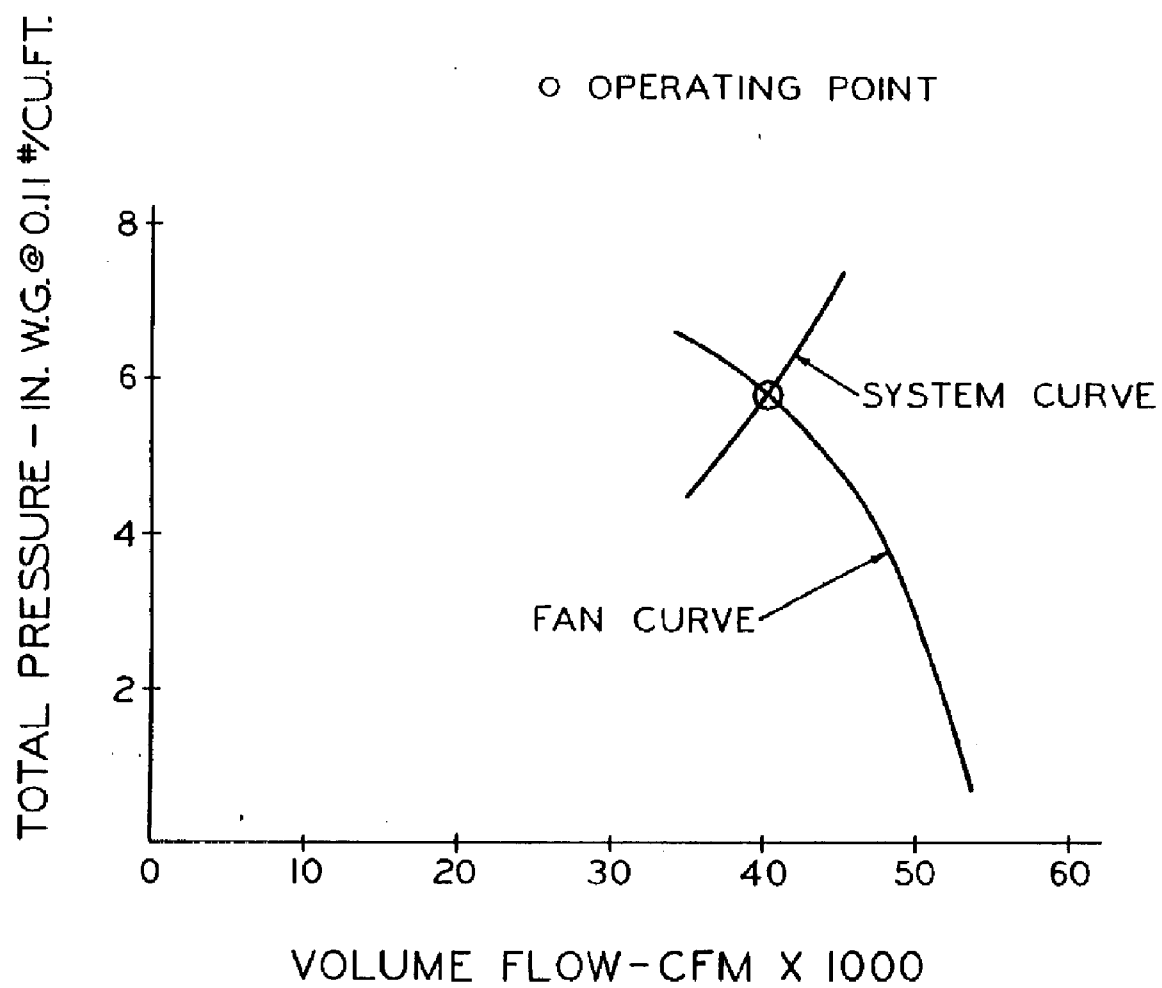


Figure 6-107. Hydrogen Skimmer Fan Performance Curve

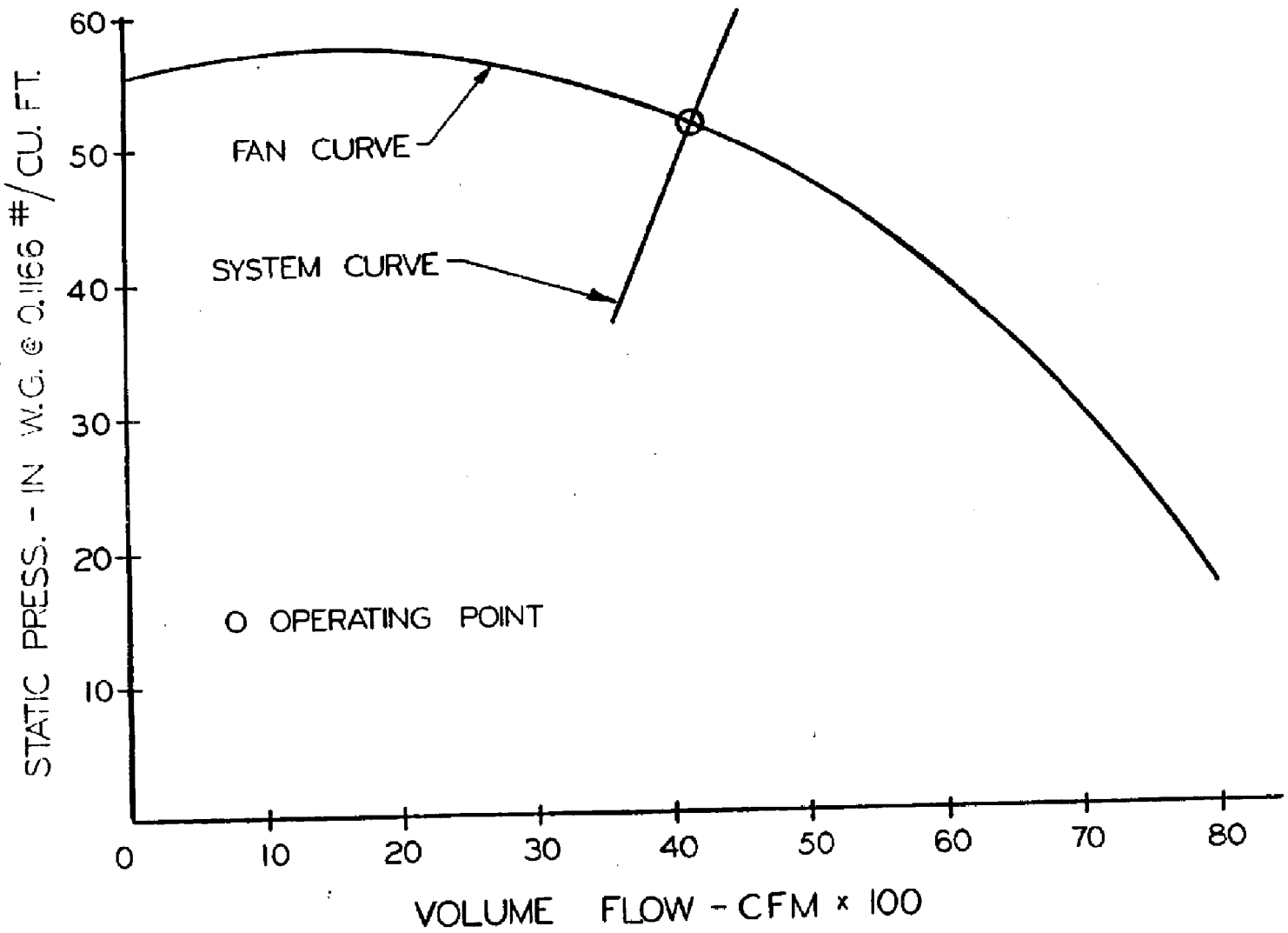
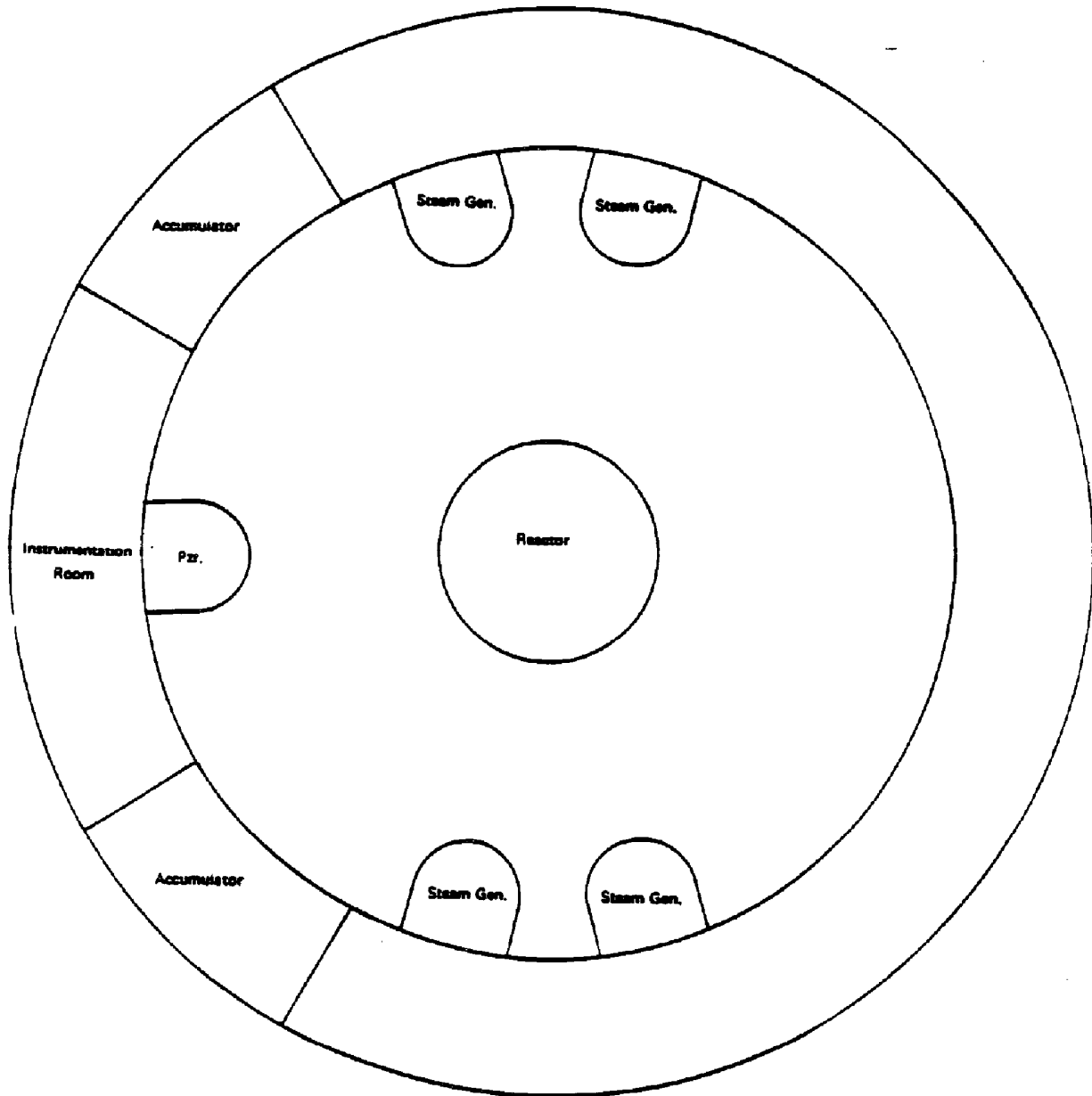


Figure 6-108. Areas of Potential Hydrogen Pockets



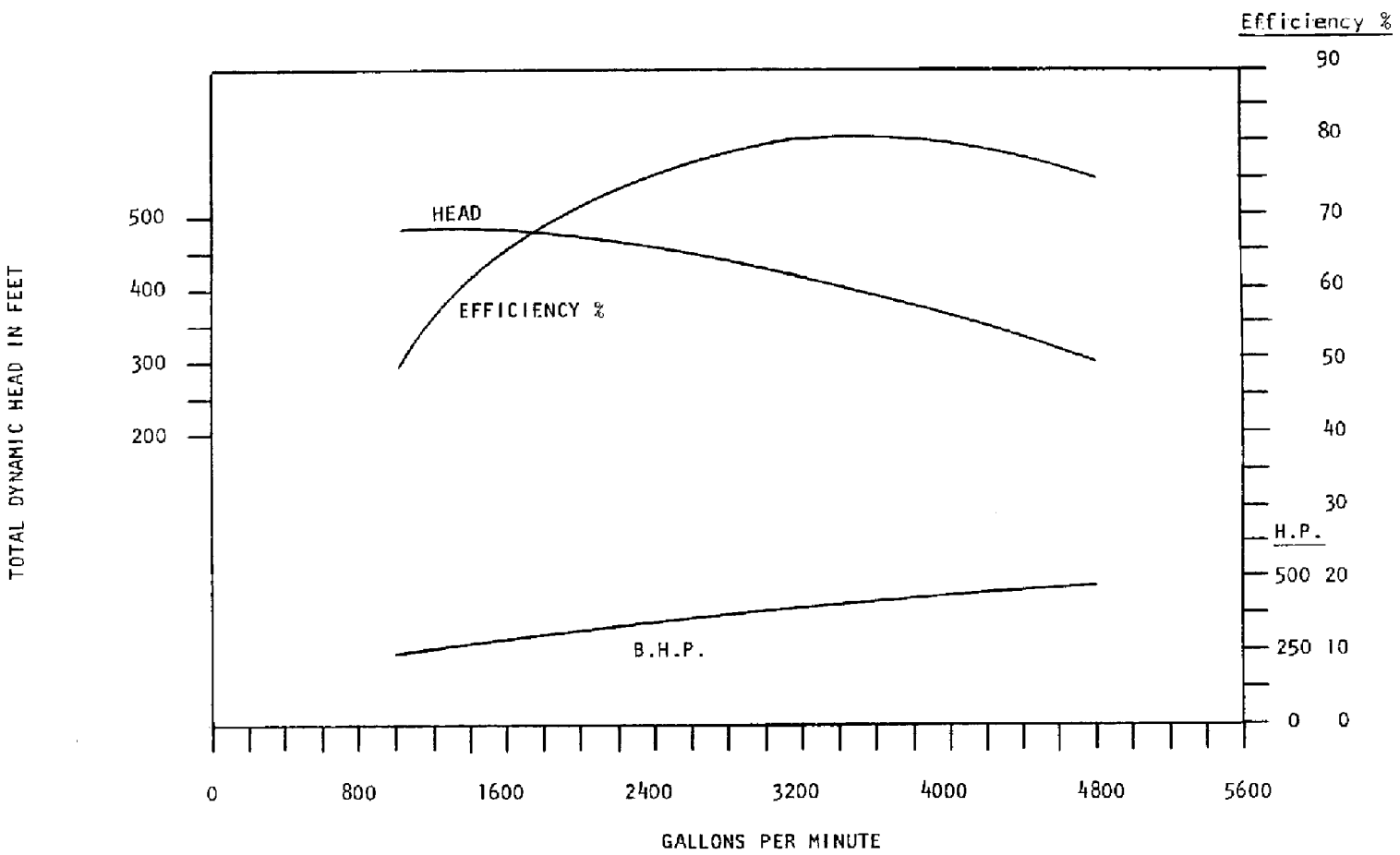
**NOTES:**

1. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PRESSURE OF 15.0 PSIG.
2. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM TEMPERATURE OF 150°F.
3. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM FLOW RATE OF 100 GPM.
4. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM HEAD OF 100 FEET.
5. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM SPEED OF 100 RPM.
6. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM VIBRATION OF 1.0 G.
7. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM NOISE LEVEL OF 100 DBA.
8. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM RADIATION LEVEL OF 100 MR/H.
9. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PARTICLE SIZE OF 10 MICRONS.
10. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM SOLIDITY OF 100 G/G.
11. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM CORROSION RATE OF 10 MPY.
12. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM EROSION RATE OF 10 MPY.
13. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM WEAR RATE OF 10 MPY.
14. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM FATIGUE LIFE OF 10,000 HOURS.
15. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM CRACK GROWTH RATE OF 10 MPY.
16. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM LEAKAGE RATE OF 10 GPM.
17. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM SEEPAGE RATE OF 10 GPM.
18. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM DRAINAGE RATE OF 10 GPM.
19. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM COLLECTION RATE OF 10 GPM.
20. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM TREATMENT RATE OF 10 GPM.
21. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM DISPOSAL RATE OF 10 GPM.
22. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM STORAGE RATE OF 10 GPM.
23. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM RELEASE RATE OF 10 GPM.
24. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM CAPTURE RATE OF 10 GPM.
25. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM RETENTION TIME OF 10 MINUTES.
26. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM RESIDENCE TIME OF 10 MINUTES.
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30. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM DEAD TIME OF 10 MINUTES.
31. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM TRANSMITTED PULSE OF 10 MPY.
32. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM REFLECTED PULSE OF 10 MPY.
33. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM BACKSCATTERED PULSE OF 10 MPY.
34. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM COMBINED PULSE OF 10 MPY.
35. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM TOTAL PULSE OF 10 MPY.
36. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM AVERAGE PULSE OF 10 MPY.
37. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PEAK PULSE OF 10 MPY.
38. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM RISE TIME OF 10 MPY.
39. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM FALL TIME OF 10 MPY.
40. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE WIDTH OF 10 MPY.
41. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE PERIOD OF 10 MPY.
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63. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE ADHESION OF 10 MPY.
64. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE COHESION OF 10 MPY.
65. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE TENSILE OF 10 MPY.
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67. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE SHEAR OF 10 MPY.
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69. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE BENDING OF 10 MPY.
70. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE TWISTING OF 10 MPY.
71. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE VIBRATION OF 10 MPY.
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73. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE RESONANCE OF 10 MPY.
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77. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE INERTIA OF 10 MPY.
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79. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE VOLUME OF 10 MPY.
80. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE SURFACE AREA OF 10 MPY.
81. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE PERIMETER OF 10 MPY.
82. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE LENGTH OF 10 MPY.
83. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE WIDTH OF 10 MPY.
84. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE HEIGHT OF 10 MPY.
85. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE DEPTH OF 10 MPY.
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90. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE PERMEABILITY OF 10 MPY.
91. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE IMPERMEABILITY OF 10 MPY.
92. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE TRANSMISSION OF 10 MPY.
93. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE REFLECTION OF 10 MPY.
94. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE ABSORPTION OF 10 MPY.
95. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE EMISSION OF 10 MPY.
96. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE DETECTION OF 10 MPY.
97. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE IDENTIFICATION OF 10 MPY.
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99. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE ANALYSIS OF 10 MPY.
100. THE SYSTEM IS DESIGNED TO OPERATE AT A MAXIMUM PULSE SYNTHESIS OF 10 MPY.

**REVISIONS**

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20	10/1/77	REVISION 19
21	10/1/77	REVISION 20
22	10/1/77	RE

Figure 6-110. Containment Spray Pump Performance Curve



**Figure 6-111. Recirculation Sump Strainer Assembly (Unit 1) (Unit 2 Similar)**

## Recirculation Sump Strainer Assembly

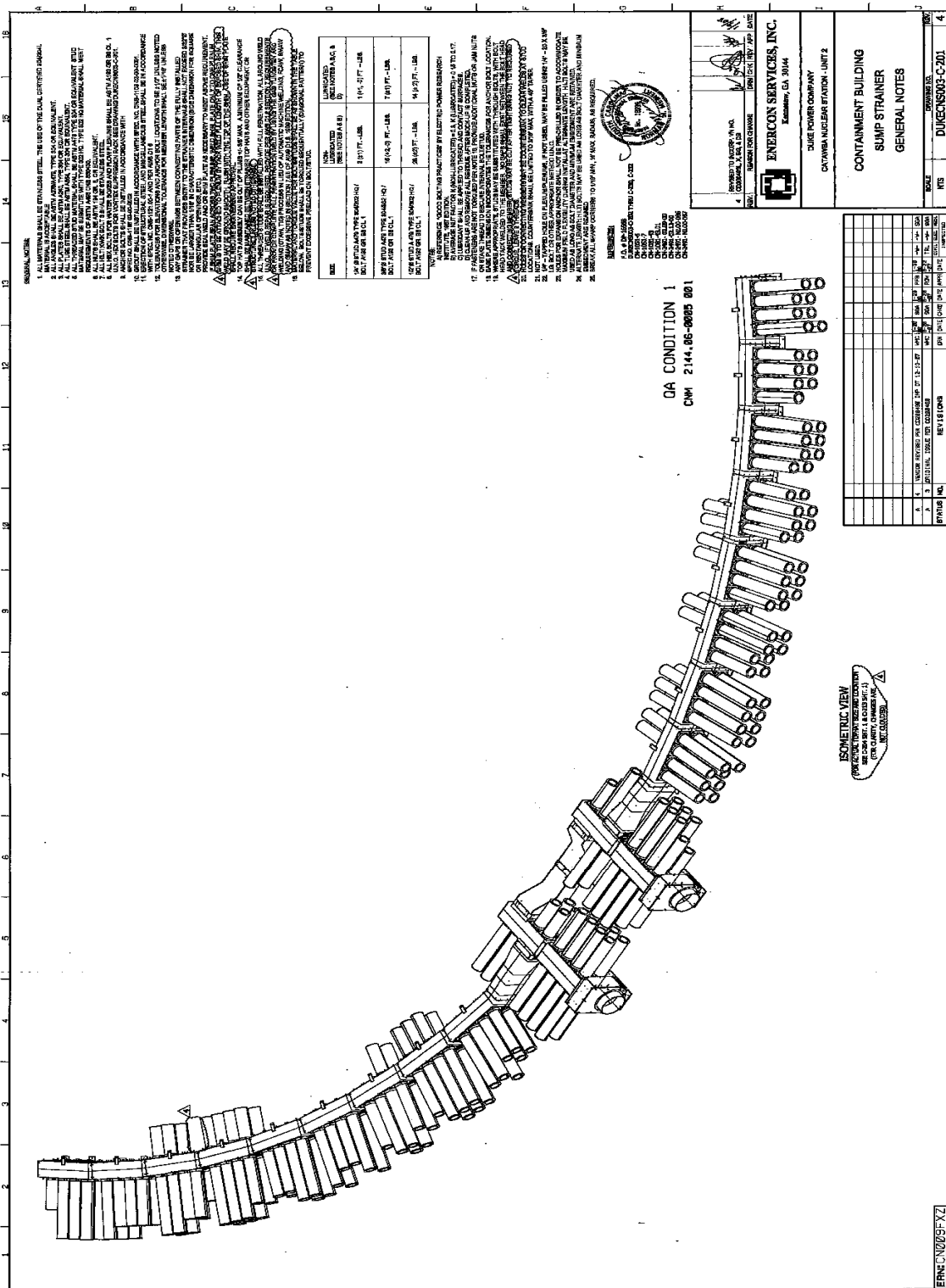
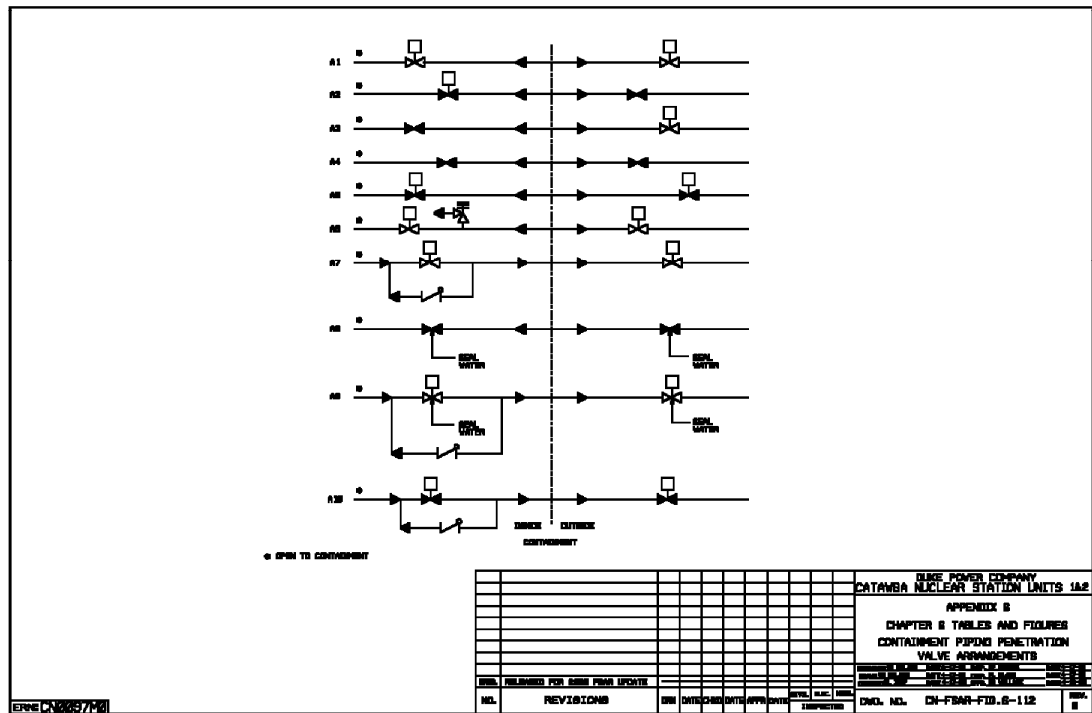


Figure 6-112. Containment Piping Penetration Valve Arrangements





(22 OCT 2001)

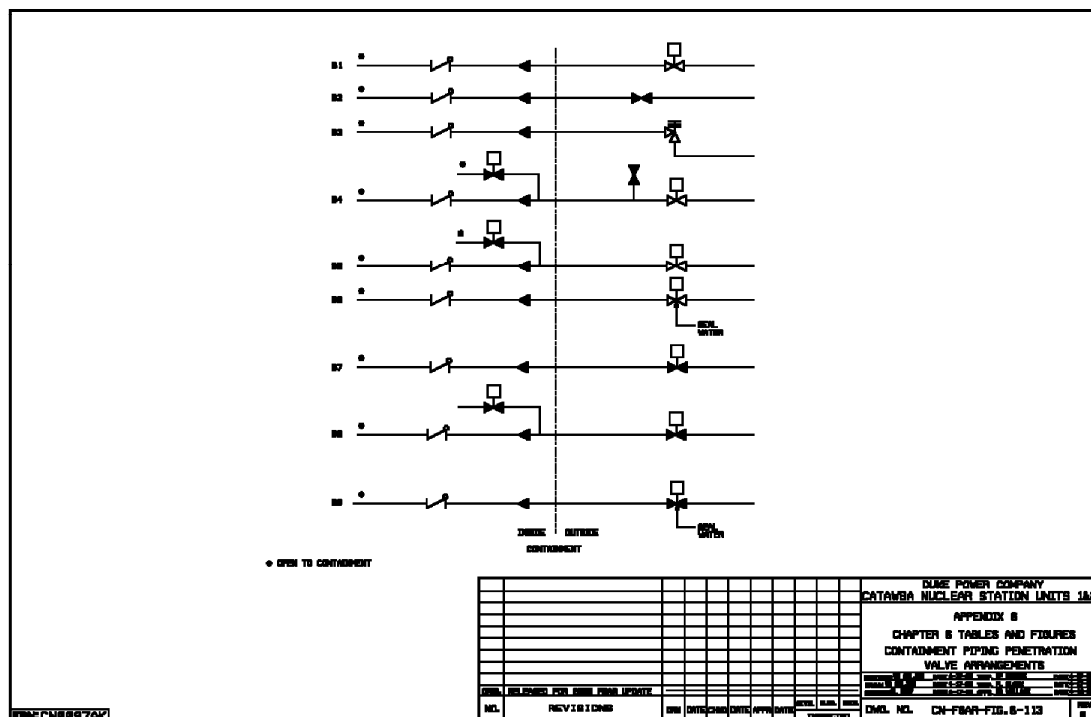
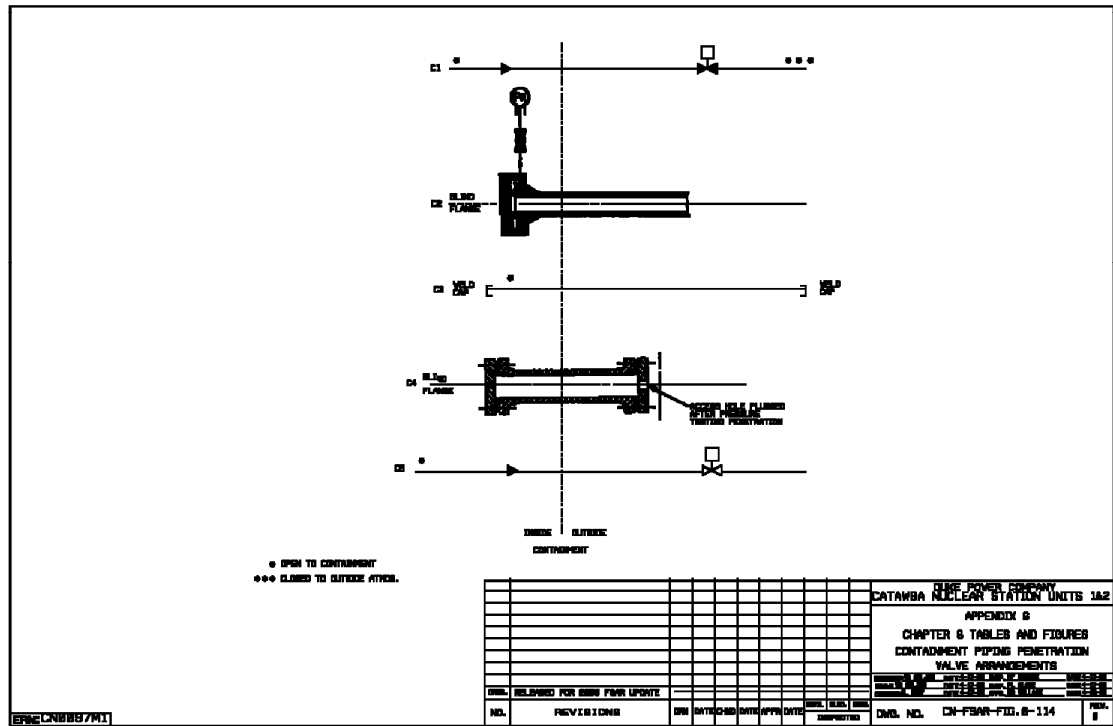


Figure 6-114. Containment Piping Penetration Valve Arrangements



■ CLOSURE TO CONTAINMENT  
● CLOSURE TO OUTSIDE ATOMS.


CONTAINMENT PIPING PENETRATION VALVE ARRANGEMENTS

CHAPTER 6 TABLES AND FIGURES

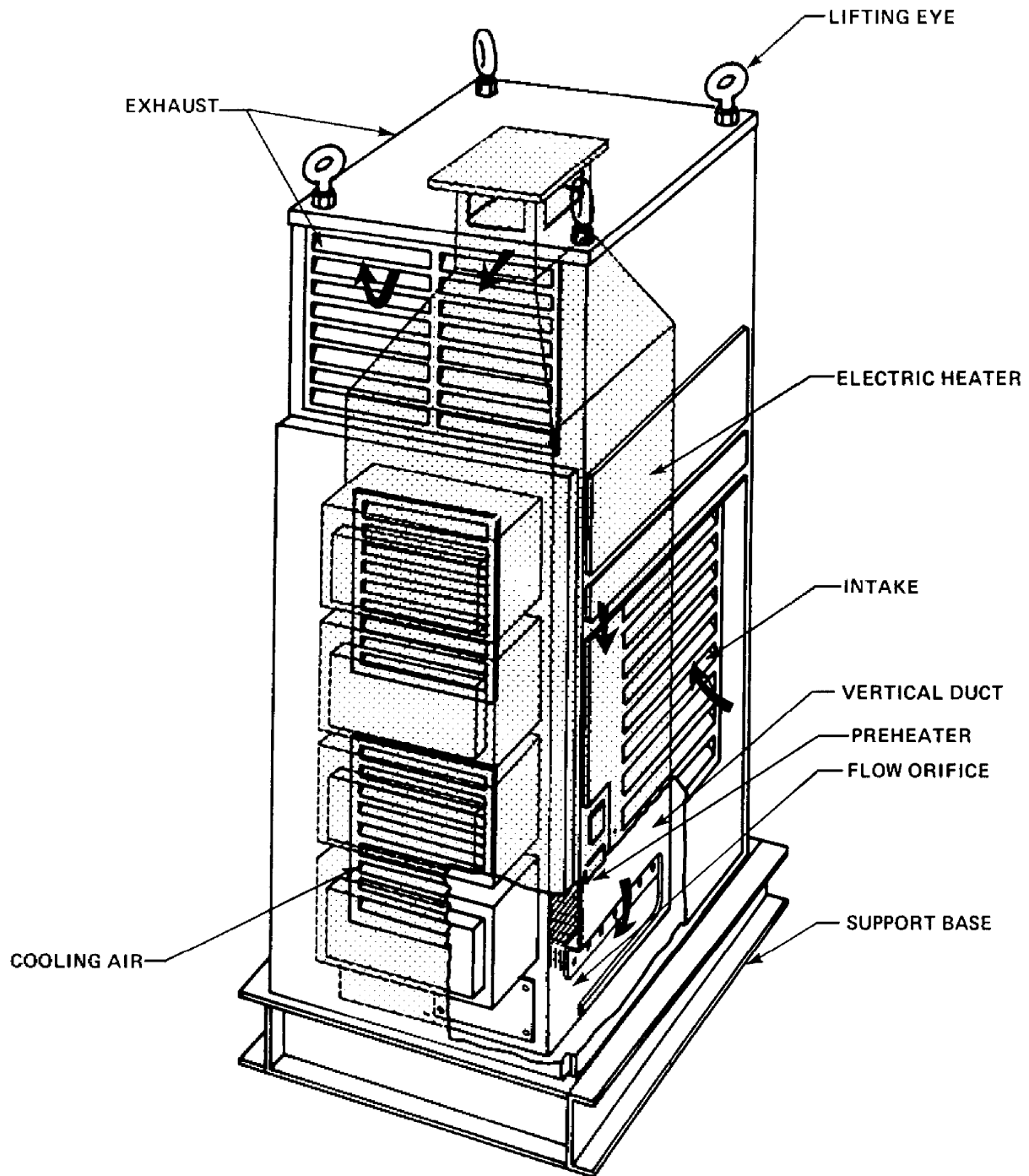


Figure 6-117. Fuel Transfer Tube

Security-Related Information, Withhold under 10 CFR 2.390

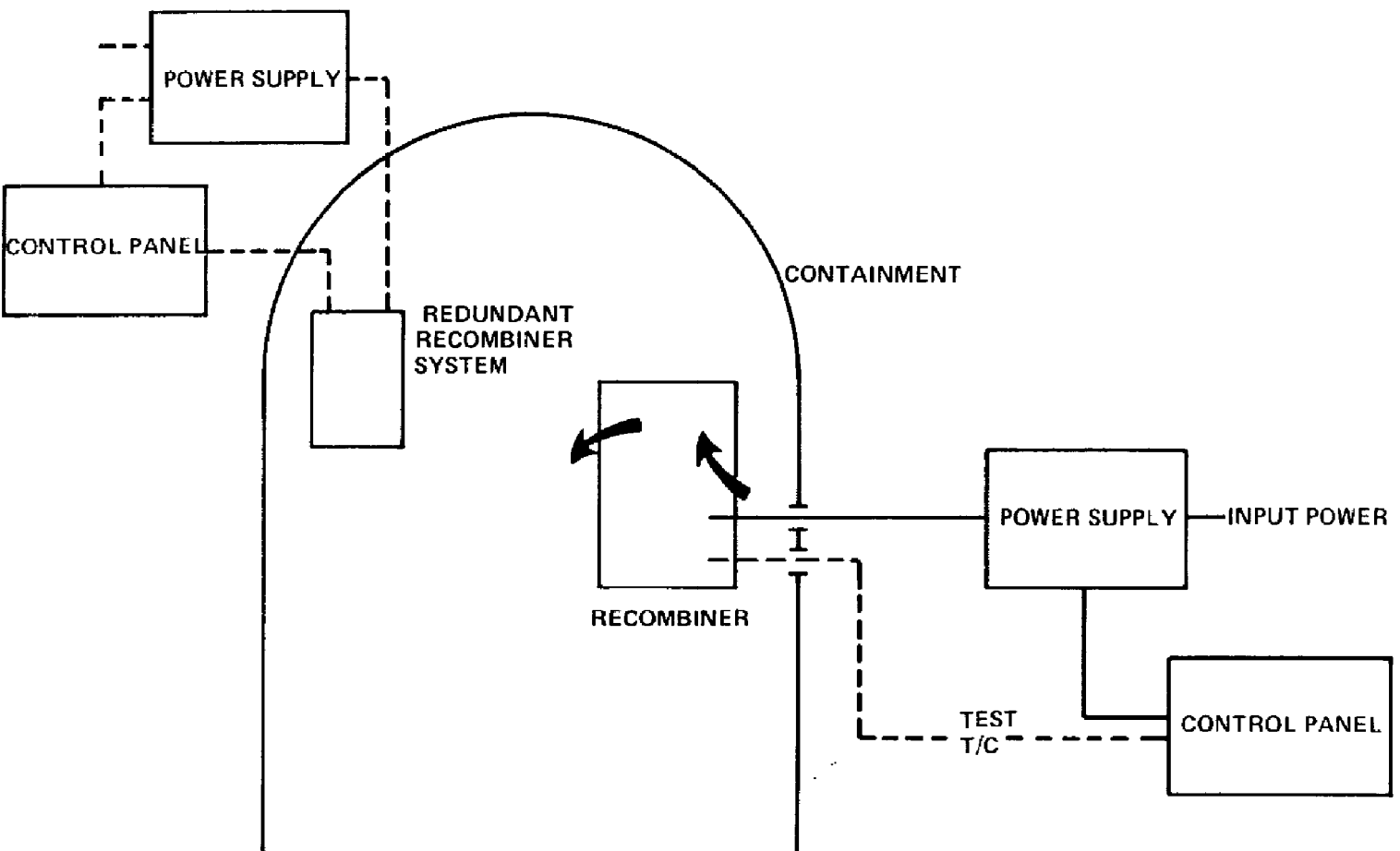


**Figure 6-118. Model B Electric Hydrogen Recombiner-Cutaway**  
Historical information not required to be revised.



(24 APR 2006)

Figure 6-119. Recombiner Control System Schematic  
Historical information not required to be revised.







**Figure 6-121. Deleted Per 1991 Update**

**Figure 6-122. Deleted Per 1991 Update**

**Figure 6-123. Deleted Per 1991 Update**

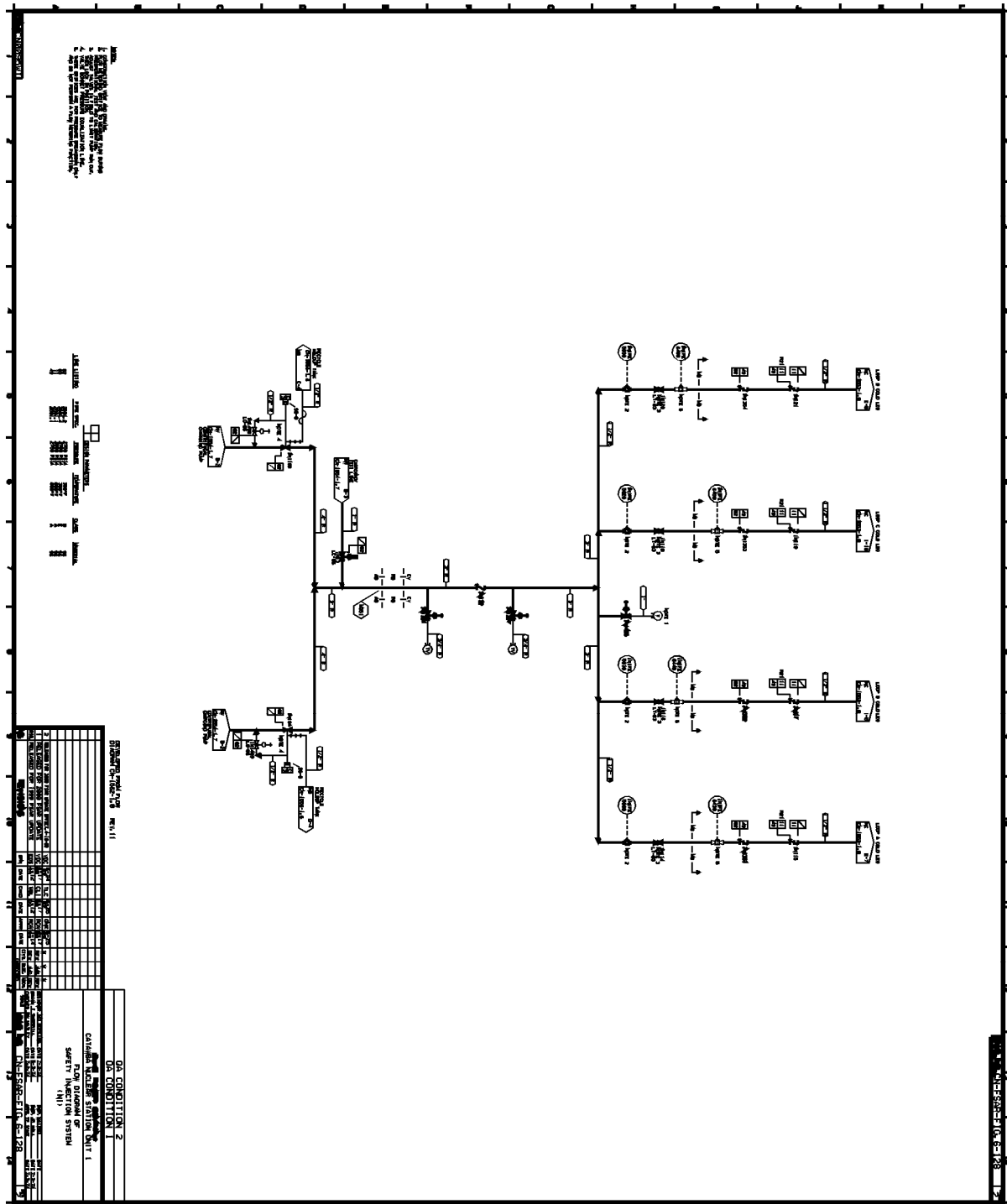
**Figure 6-124. Deleted Per 2004 Update**

**Figure 6-125. Deleted Per 2006 Update**

**Figure 6-126. Deleted Per 2006 Update**

**Figure 6-127. Deleted Per 2003 Update**

Figure 6-128. Flow Diagram of Safety Injection System



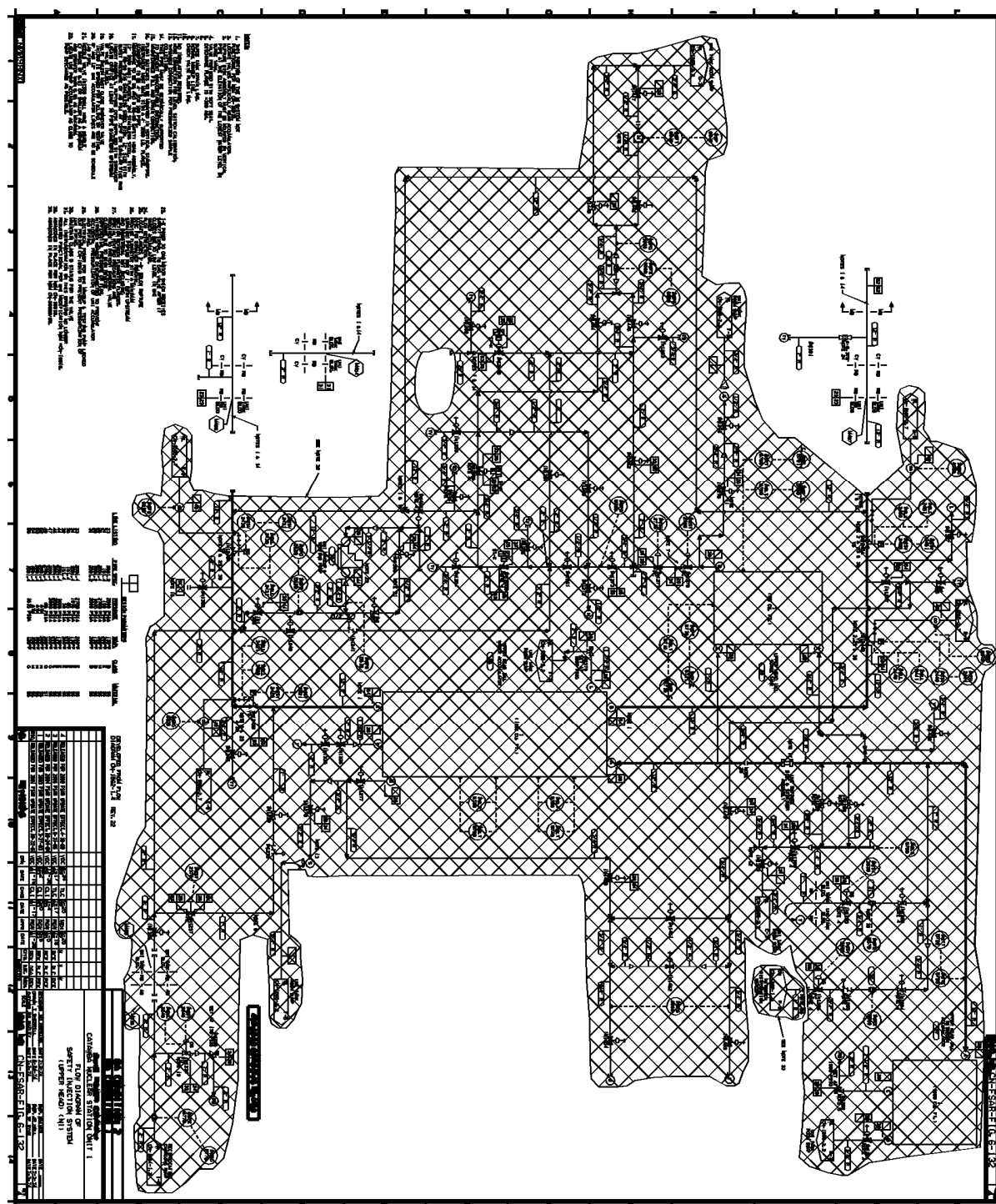
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**REVISIONS**

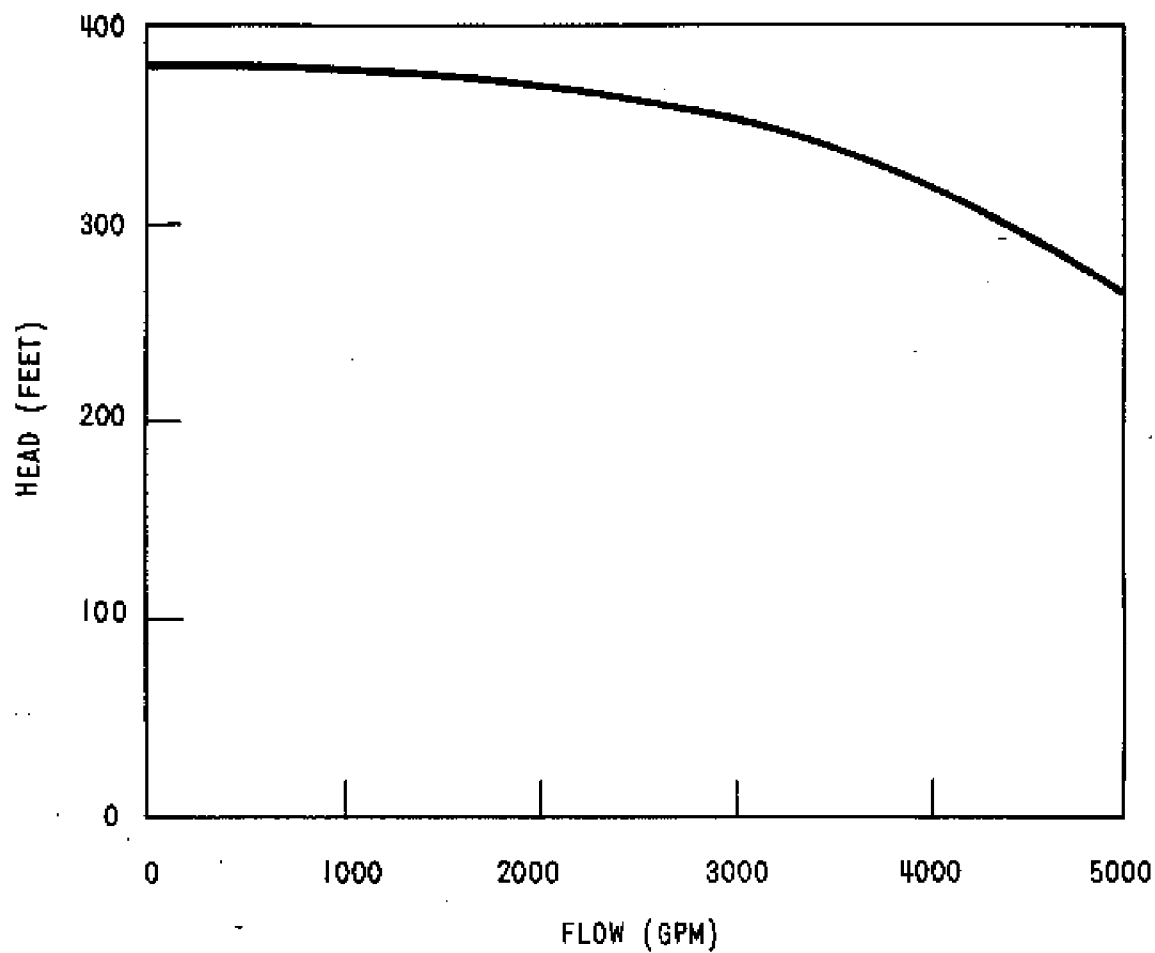
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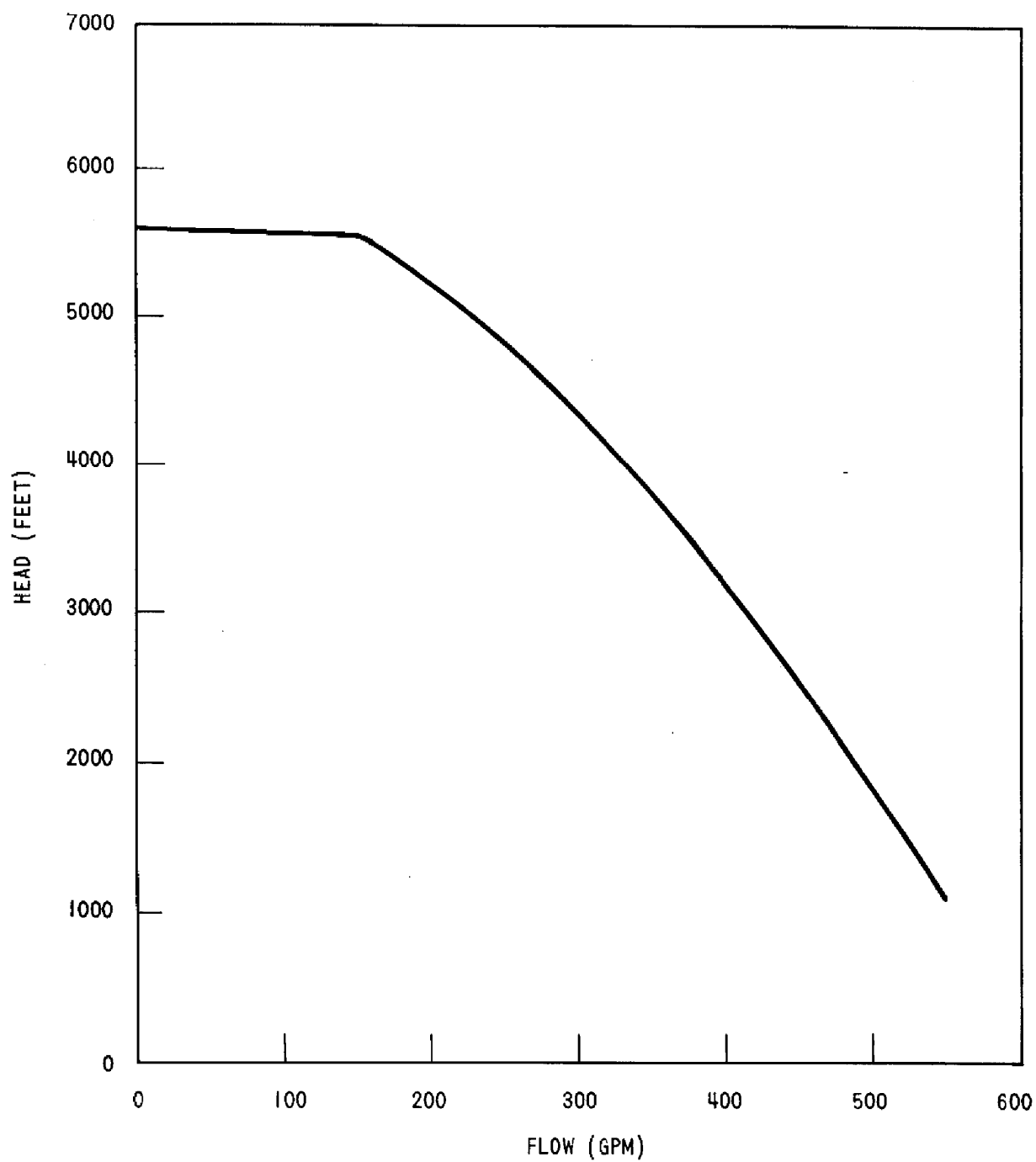
Figure 6-132. Safety Injection System



(18 APR 2009)

Figure 6-133. Residual Heat Removal Performance Curve

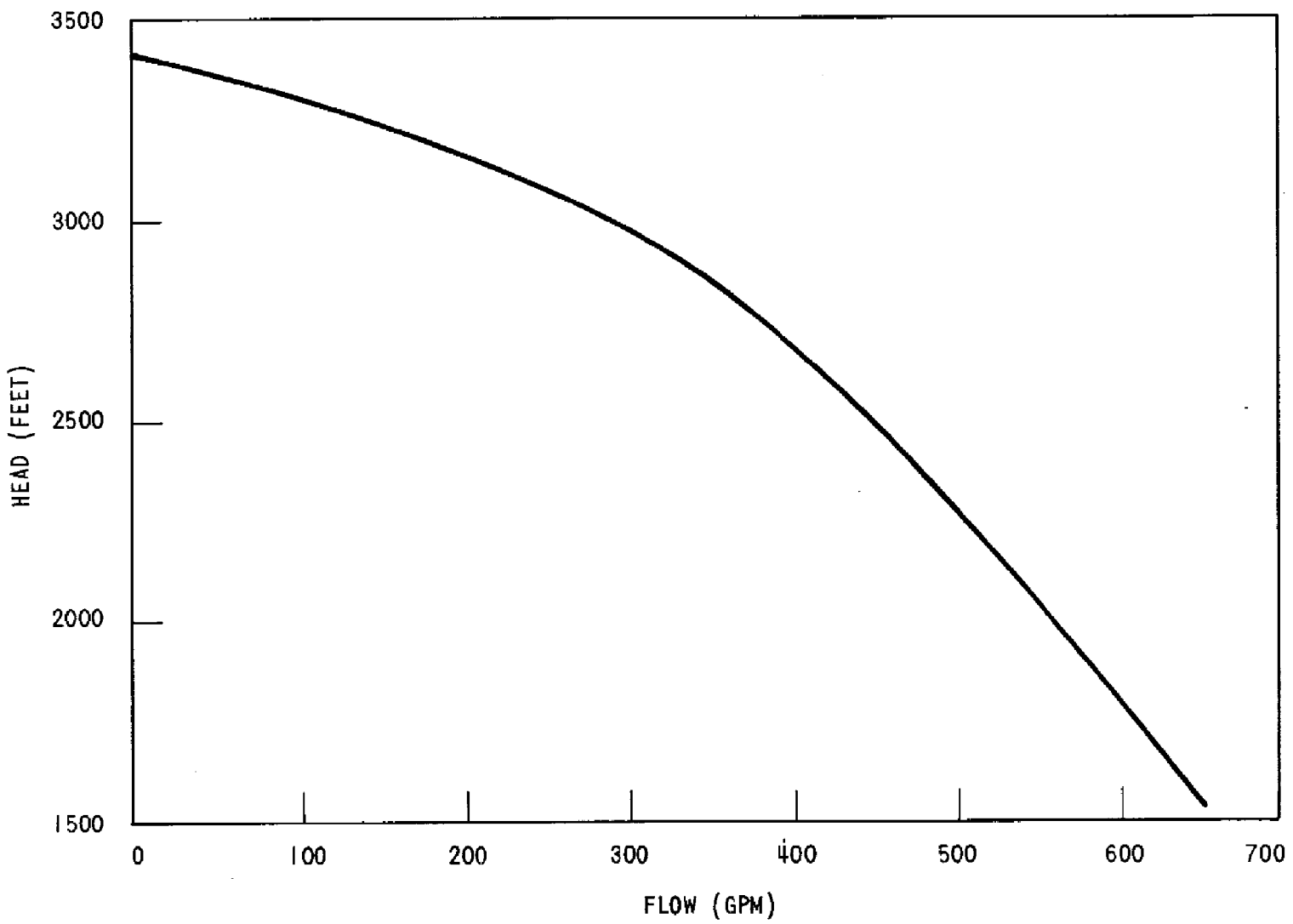


**Figure 6-134. Centrifugal Charging Pump Performance Curve**

(22 OCT 2001)

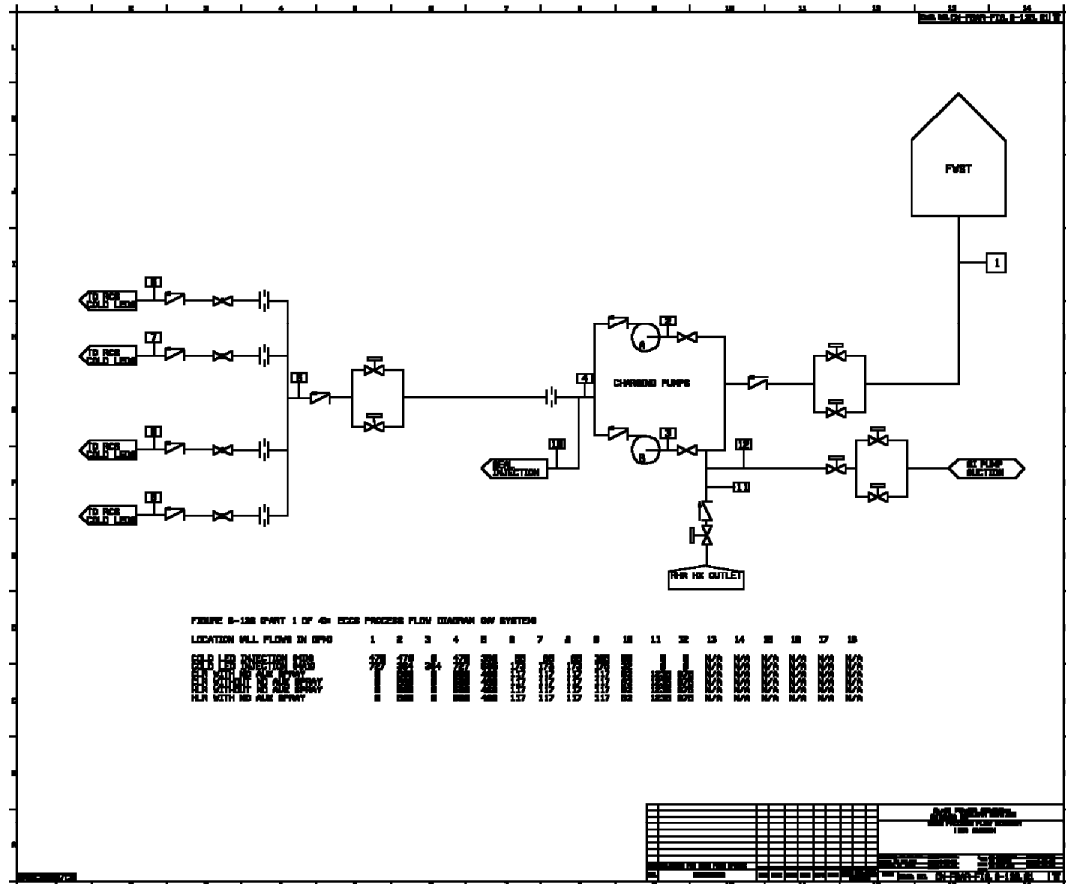


Figure 6-135. Safety Injection Pump Performance Curve



(22 OCT 2001)

Figure 6-136. Safety Injection/Residual Heat Removal System Process Flow Diagram







**NOTES TO Figure 6-136**  
**ECCS Process Flow Diagram (Notes)**

1. The cold leg injection mode of operation assumes single train ECCS operation at minimum safeguards conditions, and two train ECCS operation at maximum safeguards conditions. Minimum injection flow rates are representative of three NV/NI lines at the minimum of the flow balance TAC windows and the single NV/NI line (attached to a broken loop) at the maximum of the flow balance TAC windows. Maximum injection flow rates are representative of all NV/NI lines at the maximum of the flow balance TAC windows.
2. Maximum water temperatures are 100°F (at the FWST) and 150°F (at the ND HX outlet) for injection and recirculation modes, respectively. Reference RCS pressure for all ECCS modes is 0 psig.
3. For minimum cold leg injection and recirculation conditions, seal injection flow rates are maximum values, thereby reducing the cold leg injection flow. For maximum cold leg injection conditions, the seal injection flow rate is a conservative nominal value of 32 gpm, thereby maximizing the cold leg injection flow rates.
4. The recirculation modes of operation assume single train ECCS operation at runout conditions. Runout flow rates are 560 gpm, 675 gpm, and 4500 gpm for a single NV, NI, and ND pump, respectively. The NV and NI injection lines are assumed to be balanced at their maximum flow balance TAC values. ND injection lines are not required to be balanced, but are assumed to be balanced equally for illustrative purposes of this diagram. The same is true for NI hot leg injection lines.
5. All flow rates are either taken directly, or indirectly determined from calculation file DPC-1552.08-00-0109, Safety Injection Flows for Safety Analysis.

**Figure 6-137. Ice Condenser**

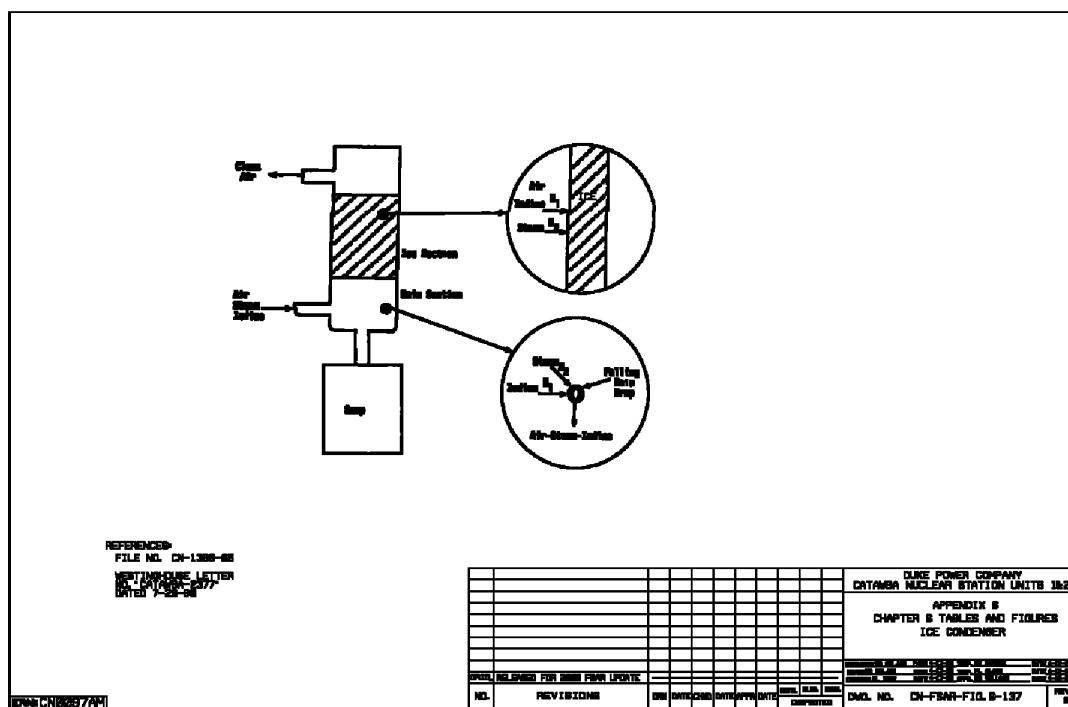


Figure 6-138. Isometric of Ice Condenser

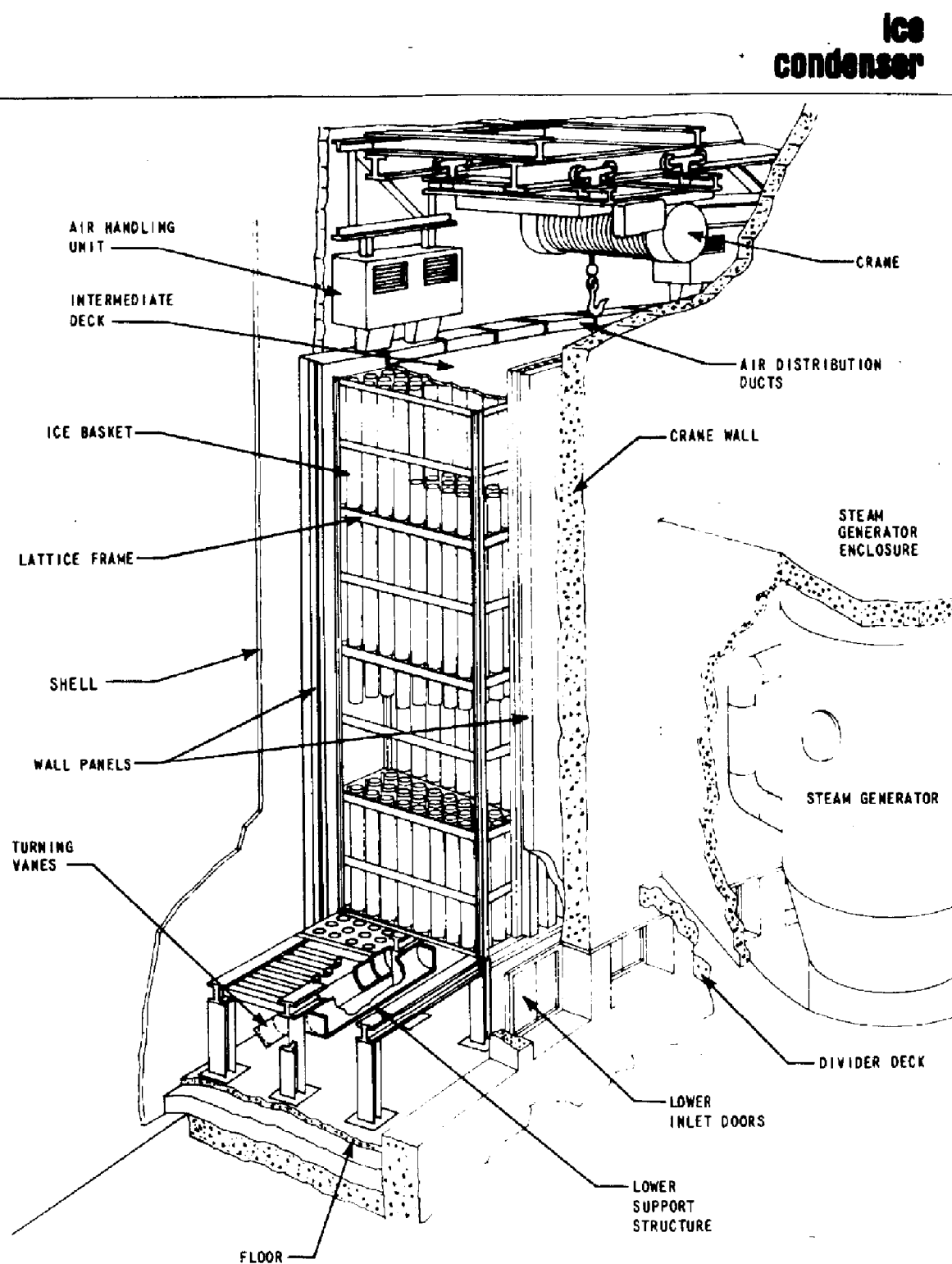


Figure 6-139. Floor Structure

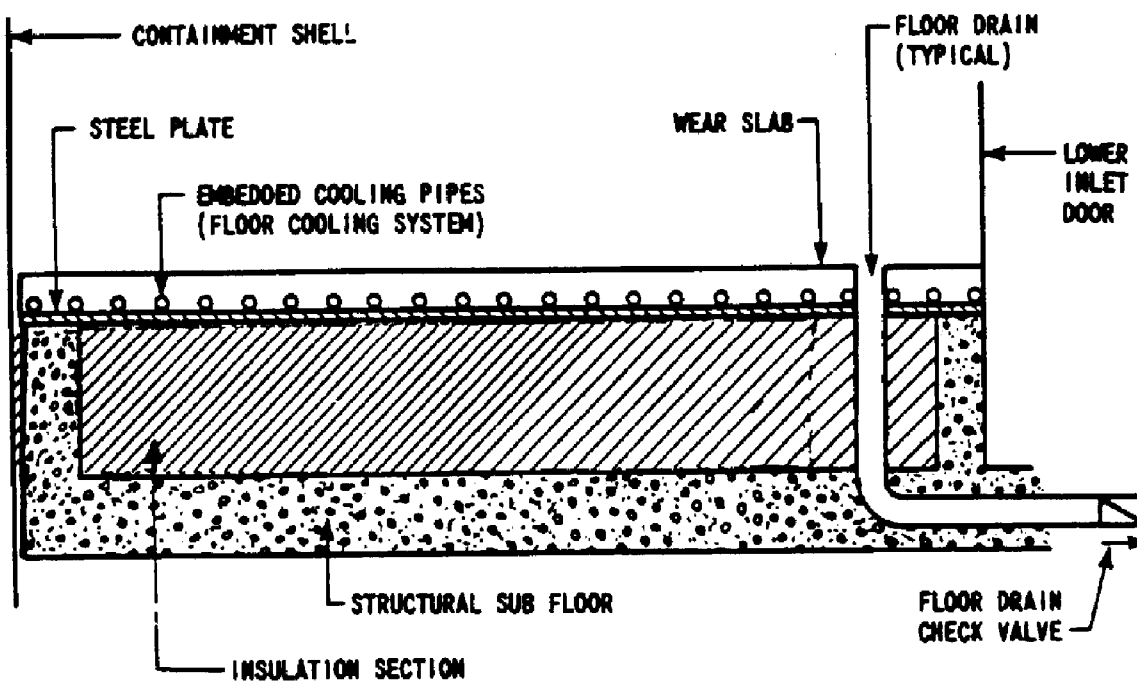




Figure 6-140. Wear Slab Top Surface Area Showing Typical Coolant Piping Layout

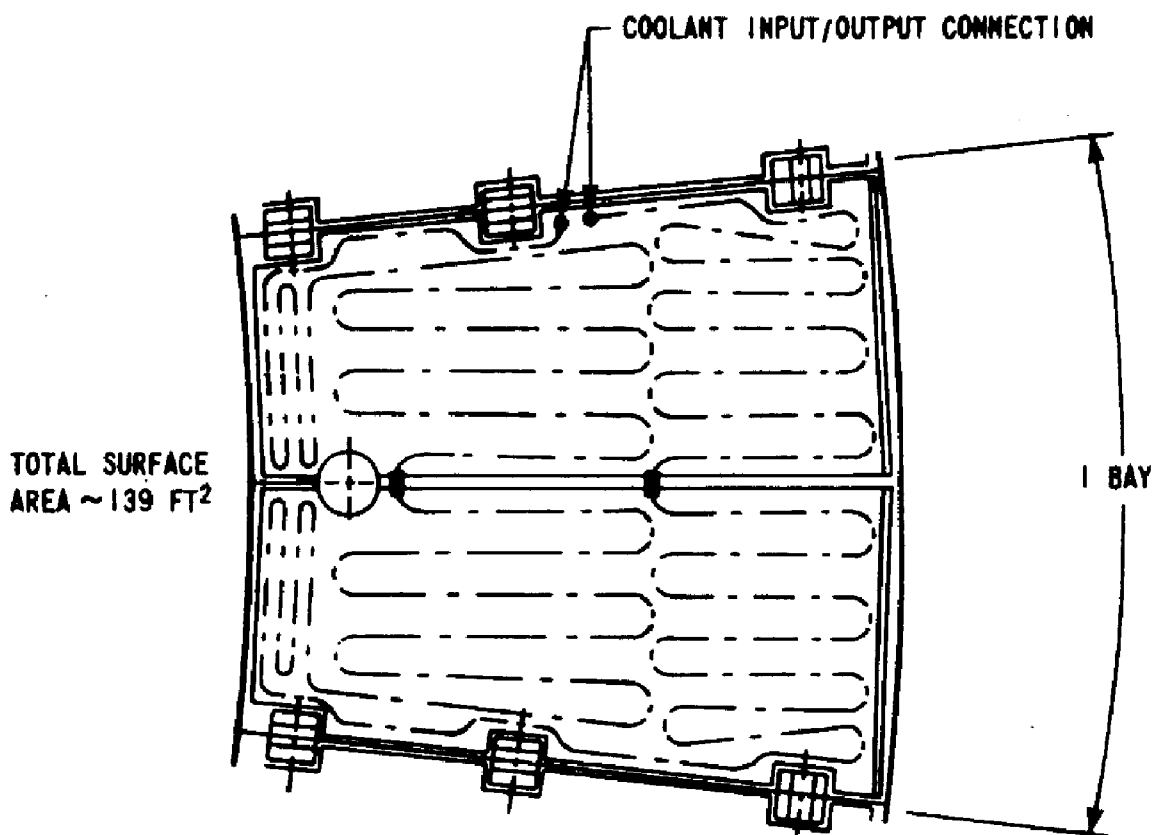
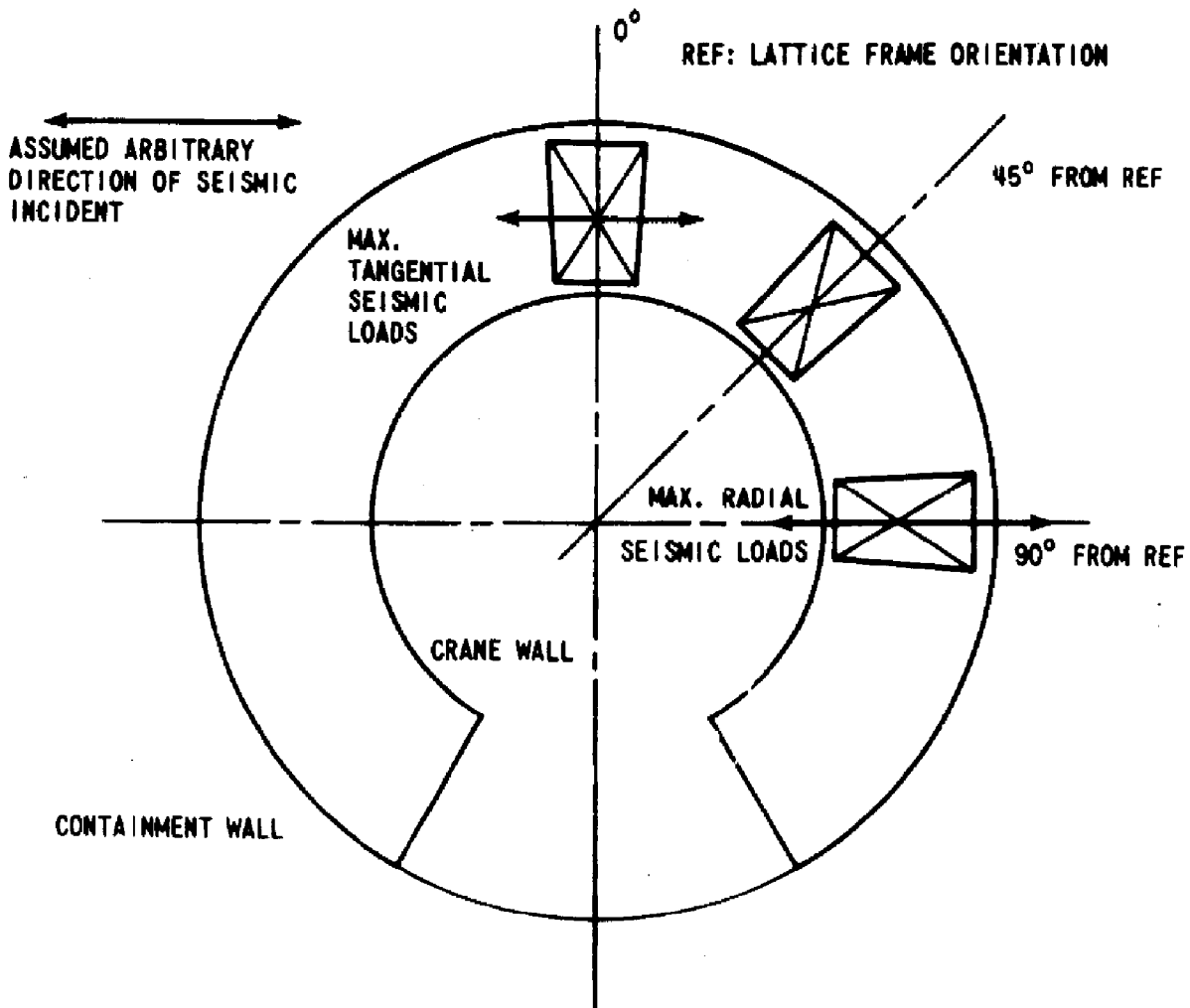


Figure 6-141. Lattice Frame Orientation

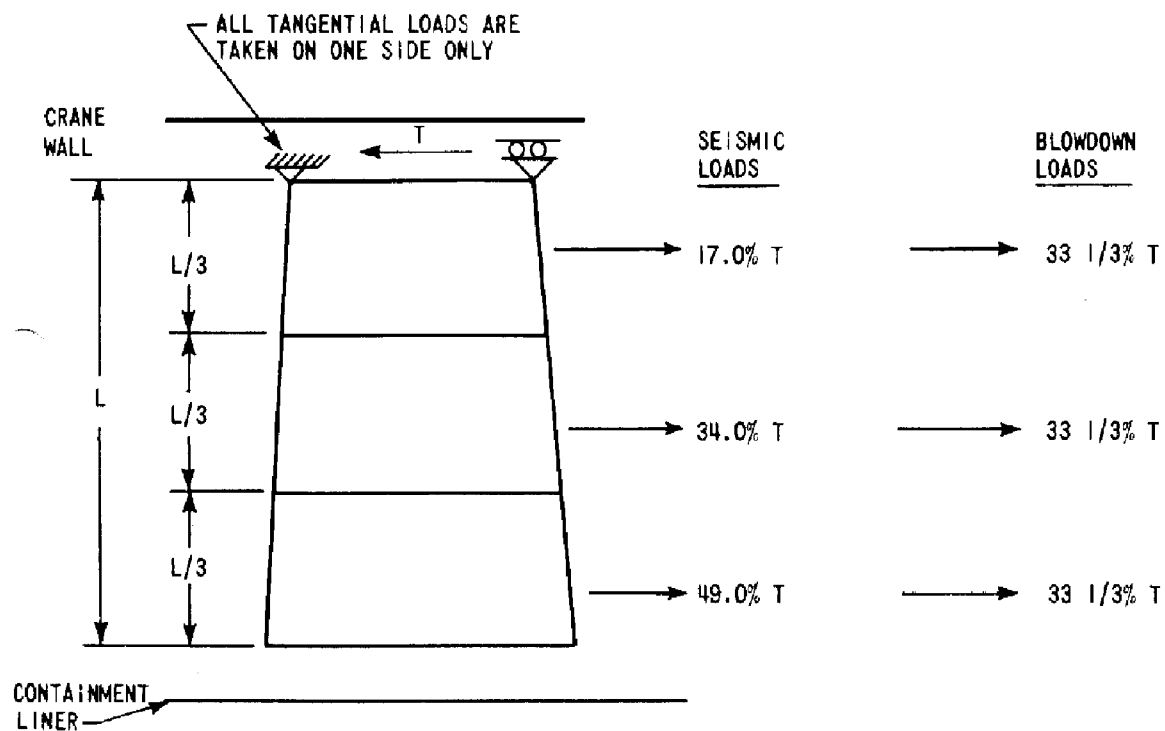


## NOTES:

1. MAXIMUM TANGENTIAL AND RADIAL SEISMIC LOADS CANNOT OCCUR SIMULTANEOUSLY.
2. TANGENTIAL AND RADIAL SEISMIC LOADS 45 DEGREES FROM THE REFERENCE DIRECTION OF SEISMIC INPUT OCCUR SIMULTANEOUSLY AND THE MAGNITUDE IS THE AVERAGE OF MAXIMUM RADIAL AND MAXIMUM TANGENTIAL TIMES THE COSINE OF  $45^\circ$ , OR  $\left( \frac{\text{RADIAL} + \text{TANGENTIAL}}{2} \right) .707$ .
3. HORIZONTAL AND VERTICAL SEISMIC LOADS CAN OCCUR HORIZONTALLY.
4. BLOWDOWN LOADS, TANGENTIAL, RADIAL AND VERTICAL CAN OCCUR SIMULTANEOUSLY. RADIAL BLOWDOWN LOADS ALWAYS OCCUR IN THE DIRECTION OF THE CONTAINMENT WALL.

\* In an individual lattice frame.

Figure 6-142. Load Distribution For Tangential Seismic And Blowdown Loads In Analytical Model



(



Figure 6-144. Lattice Frame Analysis Model

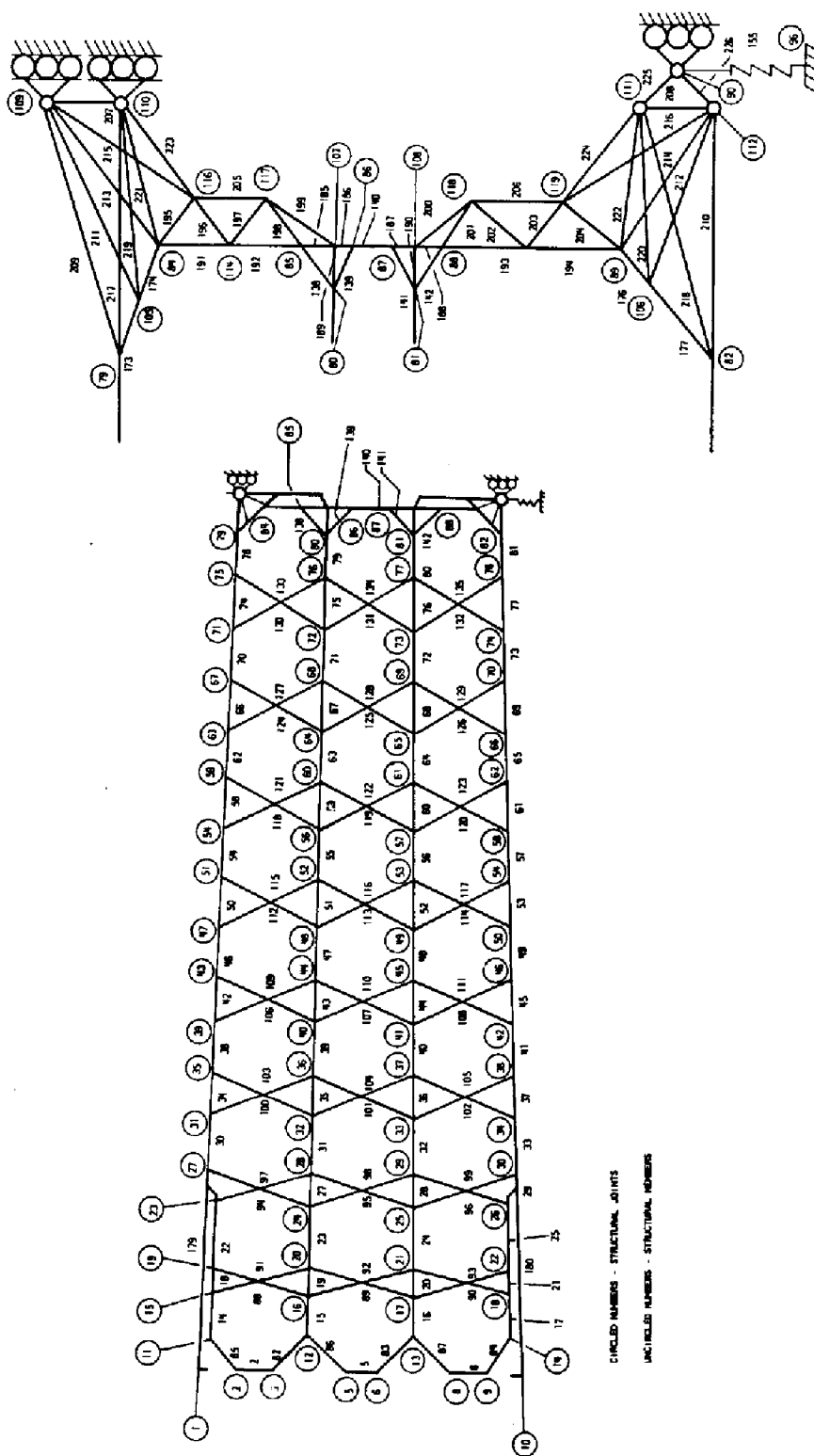
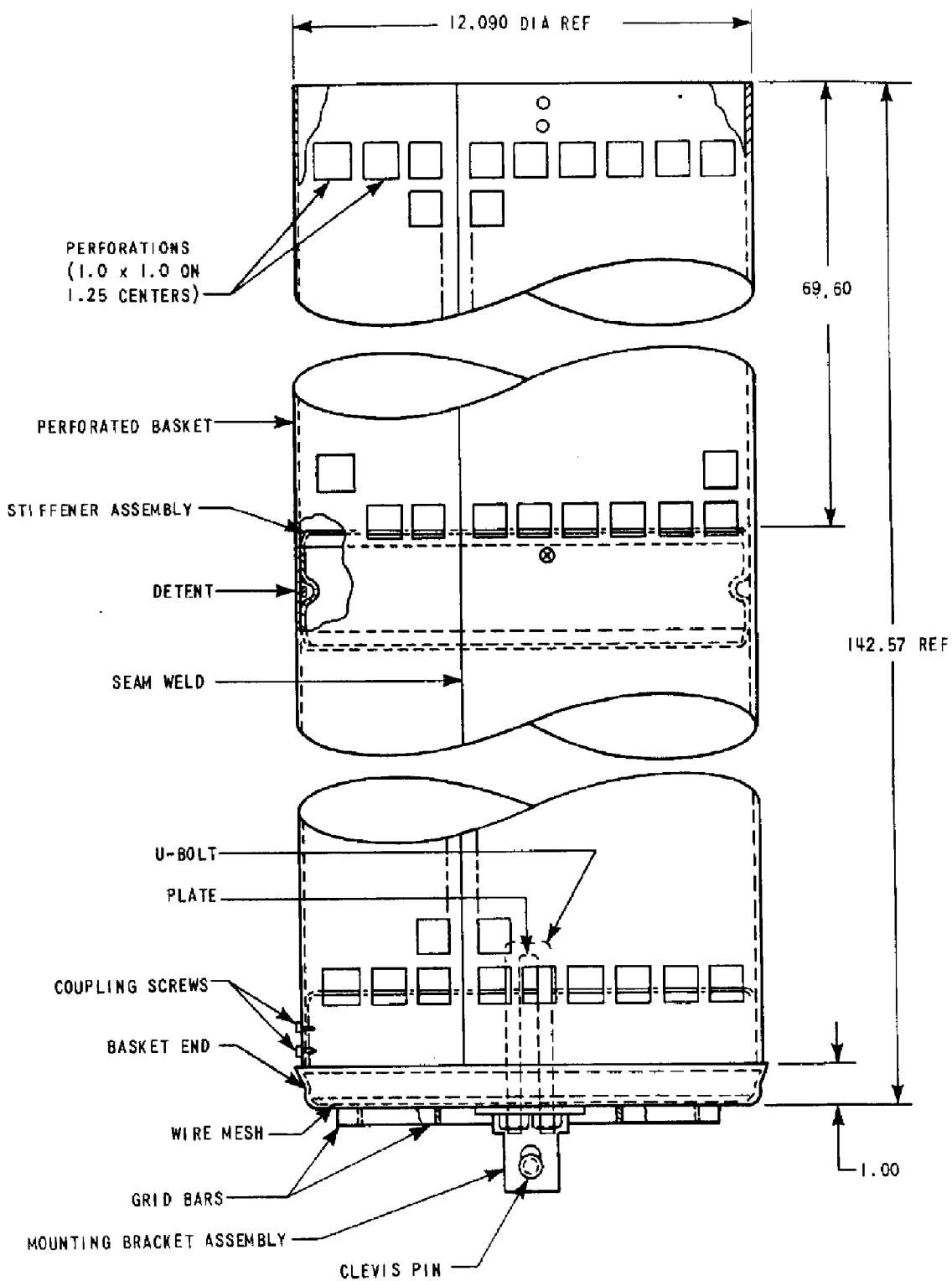
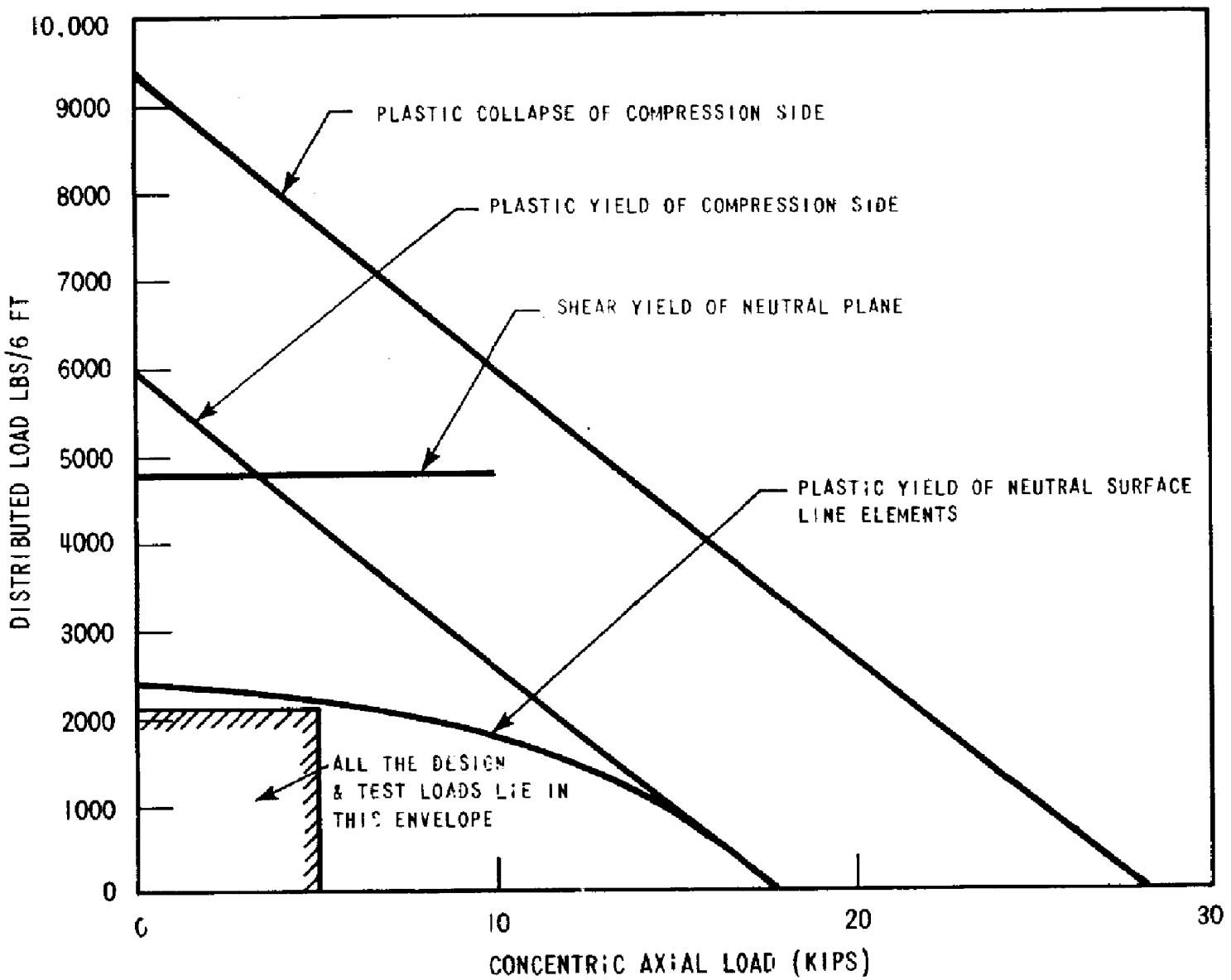


Figure 6-145. Typical Bottom Ice Basket Assembly



(22 OCT 2001)

Figure 6-146. Combinations of Concentric Axial Load and Distribution Load



**Figure 6-147. Crane Assembly**

Security-Related Information, Withhold under 10 CFR 2.390

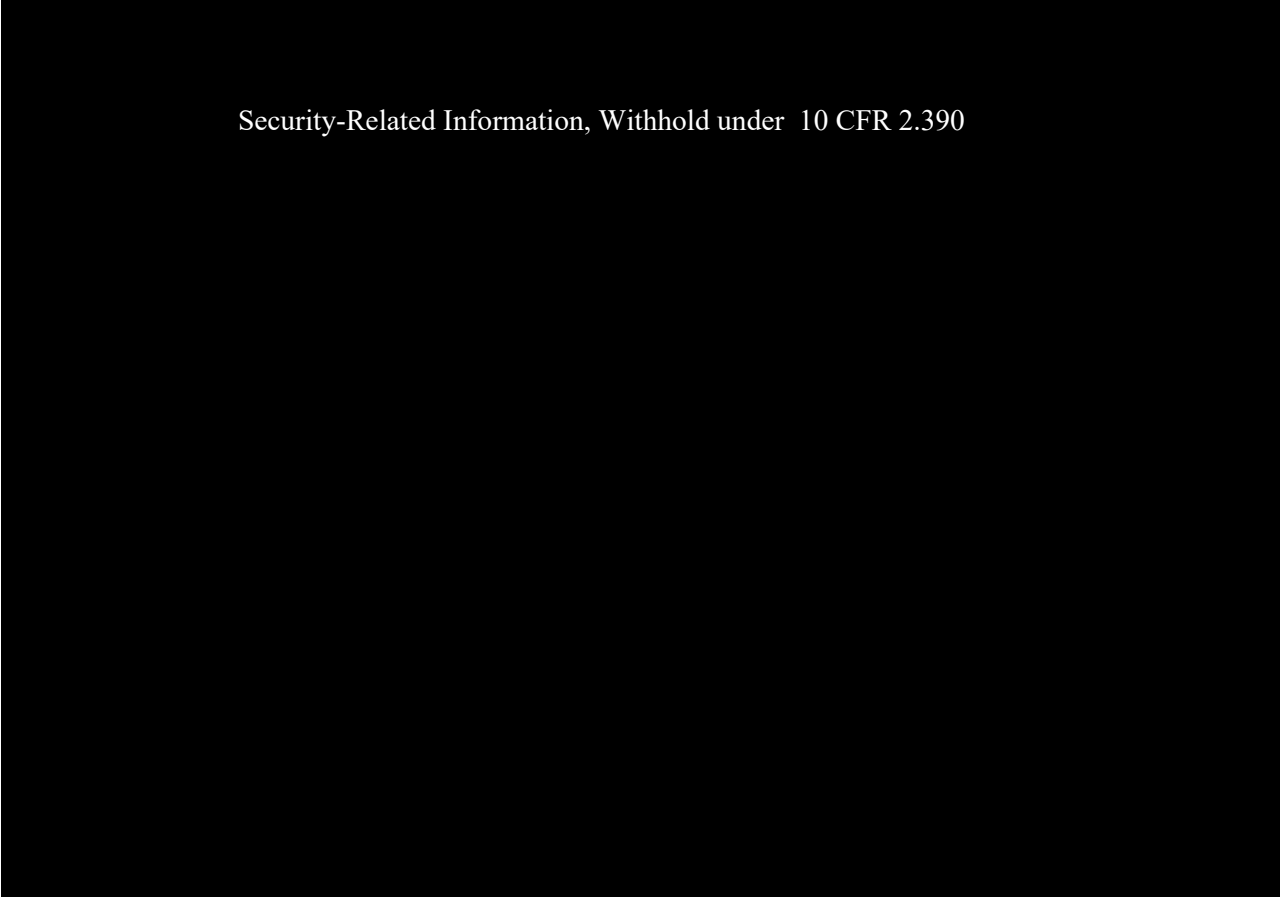
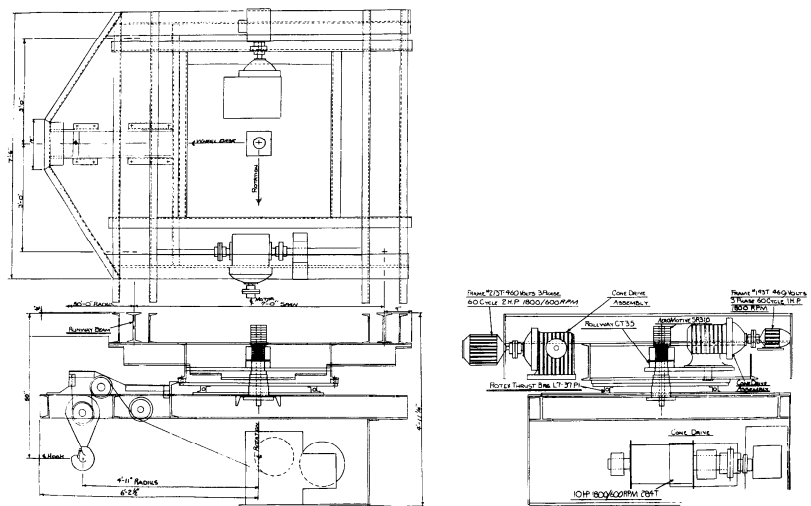




Figure 6-148. Crane Rail Assembly



CRANE RAIL ASSEMBLY  
CATAWBA NUCLEAR STATION  
Figure 6.7.5-2

Figure 6-149. Refrigerant Cycle Diagram

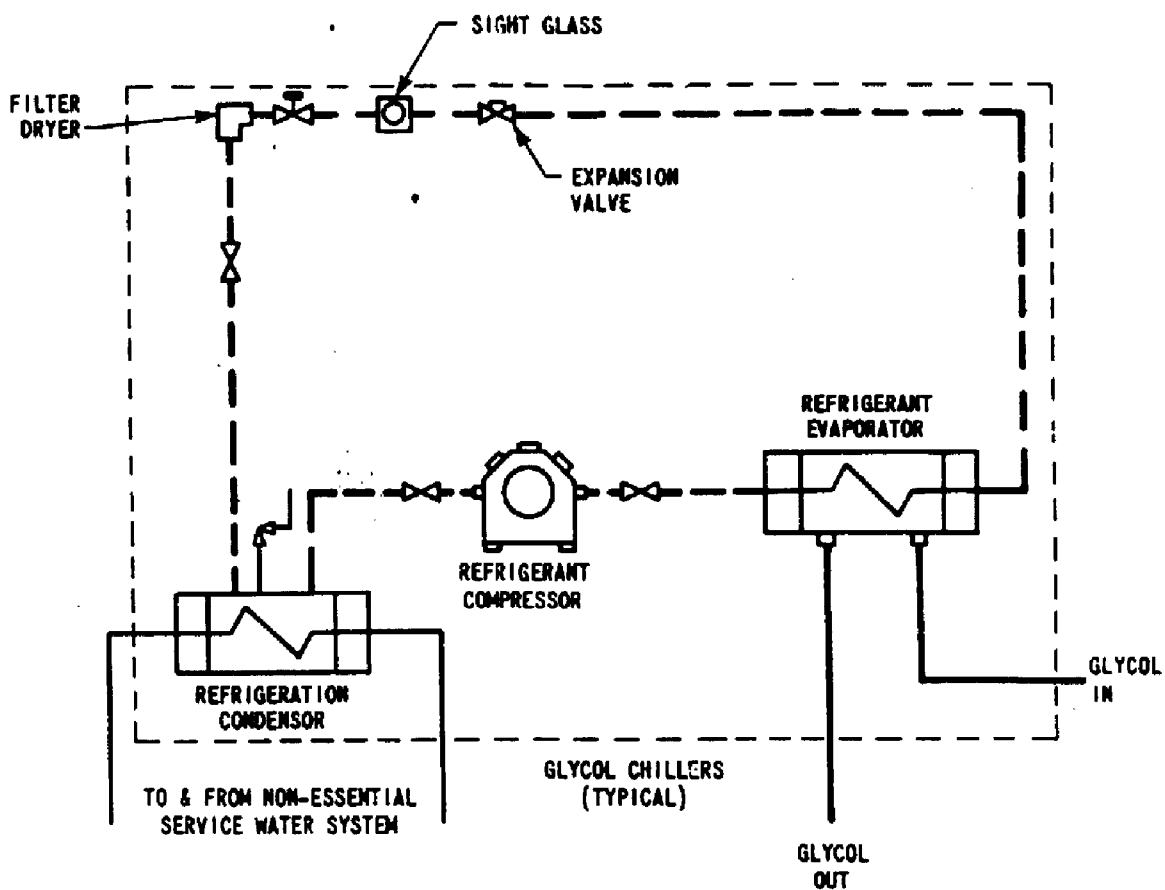


Figure 6-150. Glycol Cycle to Each Containment

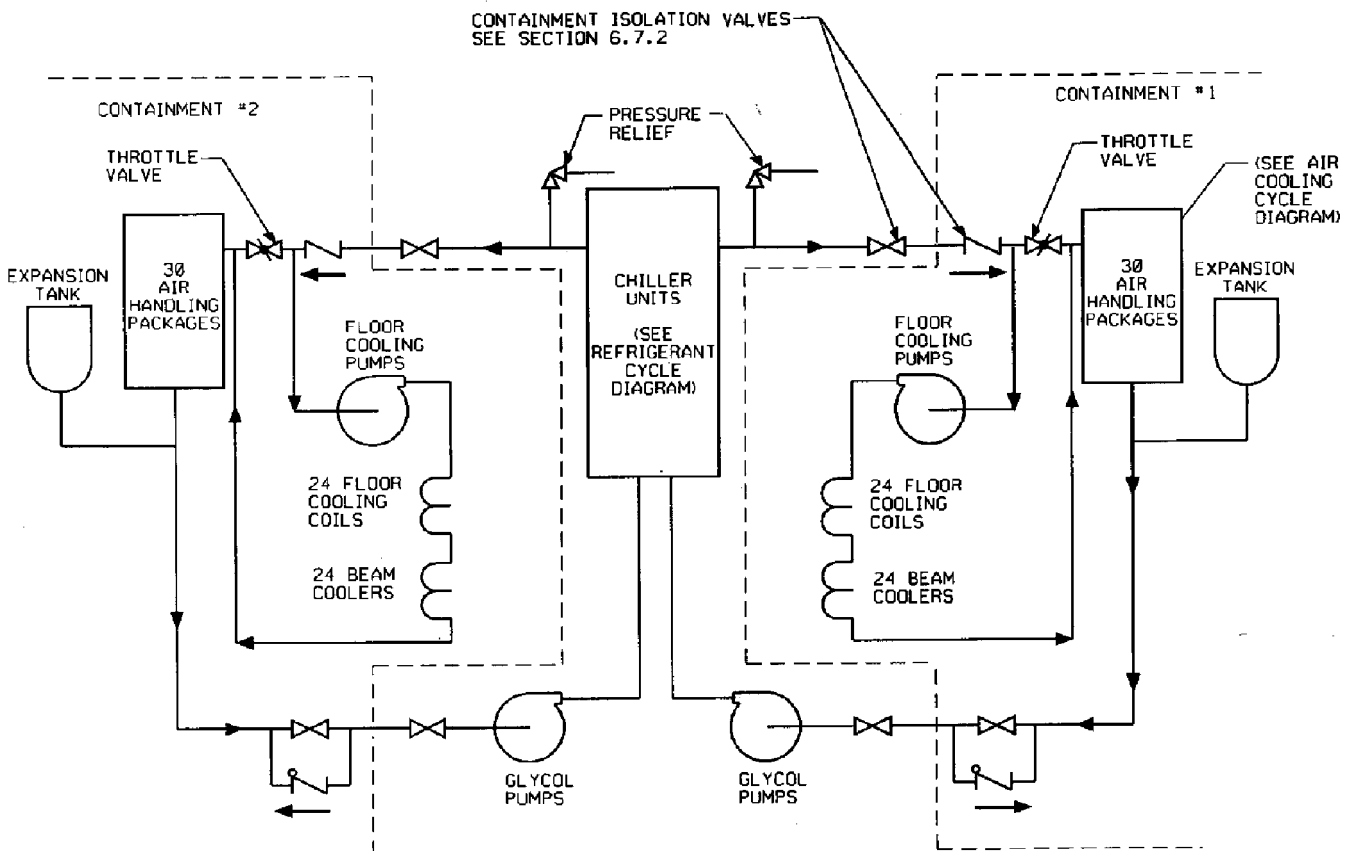


Figure 6-151. Schematic Flow Diagrams of Air Cooling Cycle

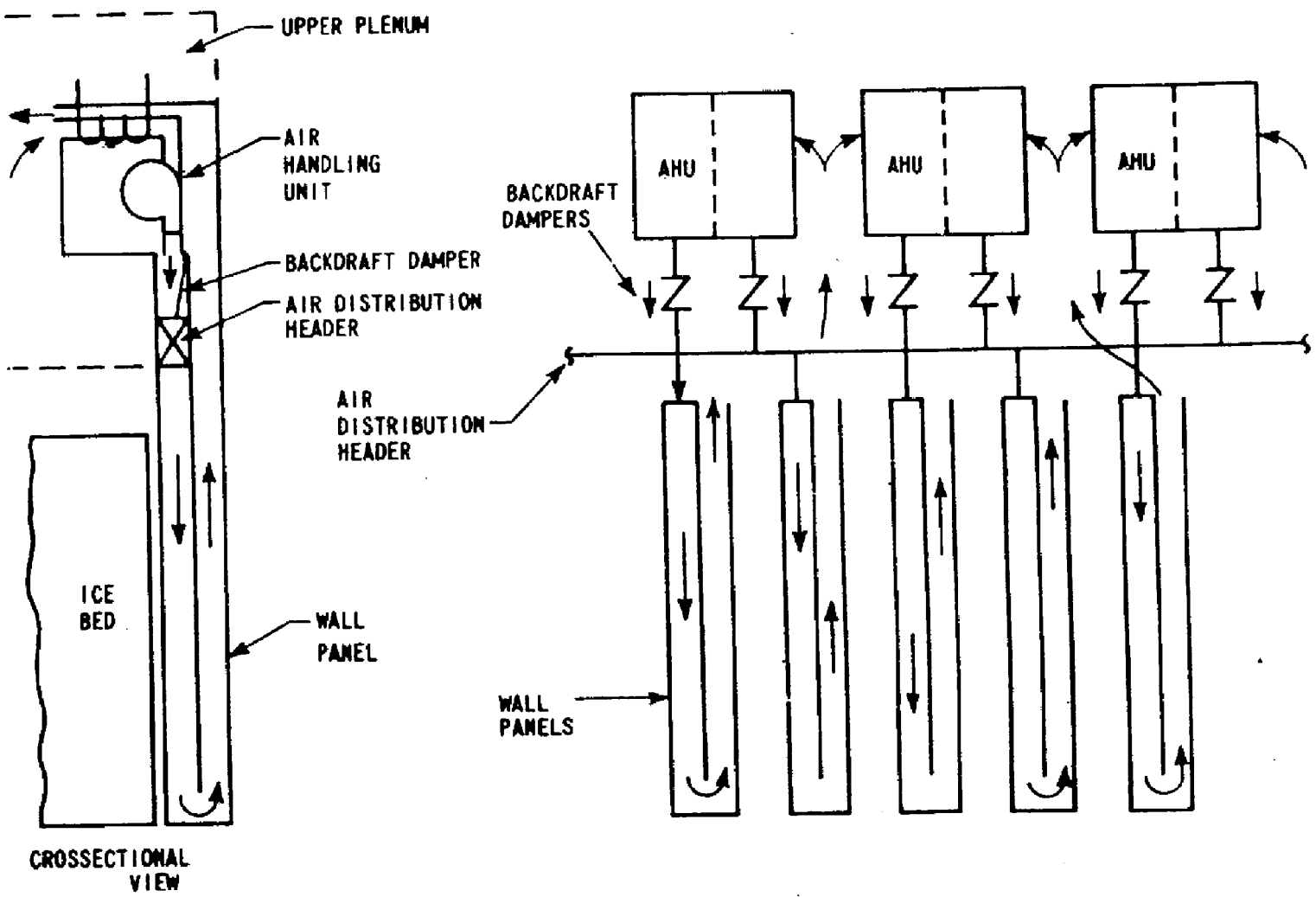
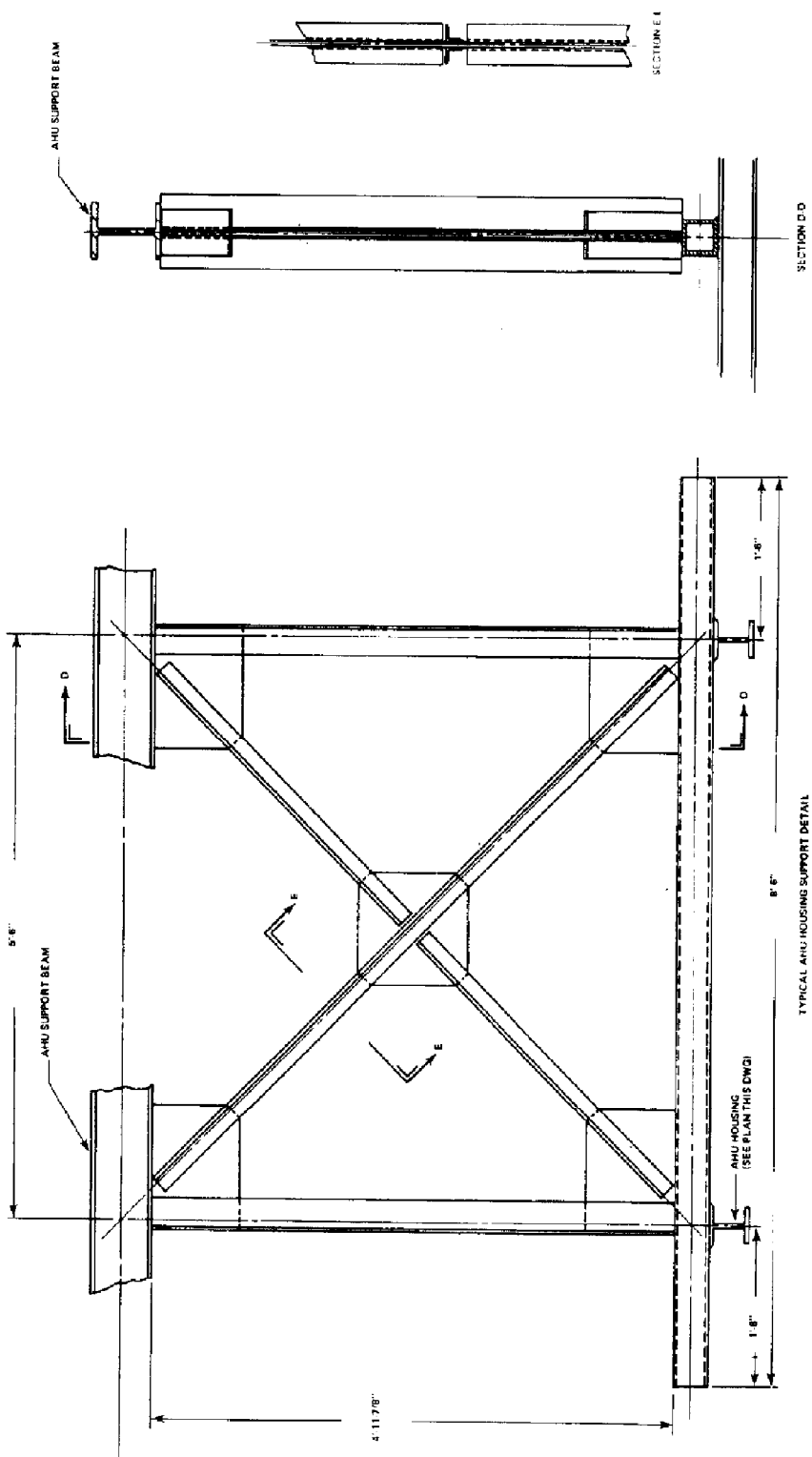
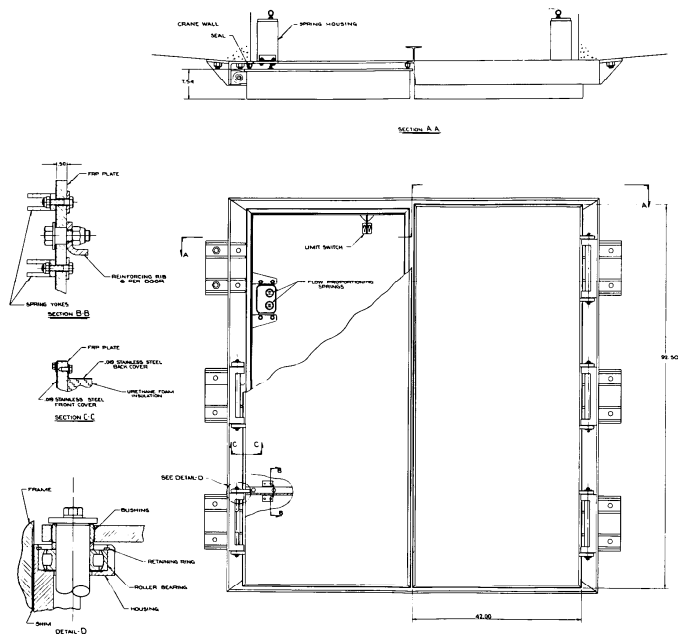


Figure 6-152. Air Handling Unit Support Structure



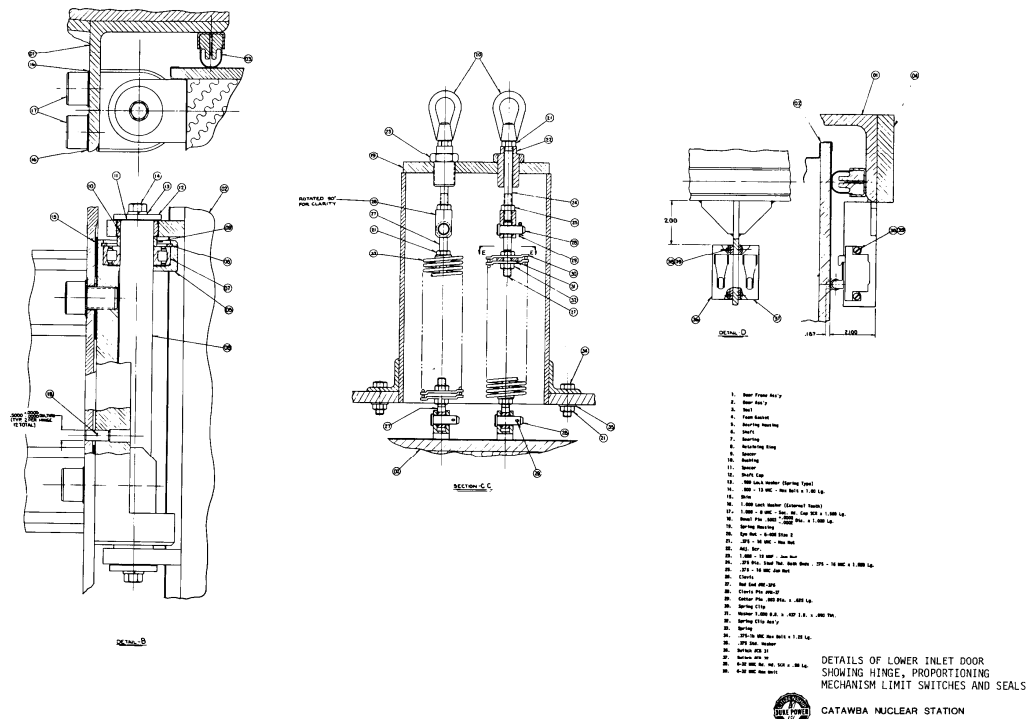
**Figure 6-153. Deleted Per 2010 Update**

Figure 6-154. Lower Inlet Door Assembly



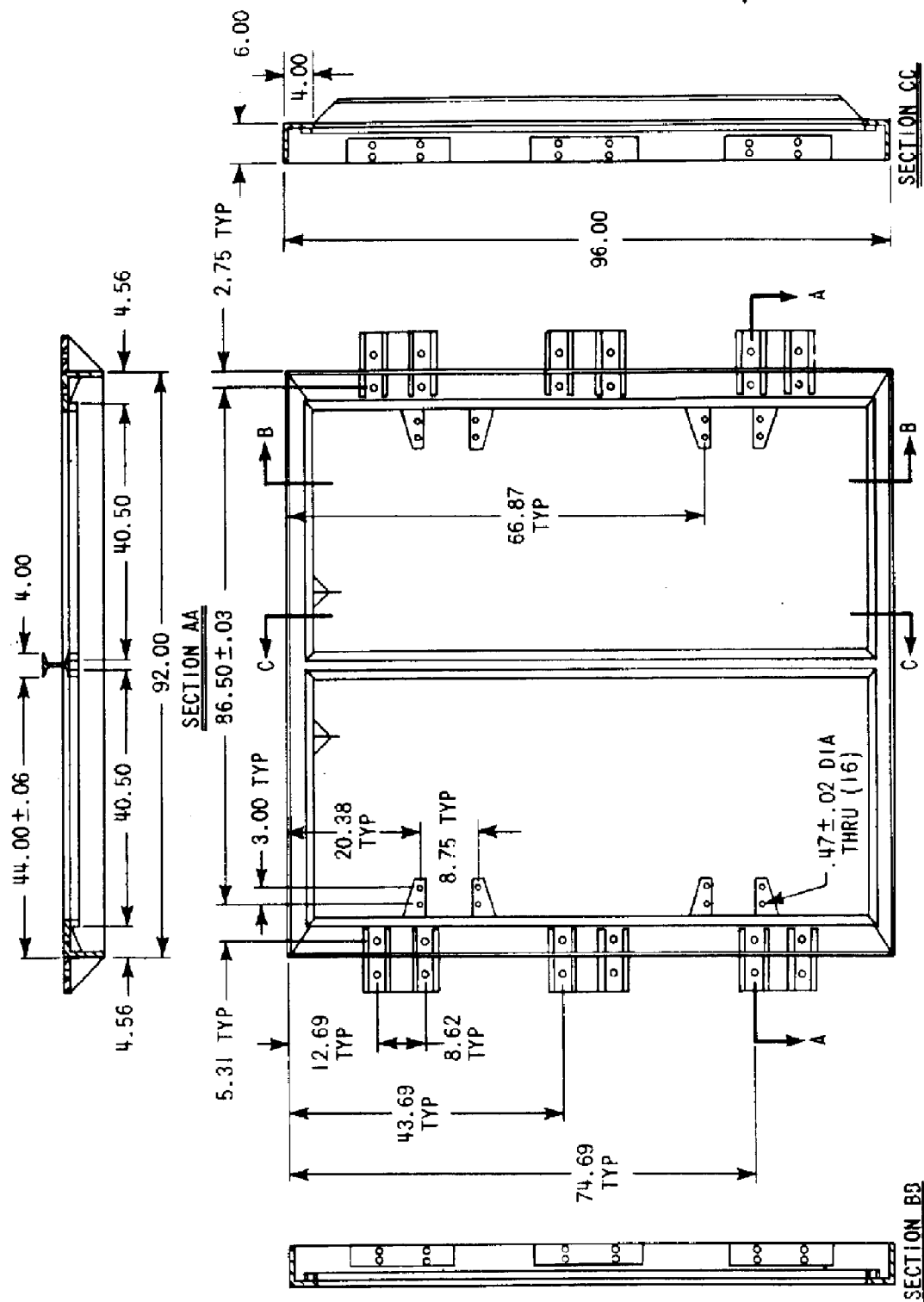
LOWER INLET DOOR ASSEMBLY  
CATAWBA NUCLEAR STATION  
Figure 6.7.8-2

**Figure 6-155. Details of Lower Inlet Door Showing Hinge, Proportioning Mechanism Limit Switches and Seals**



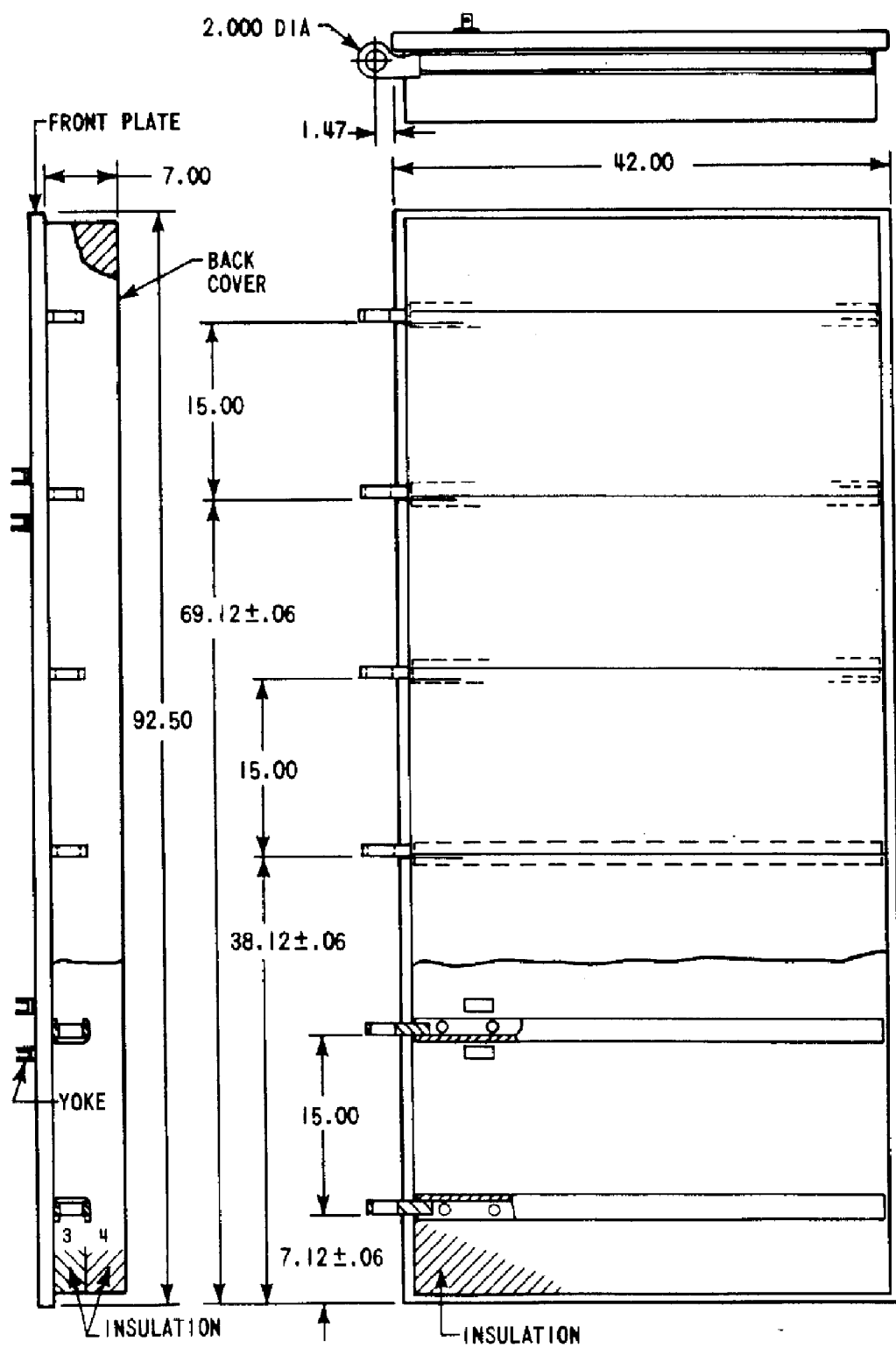


**Figure 6-156. Inlet Door Frame Assembly**



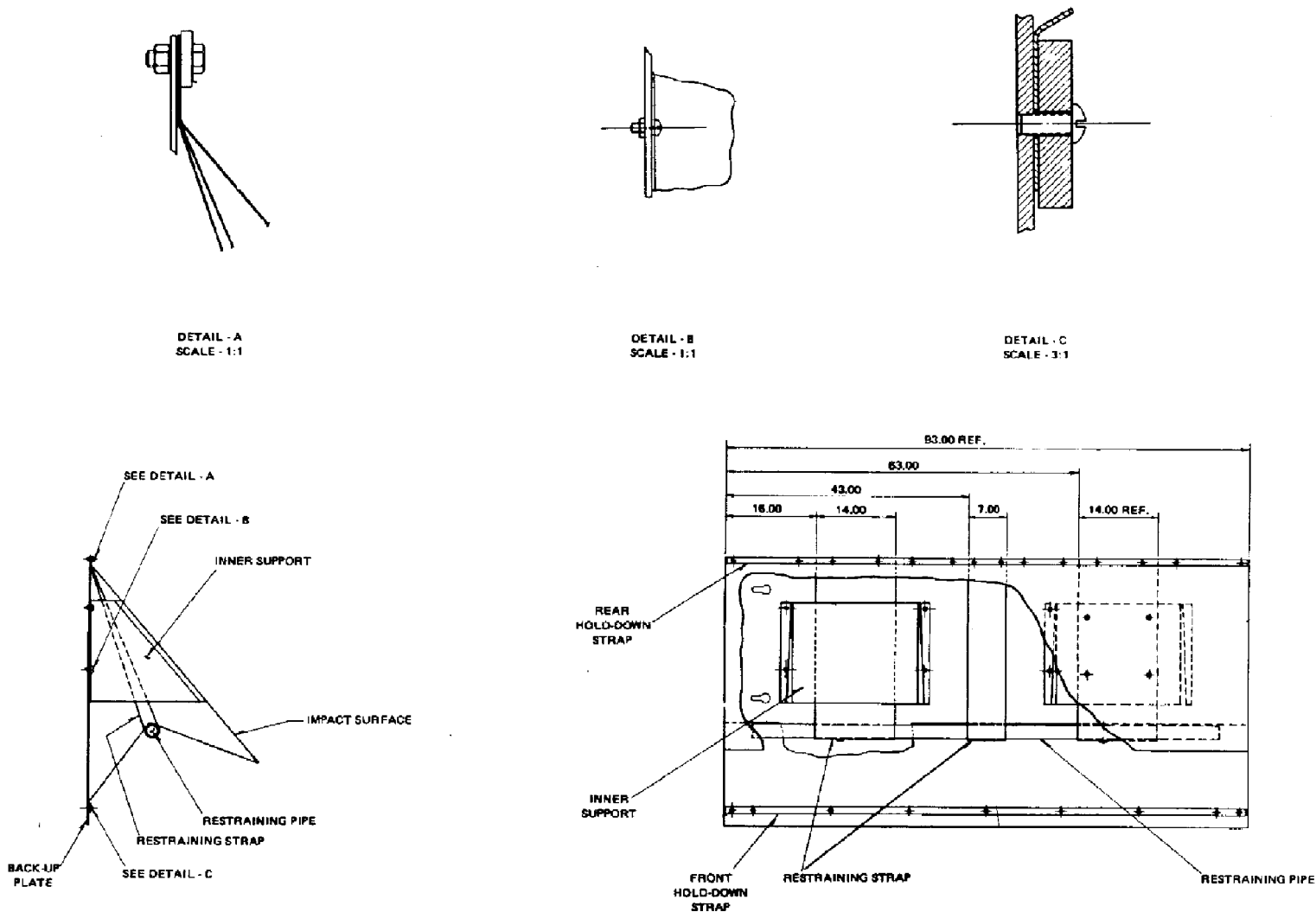
**(22 OCT 2001)**

Figure 6-157. Inlet Door Panel Assembly



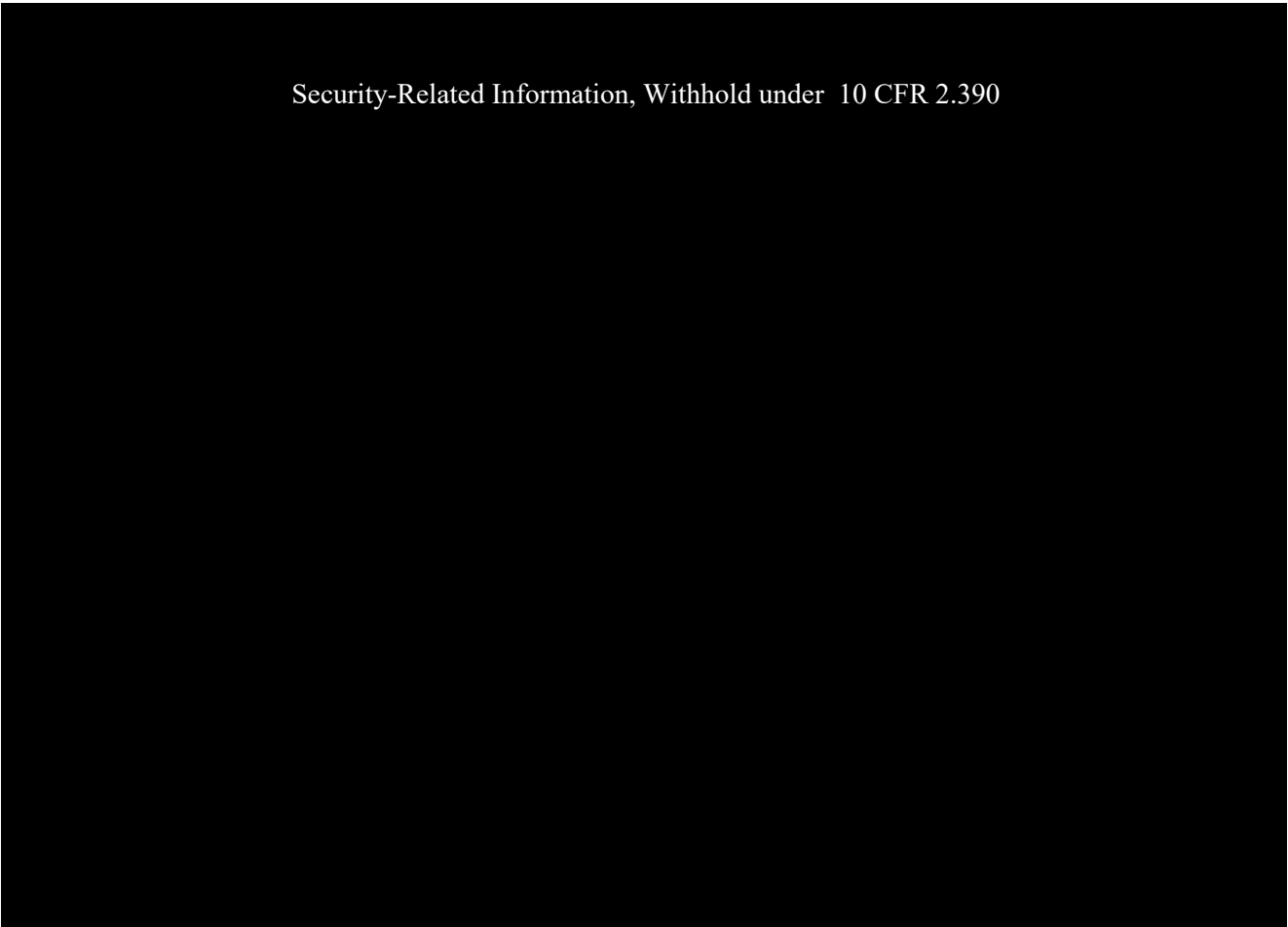
(22 OCT 2001)

Figure 6-158. Lower Inlet Door Shock Absorber Assembly

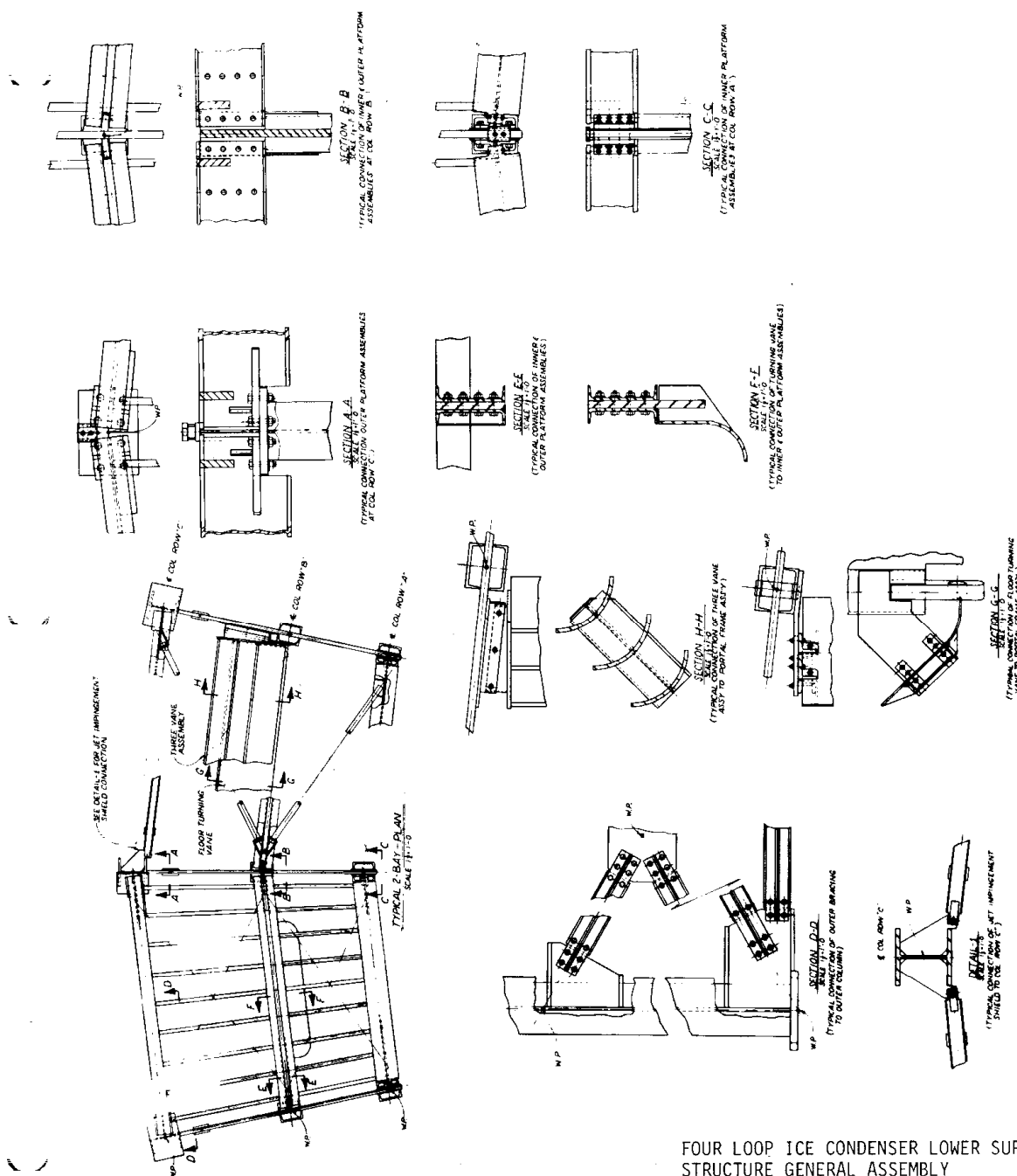


**Figure 6-159. Four Loop Ice Condenser Lower Support Structure Conceptual Plan and Sections**

Security-Related Information, Withhold under 10 CFR 2.390



**Figure 6-160. Four Loop Ice Condenser Lower Support Structure General Assembly**



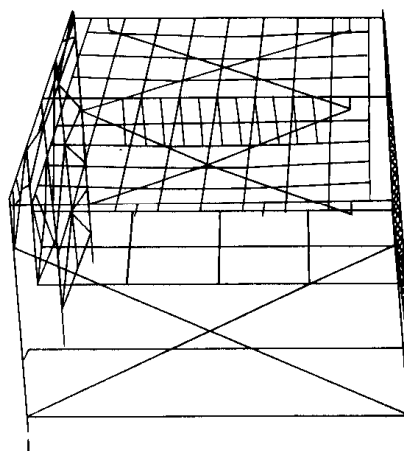
FOUR LOOP ICE CONDENSER LOWER SUPP.  
STRUCTURE GENERAL ASSEMBLY

CATAWBA NUCLEAR STATION

Figure 6.7.9-2

**(22 OCT 2001)**

Figure 6-161. Ansys Model Assembly



ANSYS MODEL ASSEMBLY

CATAWBA NUCLEAR STATION

Figure 6.7.9-3

(22 OCT 2001)

Figure 6-162. Finite Element Model of Postal Frame

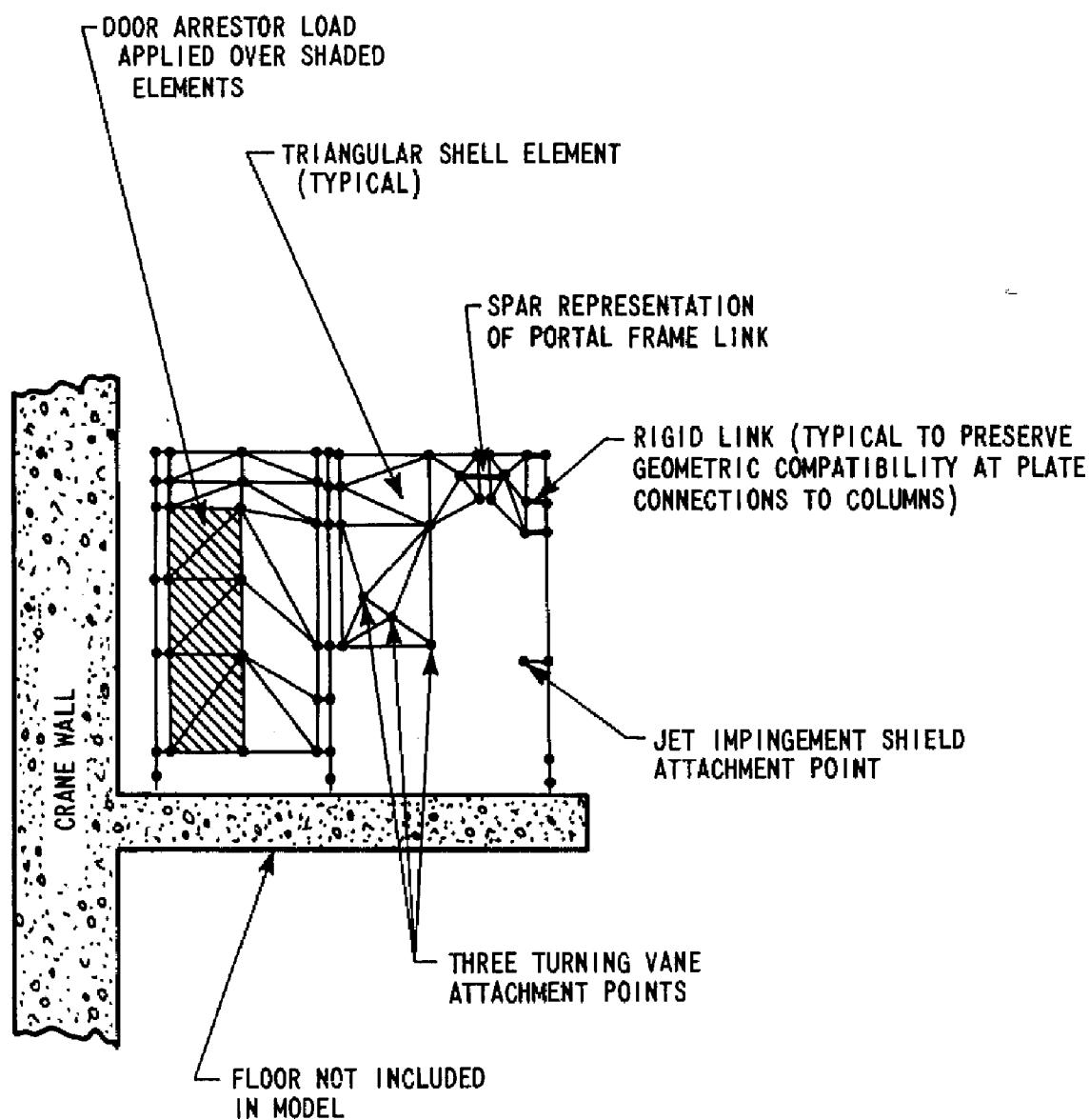


Figure 6-163. Schematic Diagram of Force Applied to Three Pier Lower Support Structure

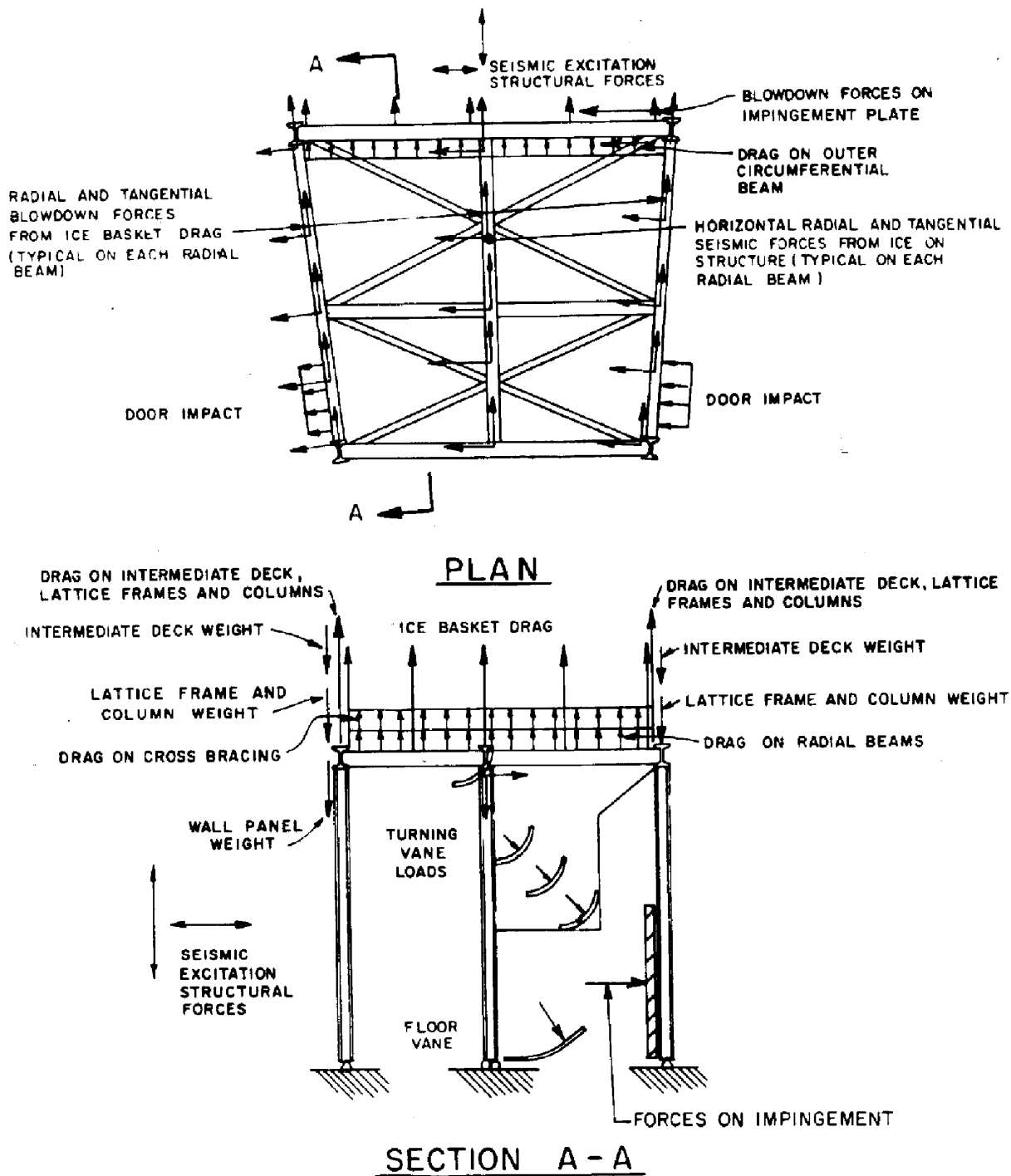




Figure 6-164. Force Transient Hot Leg Break

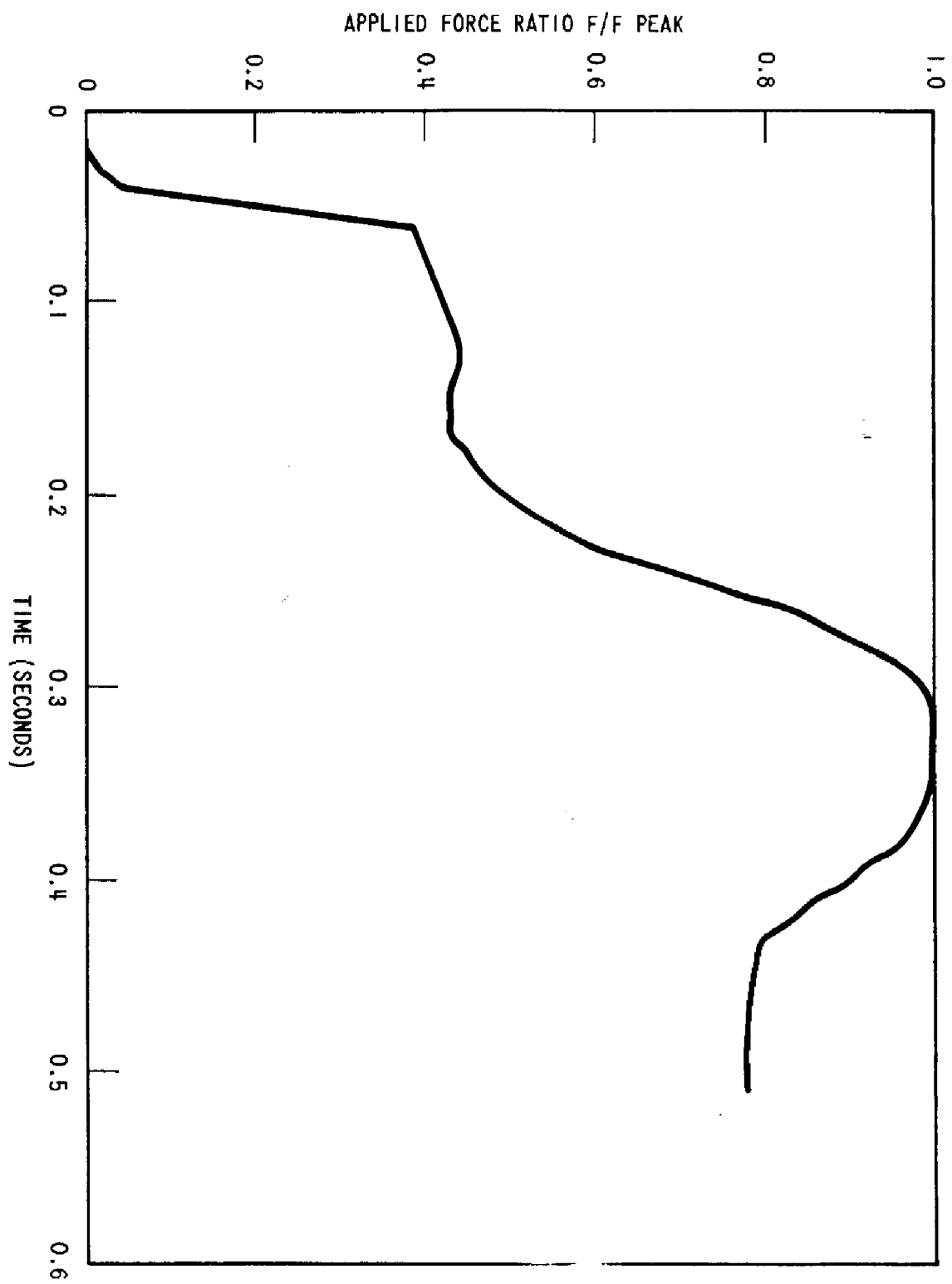


Figure 6-165. DLF Spectra Hot Leg Break Force Transient

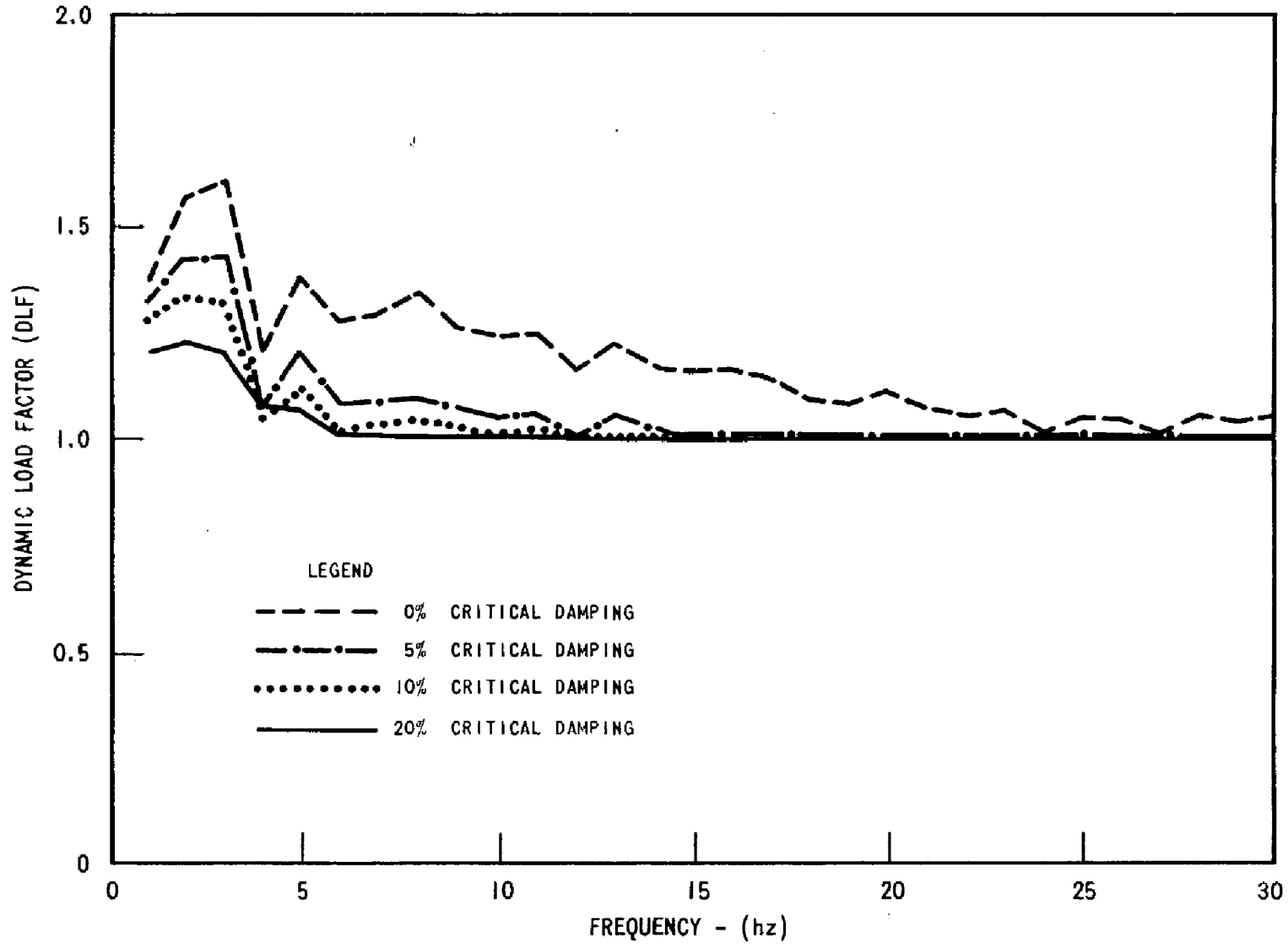
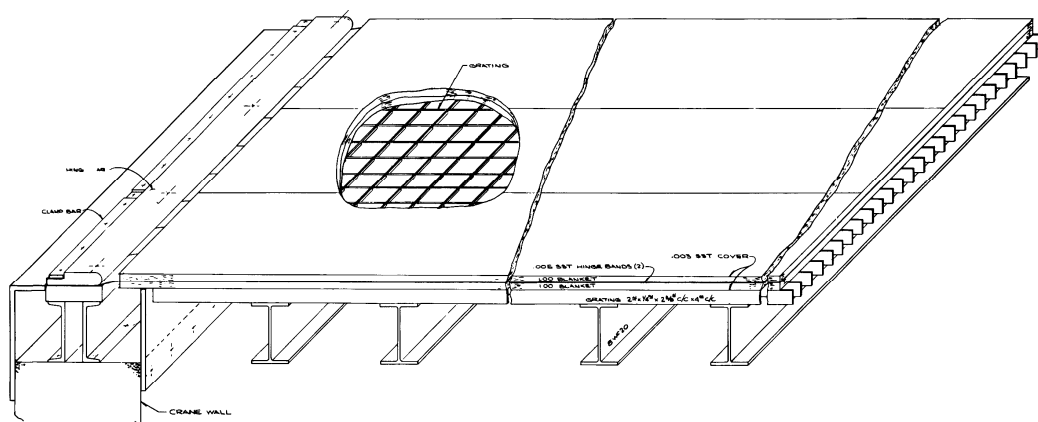


Figure 6-166. Top Deck Test Assembly

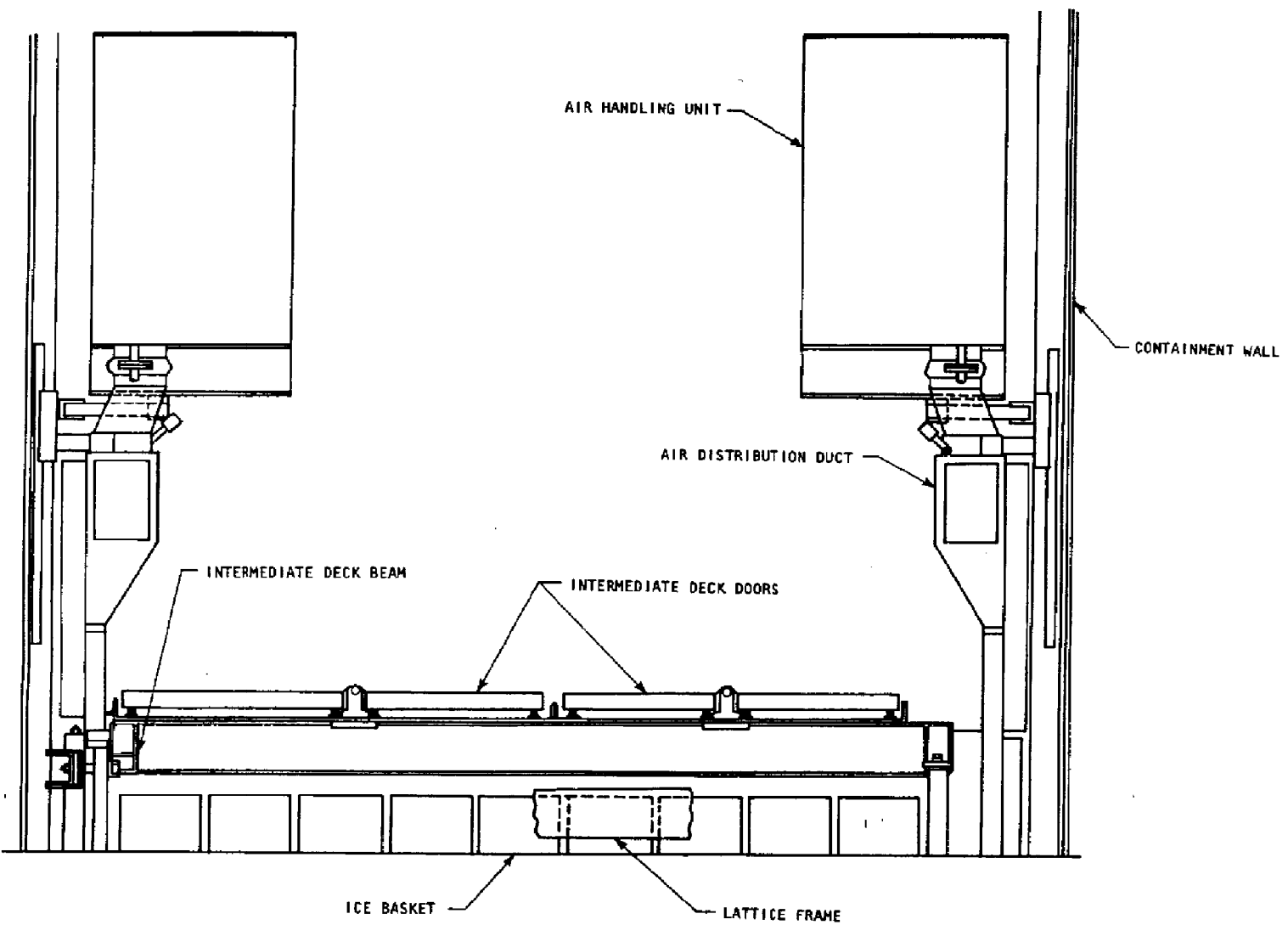


TOP DECK TEST ASSEMBLY  
 CATAWBA NUCLEAR STATION  
 Figure 6.7.10-1

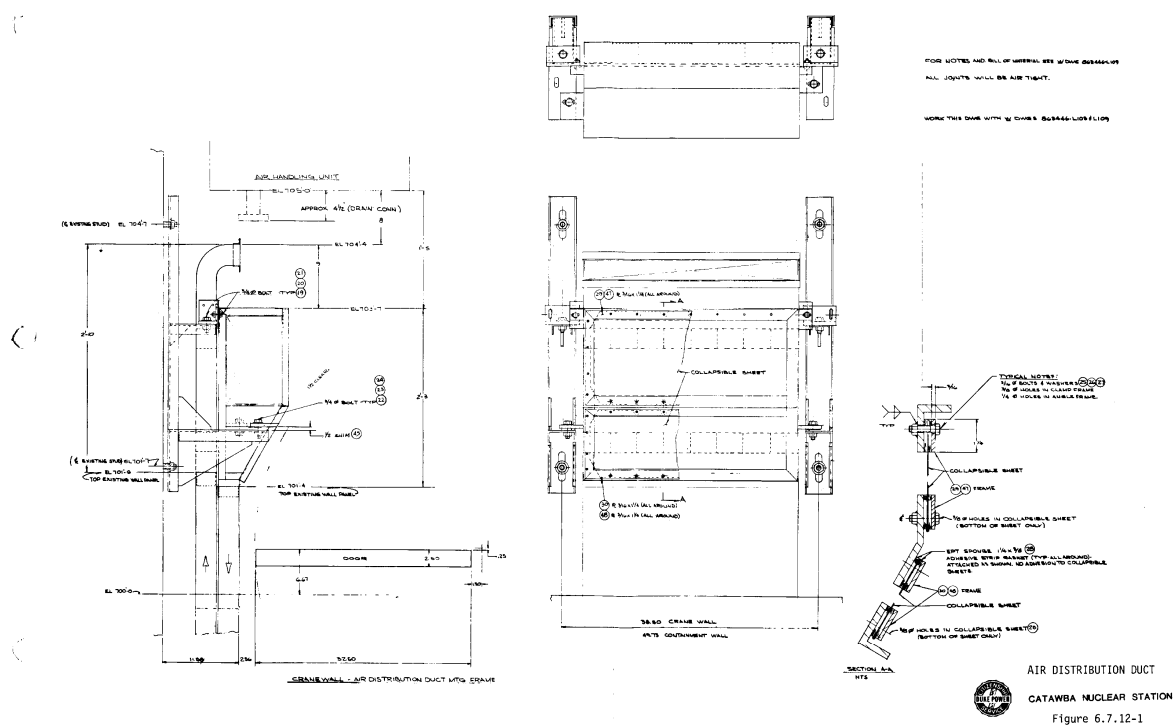
[illegible]

Figure 6.7.10-2

Figure 6-168. Intermediate Deck Door Assembly



**Figure 6-169. Air Distribution Duct**



**Figure 6-170. Air Distribution Duct**

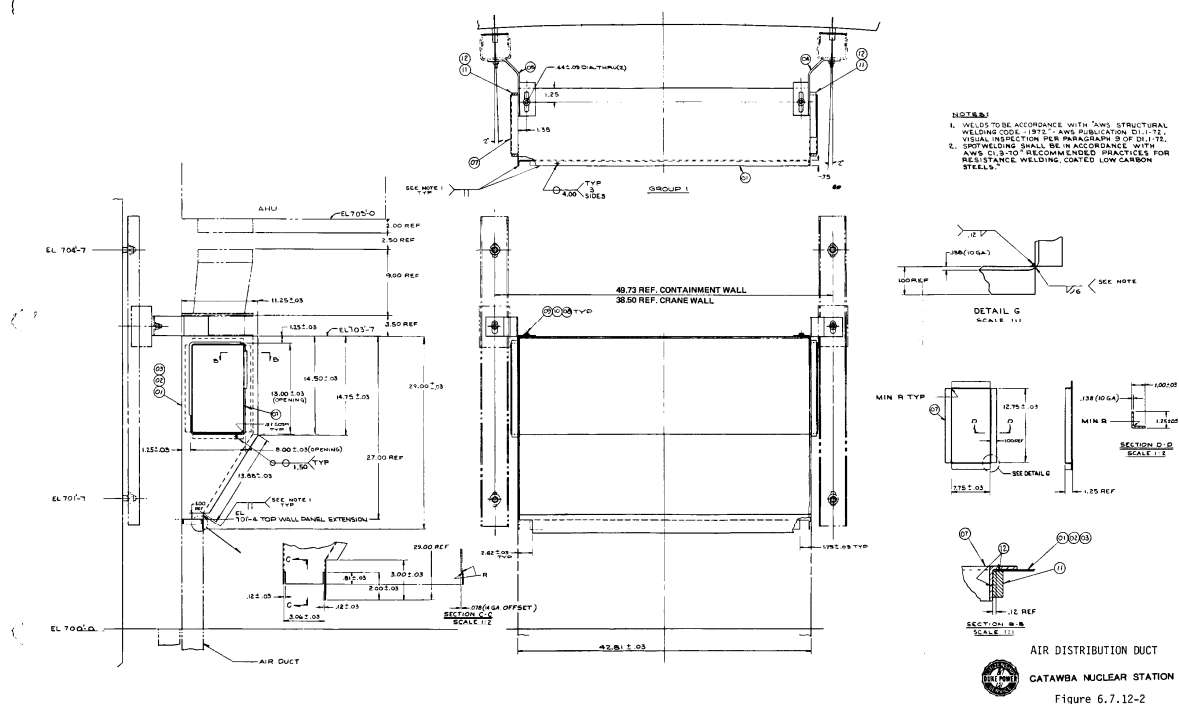
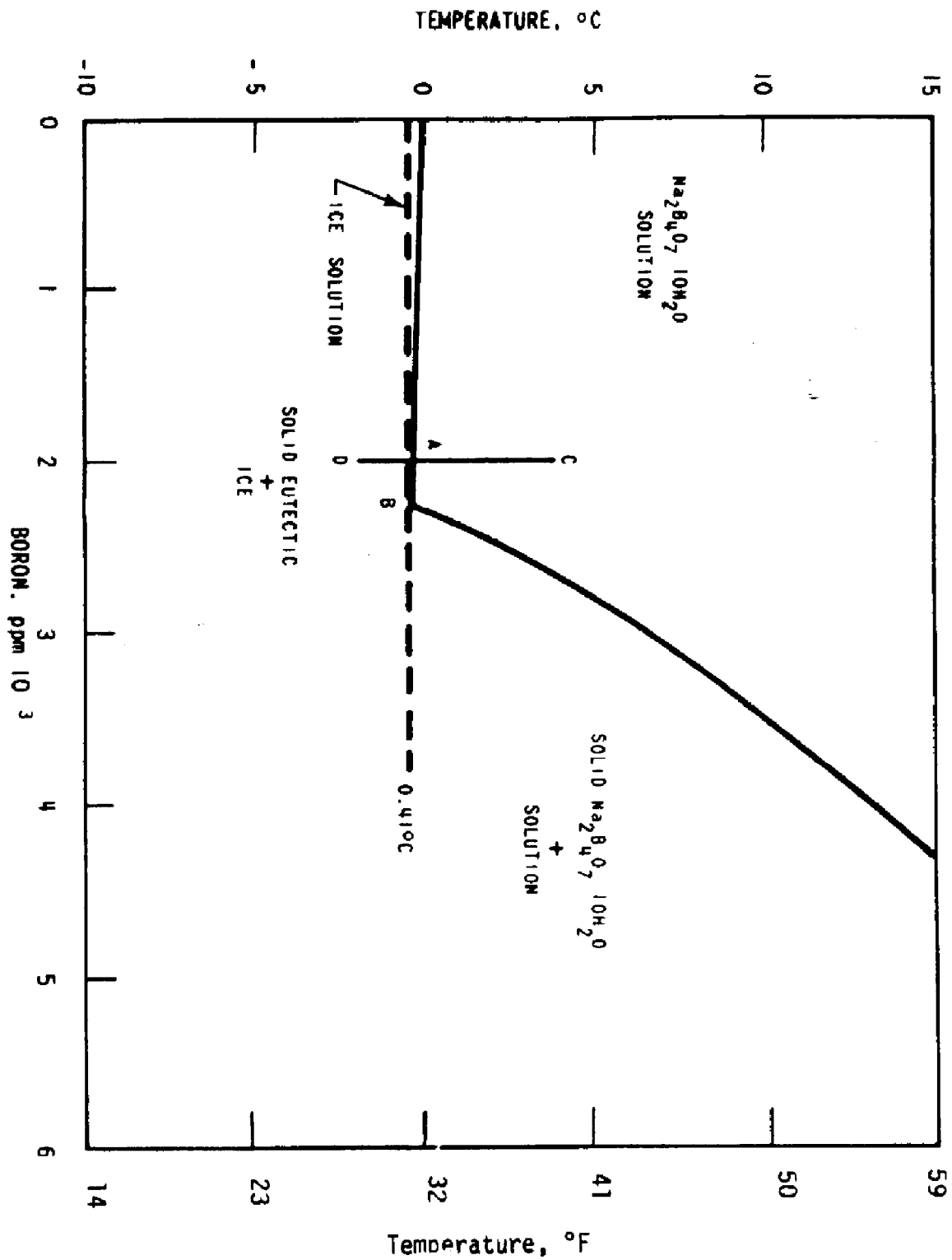
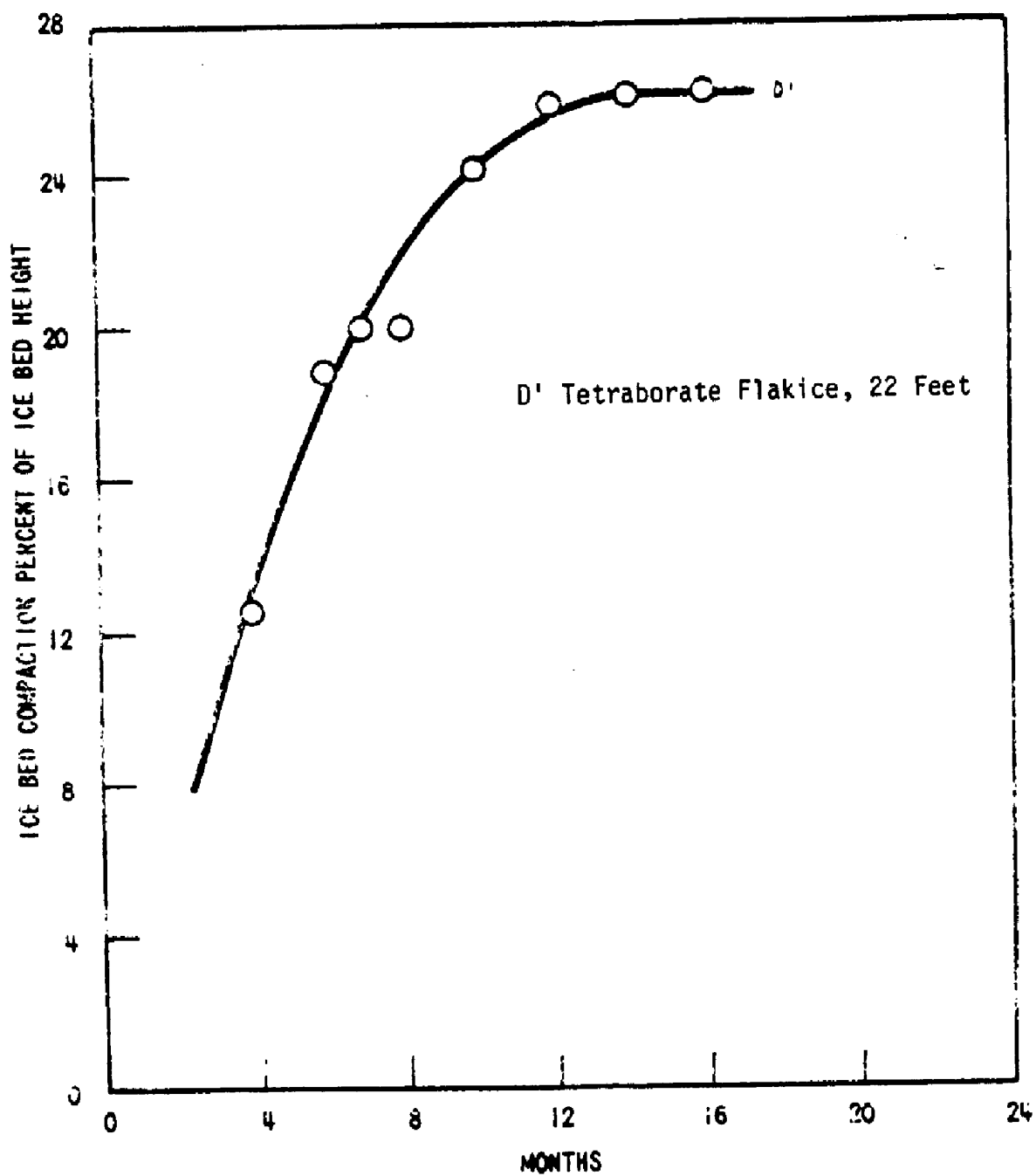


Figure 6-171. Phase Diagram for  $\text{Na}_2\text{B}_4\text{O}_7 - .10 \text{H}_2\text{O}$  System at One Atmosphere

(22 OCT 2001)



Figure 6-172. Ice Bed Compaction Versus Time



(22 OCT 2001)

Figure 6-173. Test Ice Bed Compaction Versus Ice Bed Height

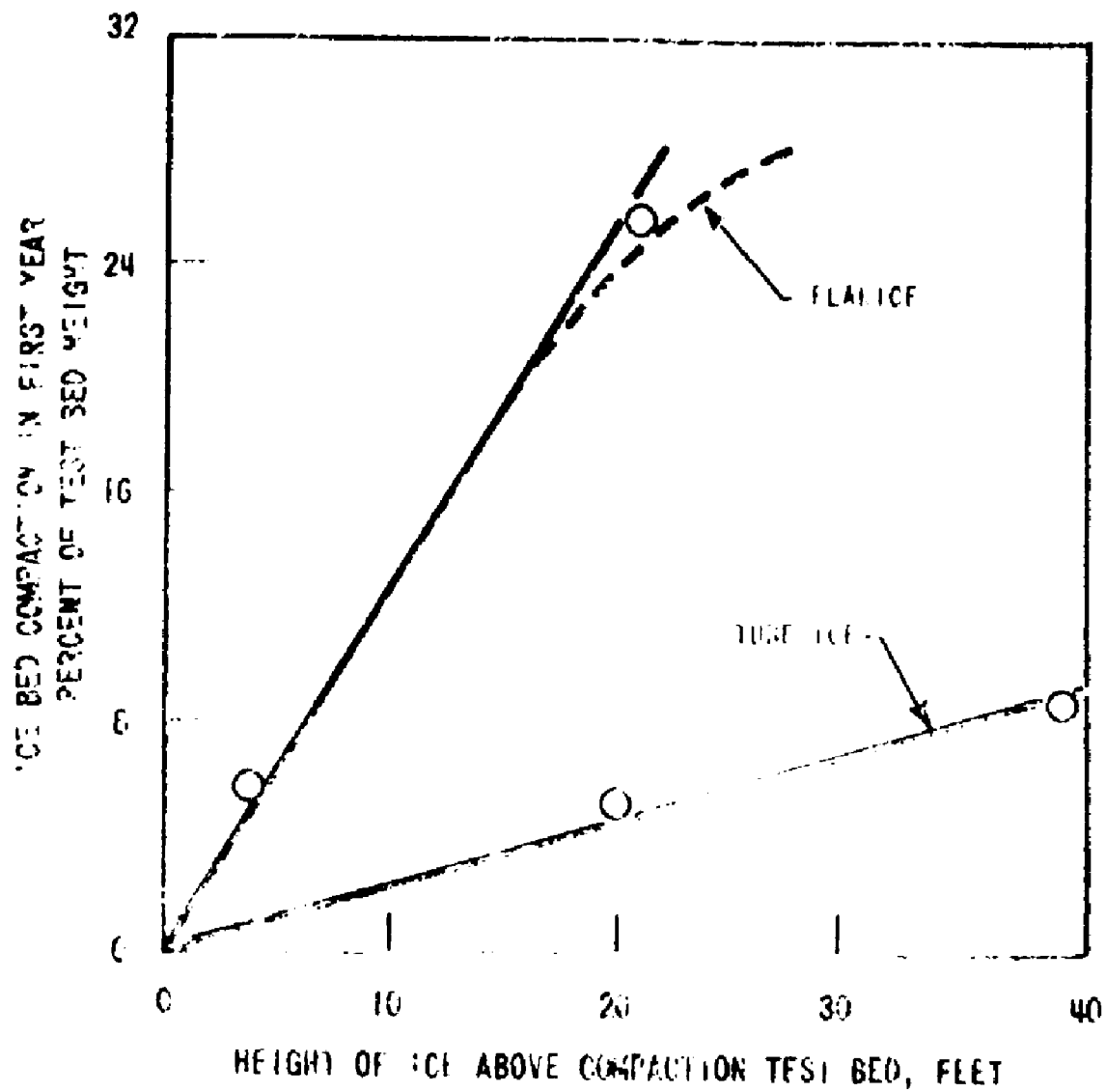


Figure 6-174. Total Ice Compaction Versus Ice Bed Height

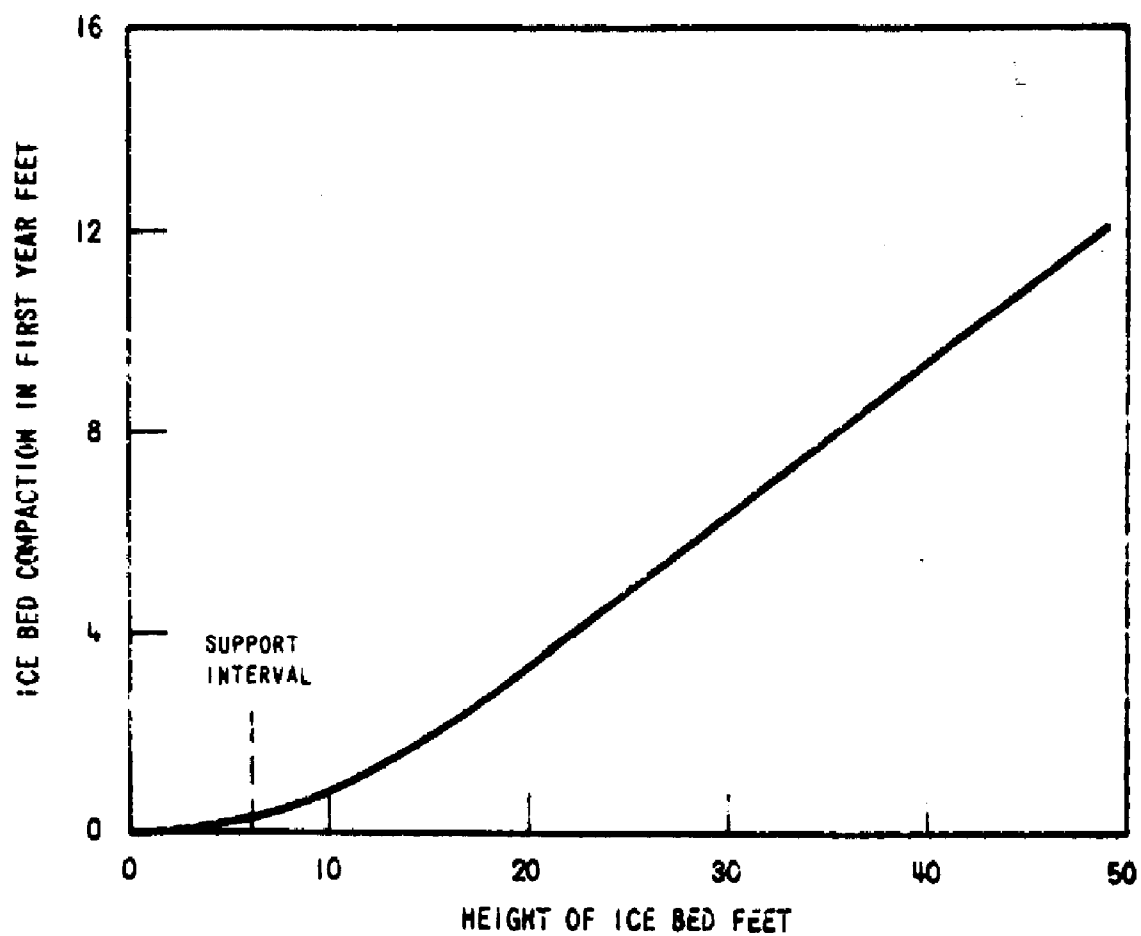


Figure 6-175. Ice Condenser RTD Location

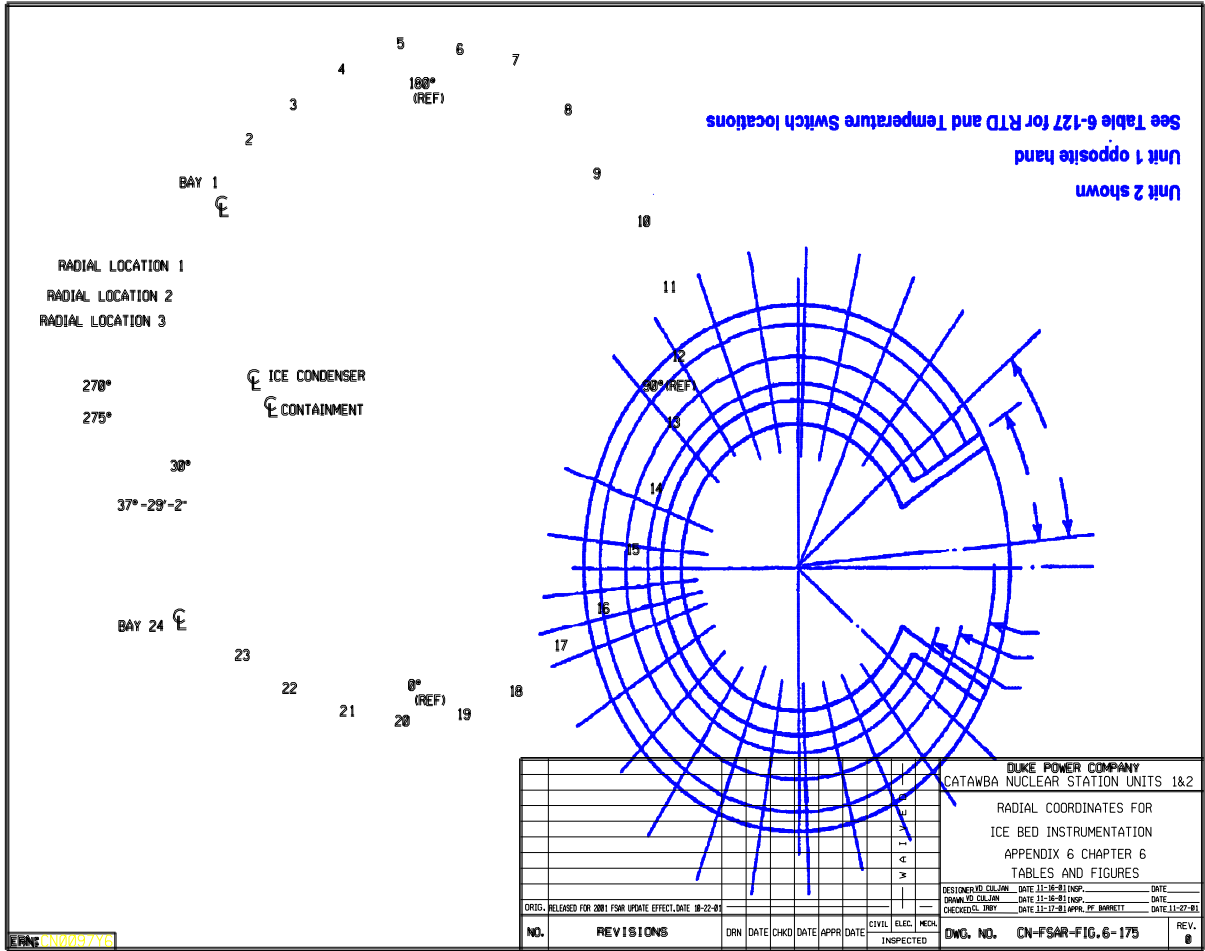


Figure 6-176. Block Diagram: Ice Condenser Temperature Monitoring System

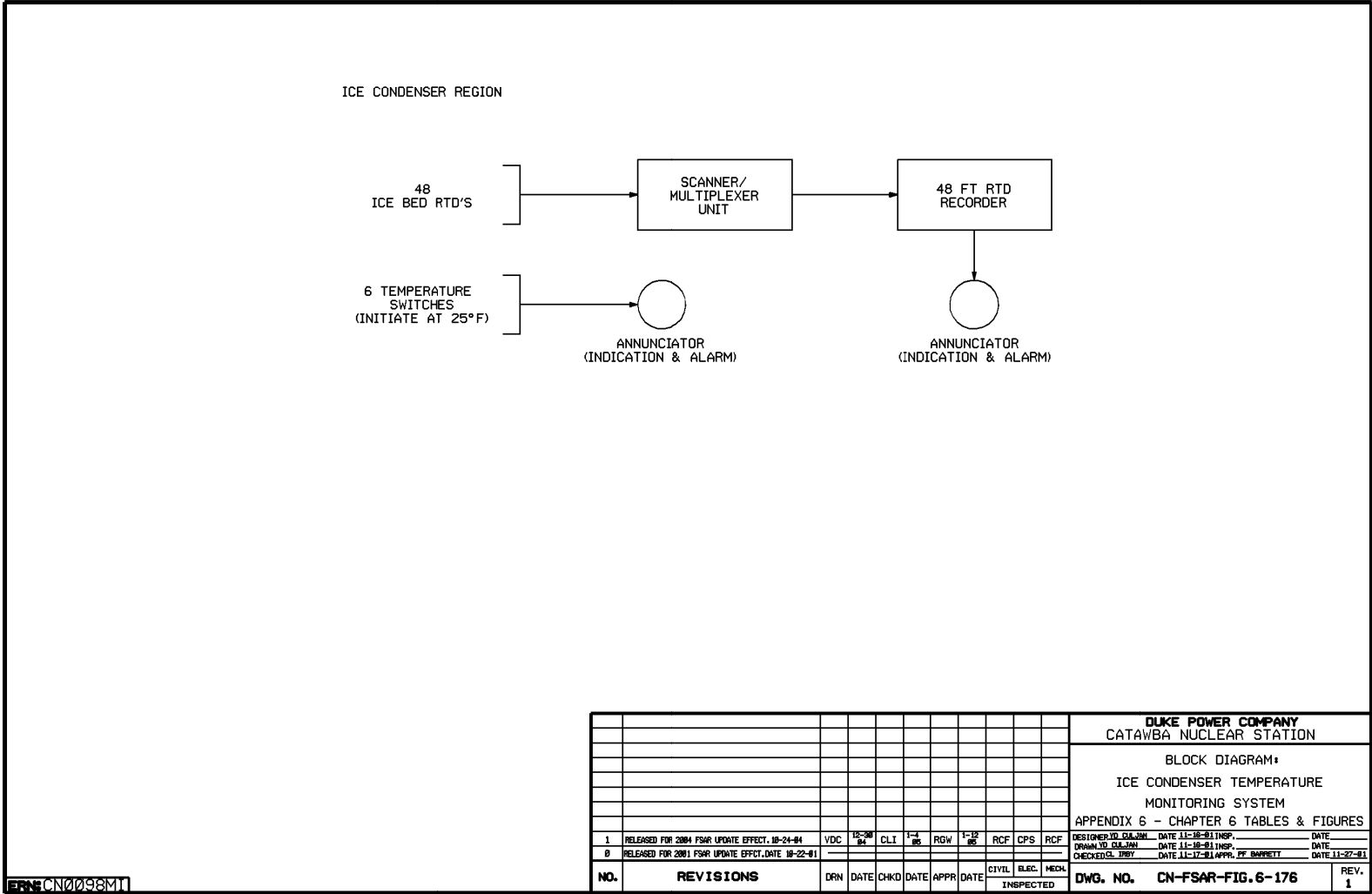
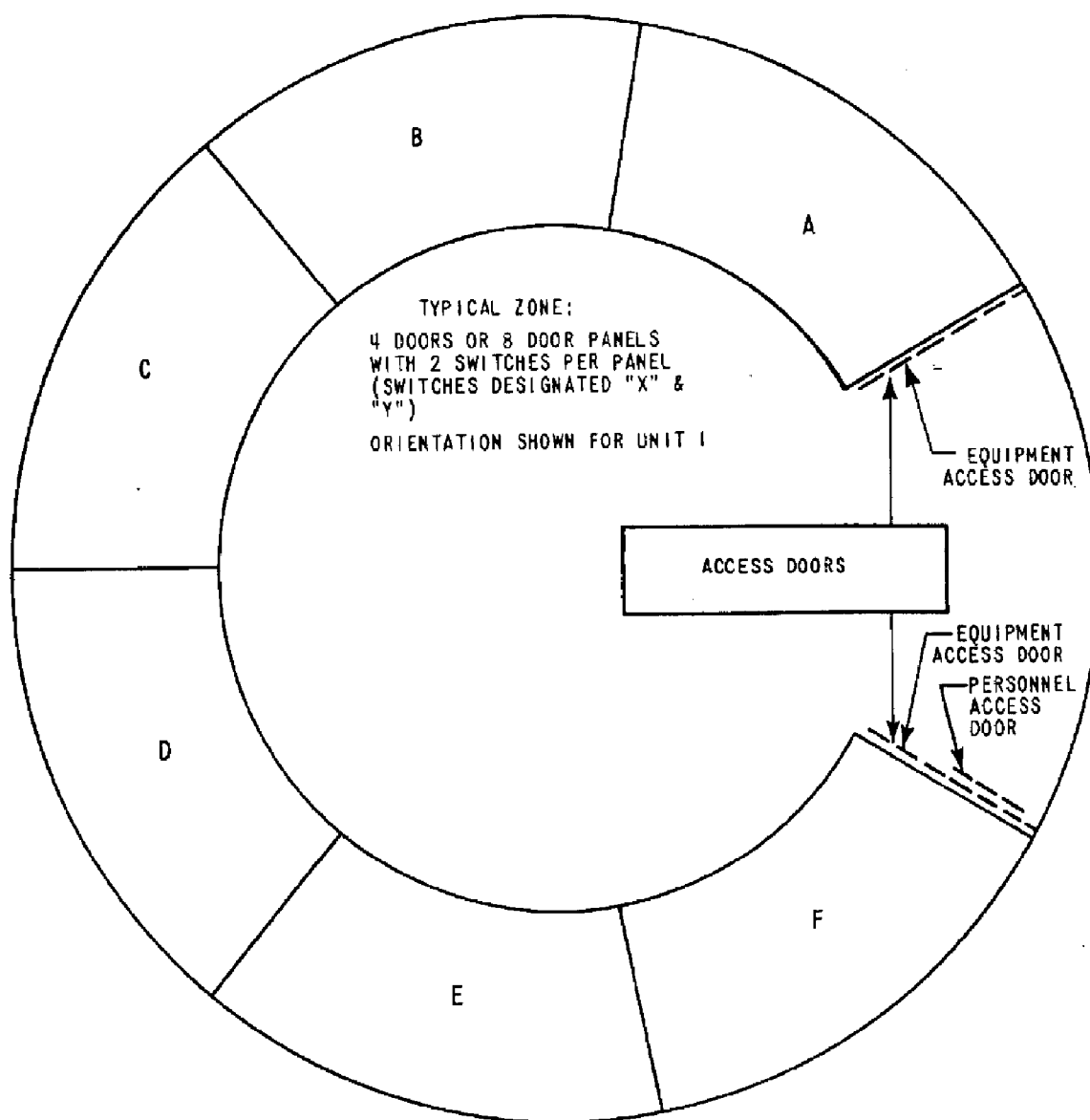


Figure 6-177. Door Monitoring Zones



(22 OCT 2001)

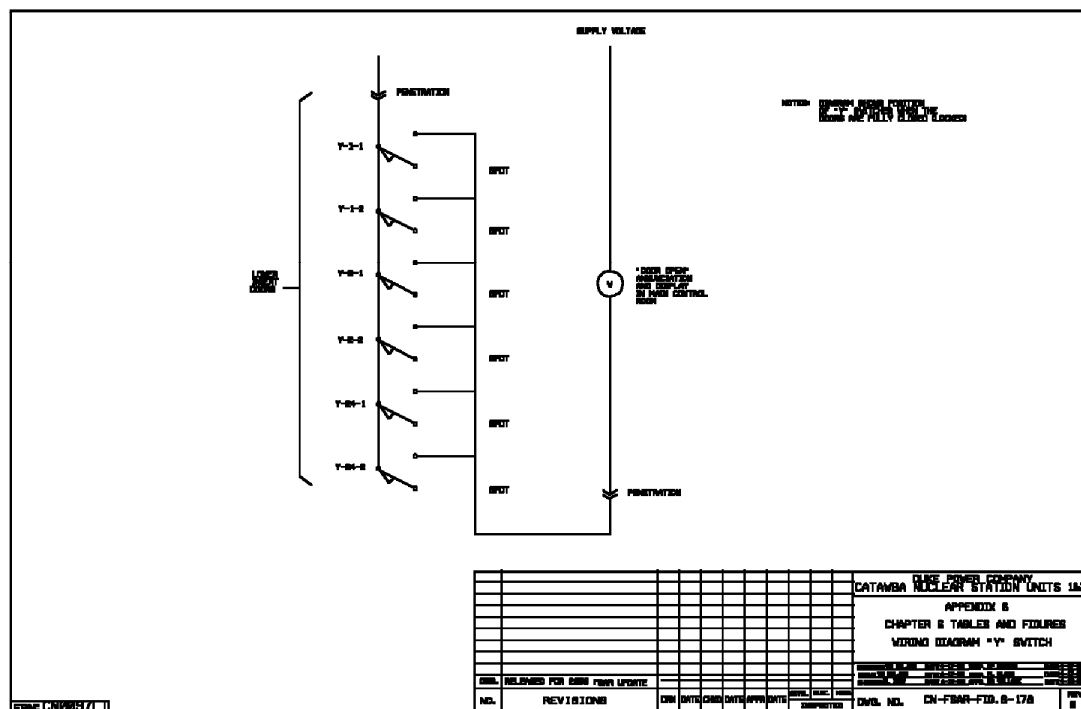
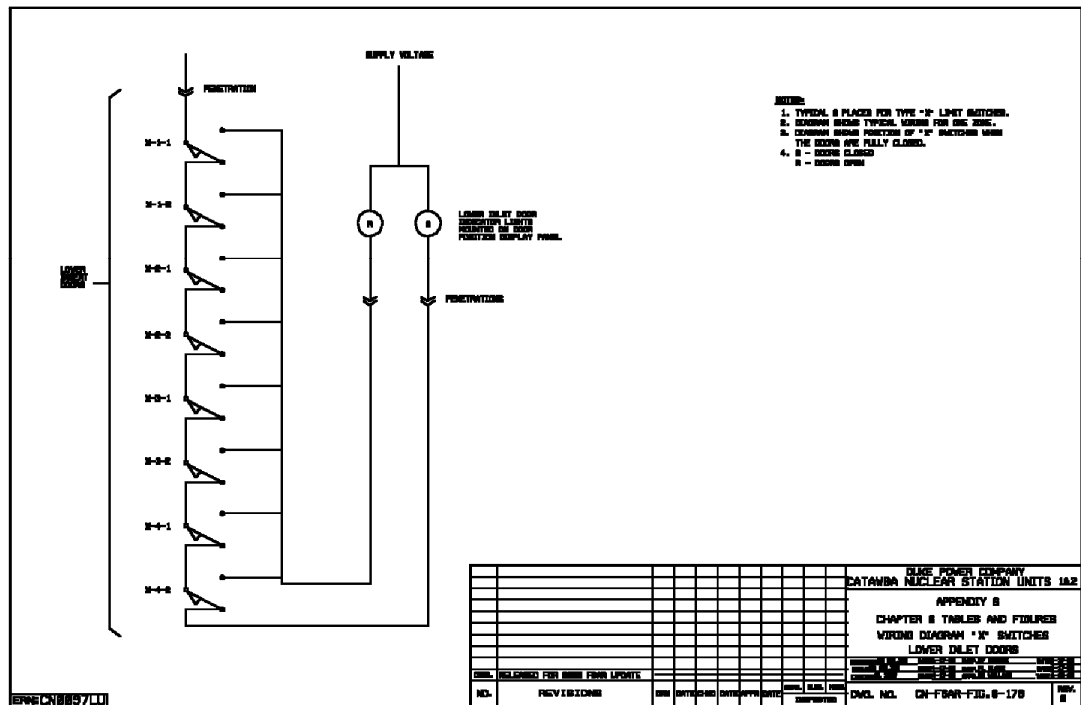


Figure 6-179. Wiring Diagram: "X" Switches Lower Inlet Doors





**Figure 6-180. Deleted Per 2001 Update**

(22 OCT 2001)

Figure 6-181. Model of Horizontal Lattice Frame Structure

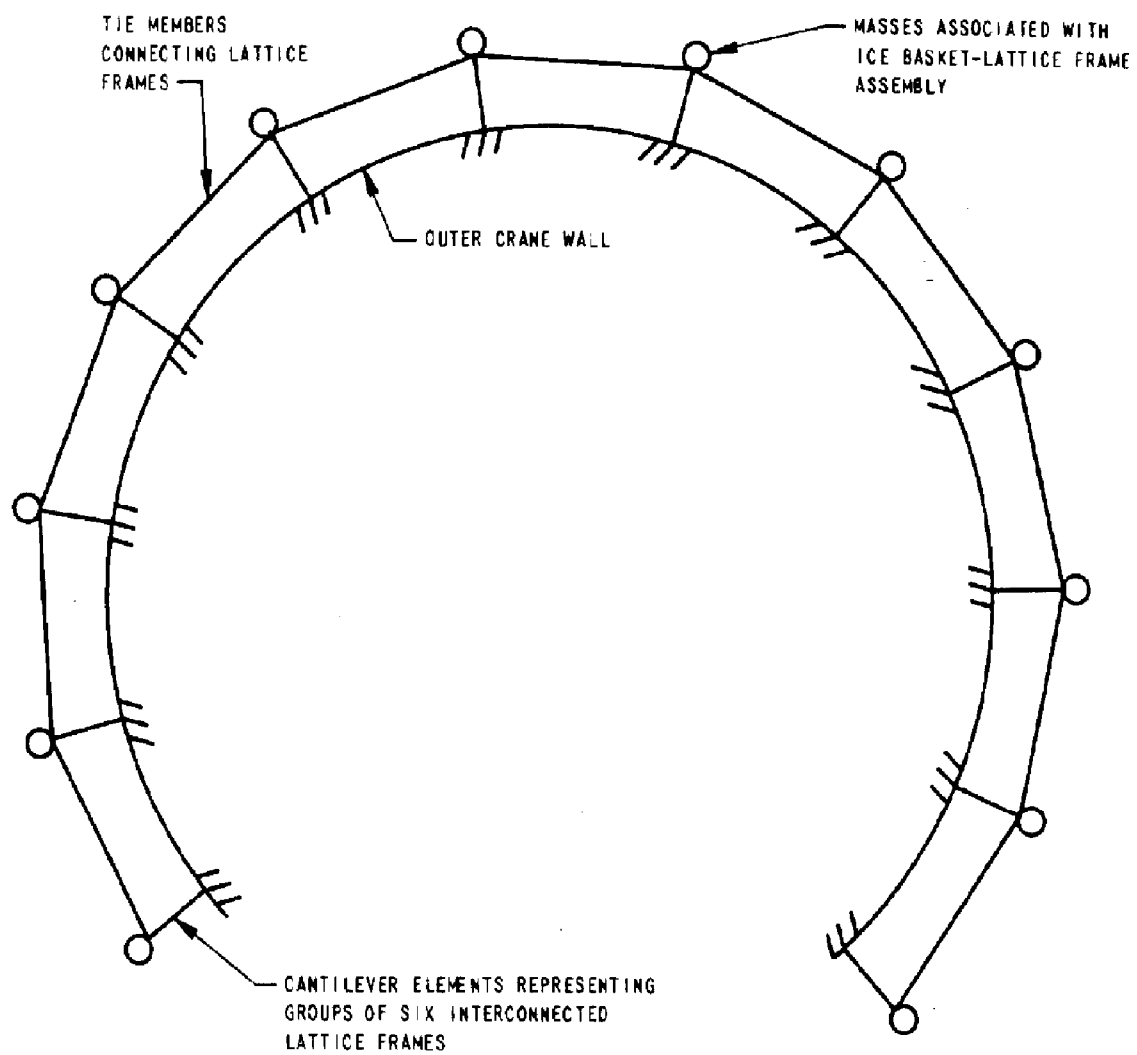
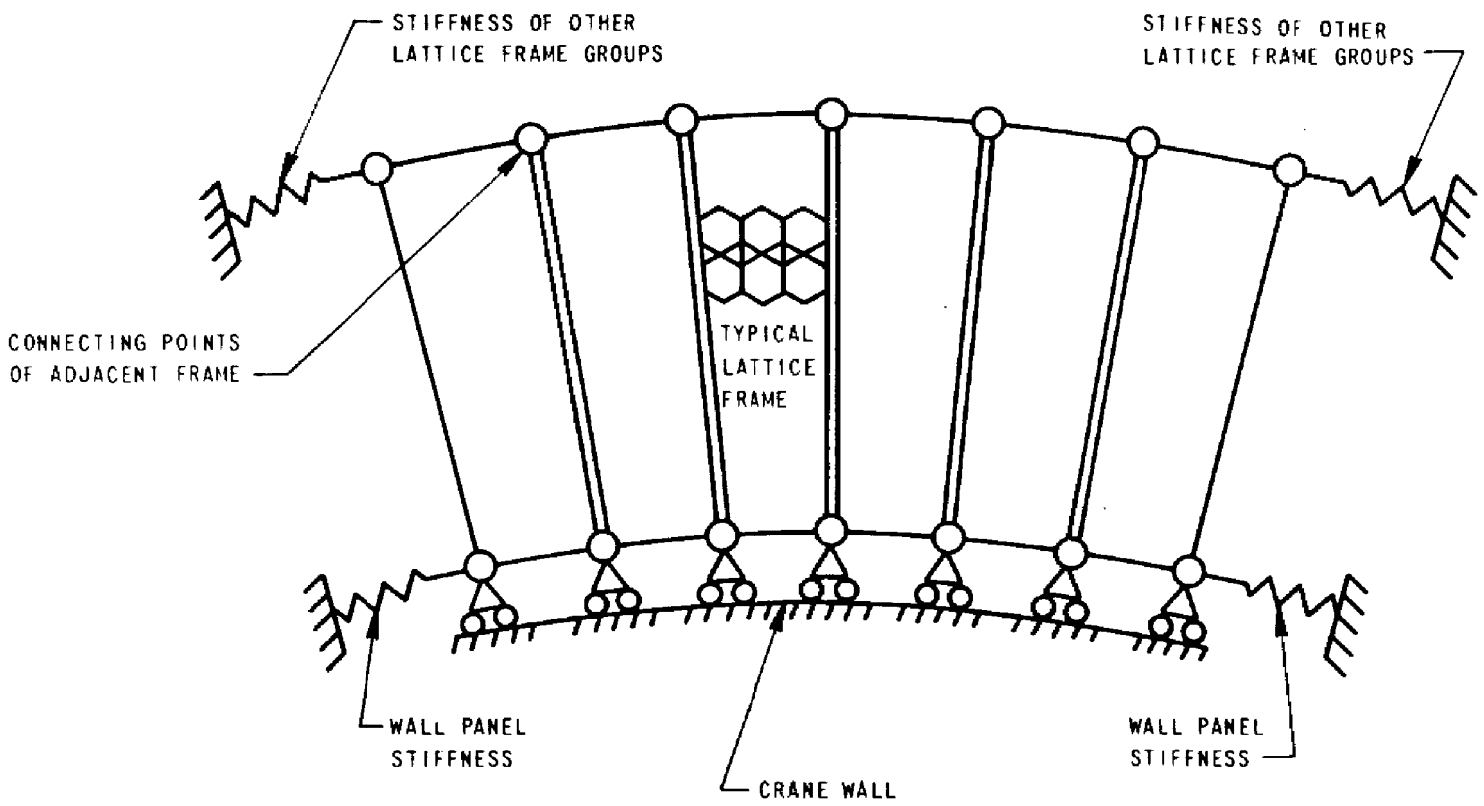


Figure 6-182. Group of Six Interconnected Lattice Frames



(22 OCT 2001)

Figure 6-183. Lattice Frame Ice Basket Gap

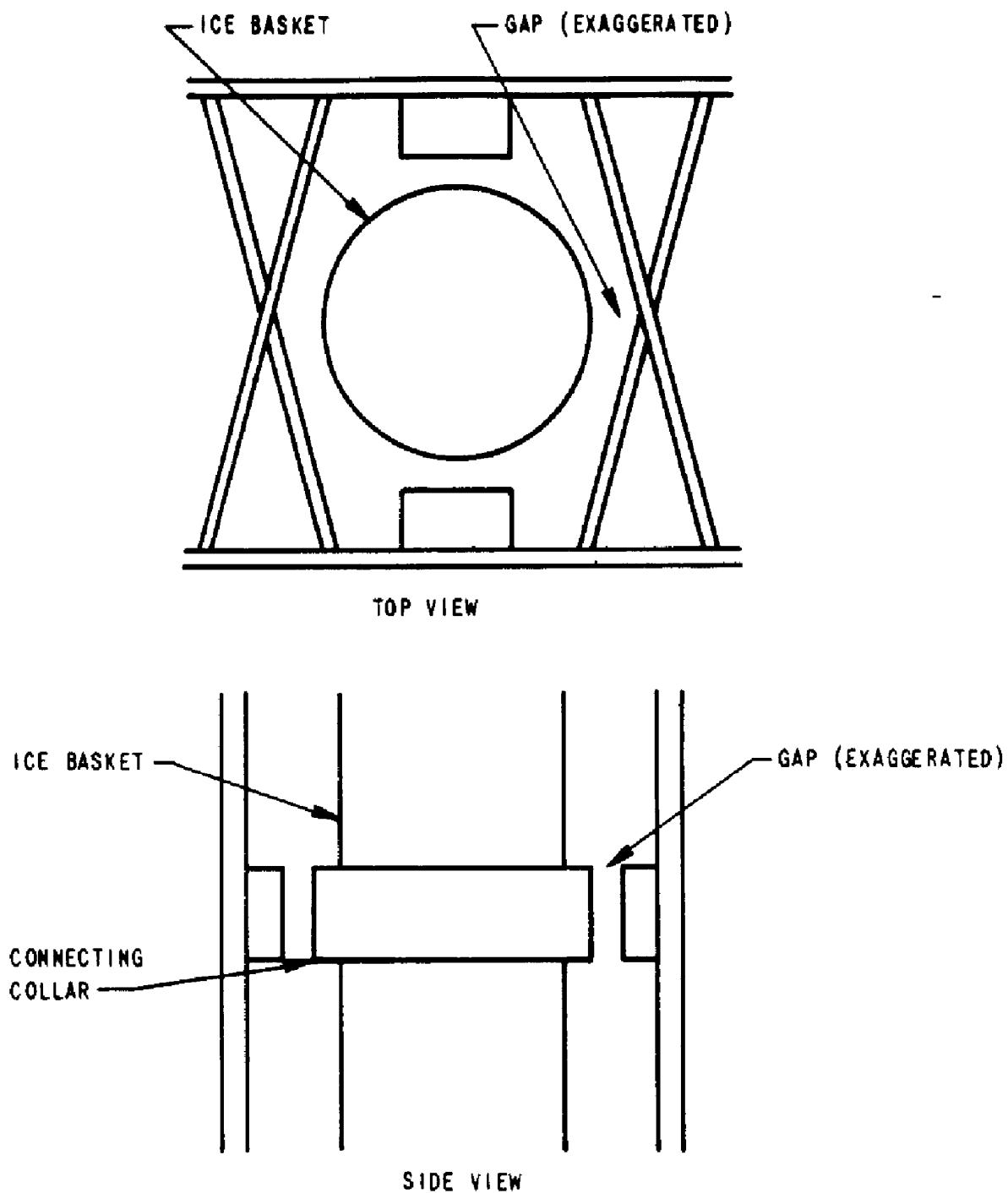
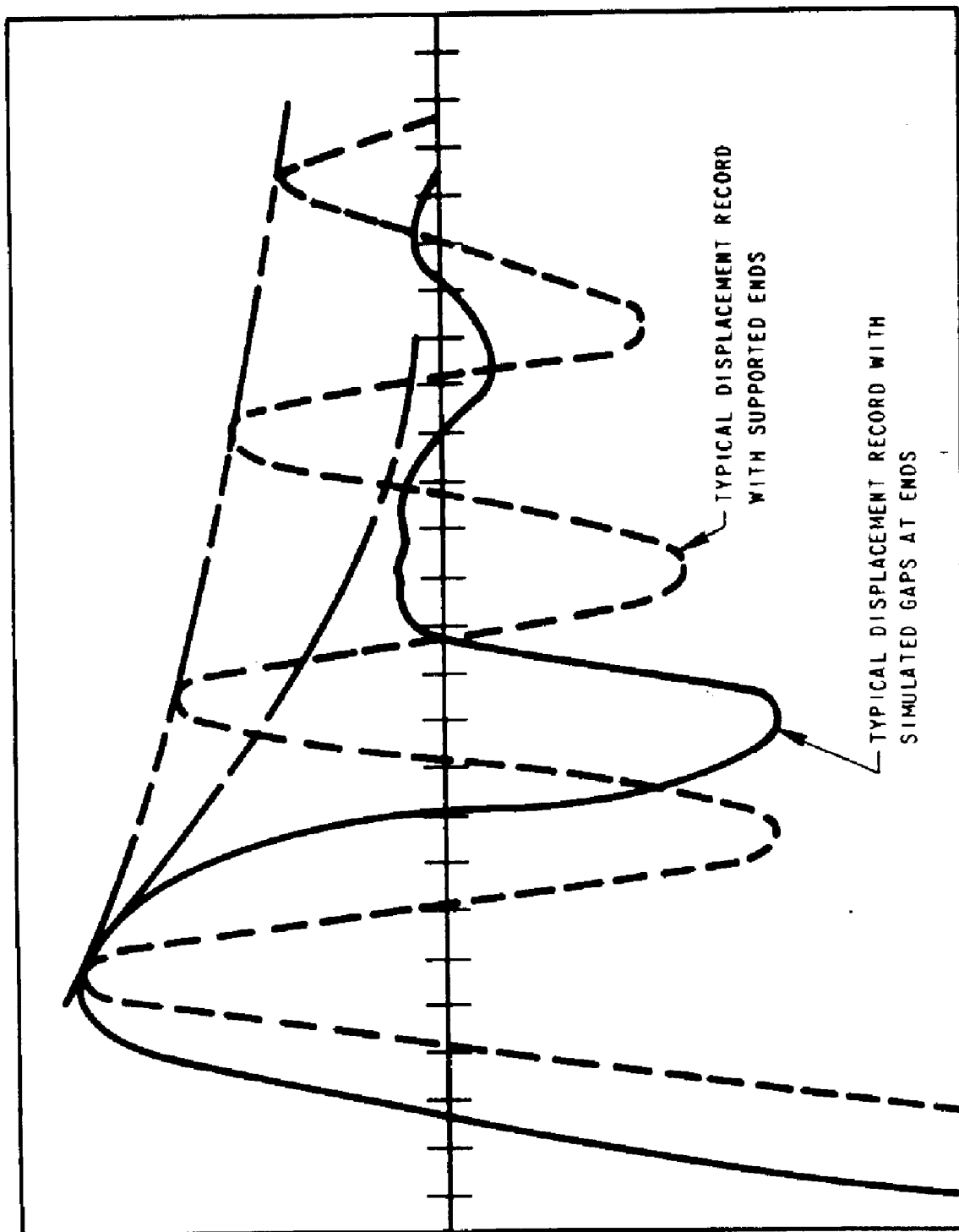


Figure 6-184. Typical Displacement Time History for 12 Foot Basket with End Supports - Pluck Test



(22 OCT 2001)

Figure 6-185. Non Linear Dynamic Model

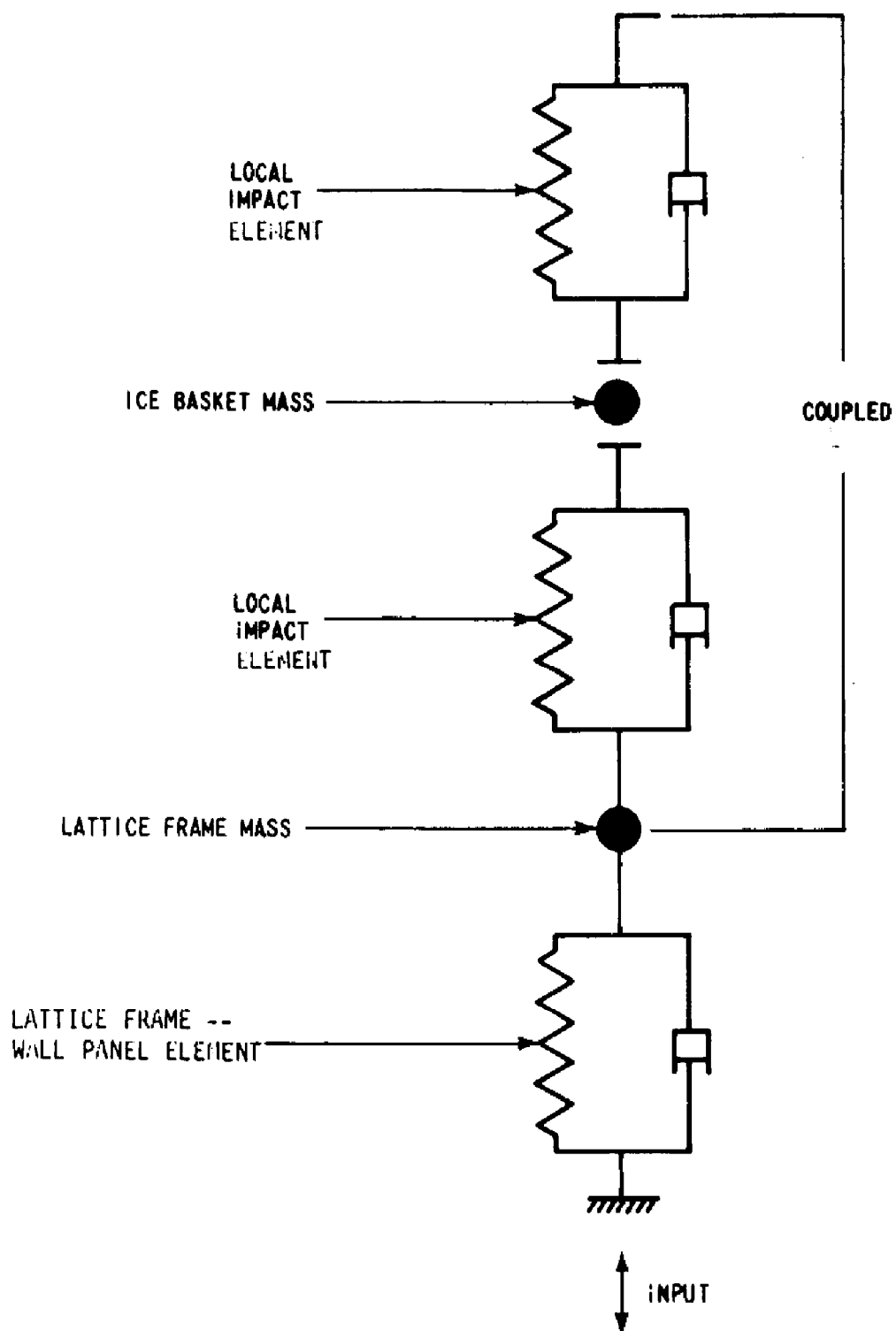


Figure 6-186. 3 Mass Tangential Ice Basket Model

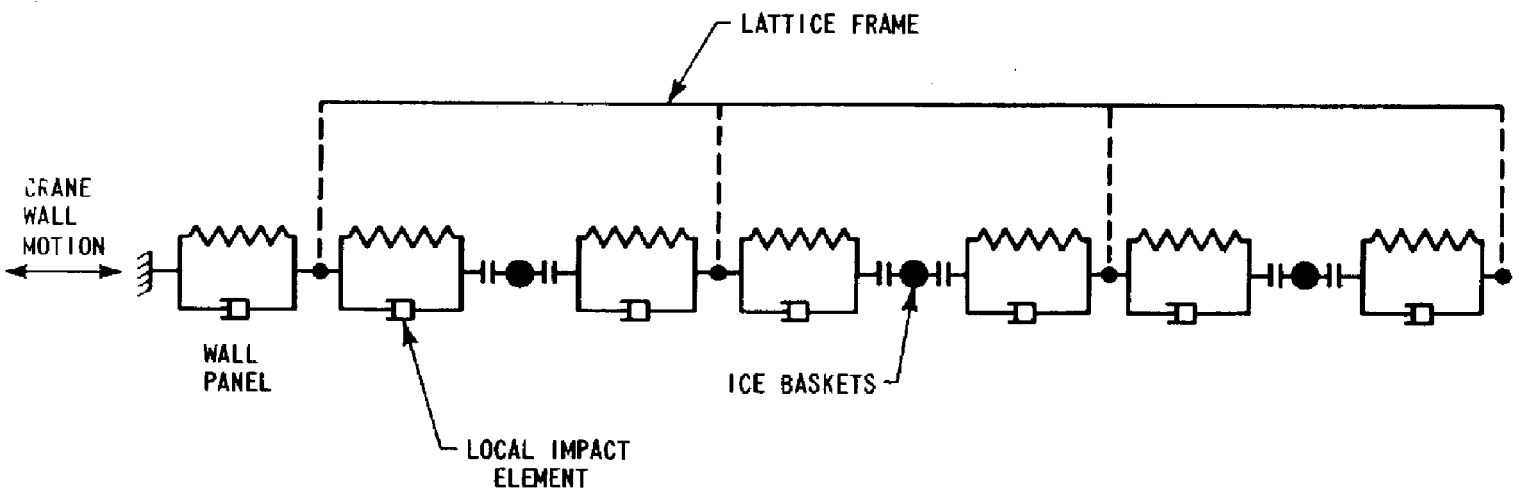
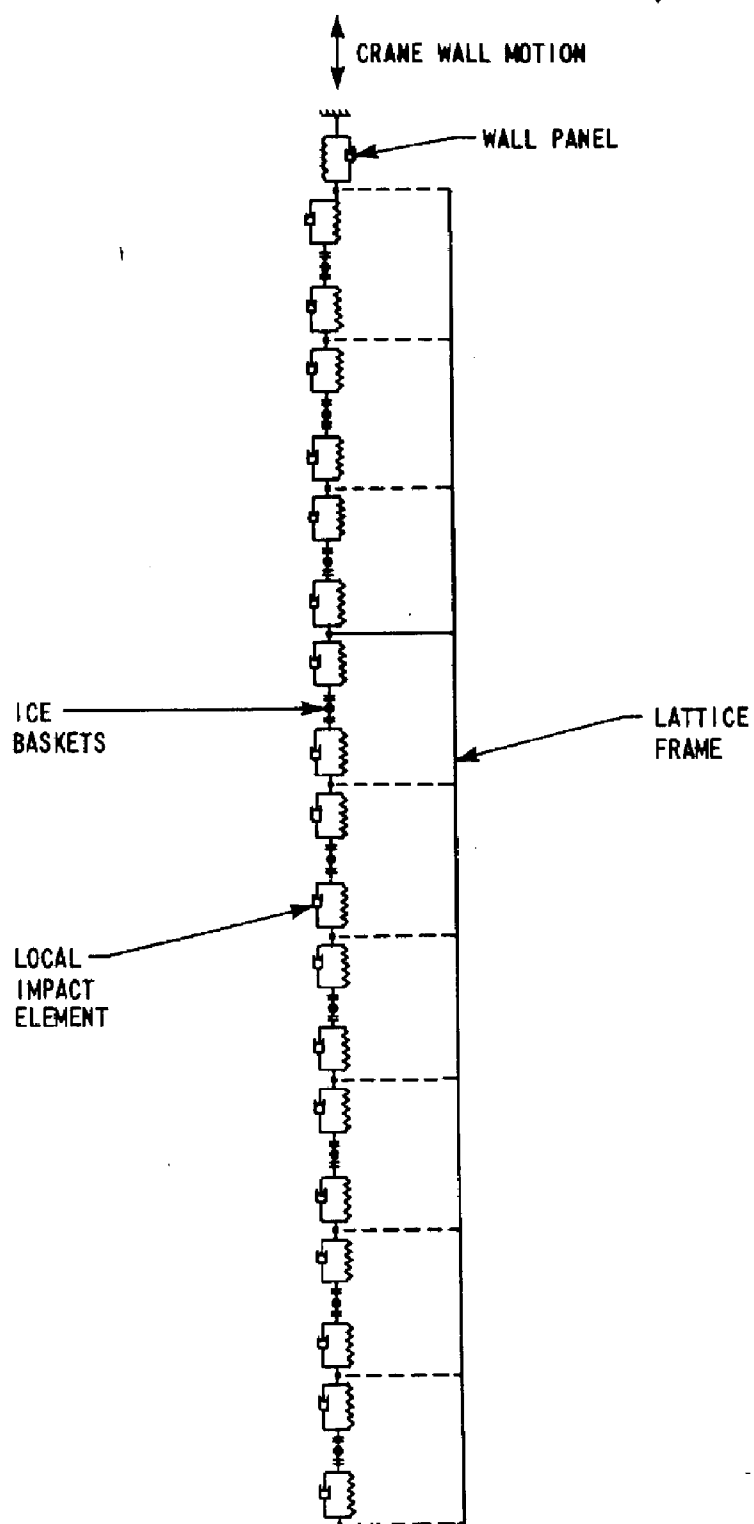


Figure 6-187. 9 Mass Radial Ice Basket Model



(22 OCT 2001)



Figure 6-188. 48 Foot Beam Model

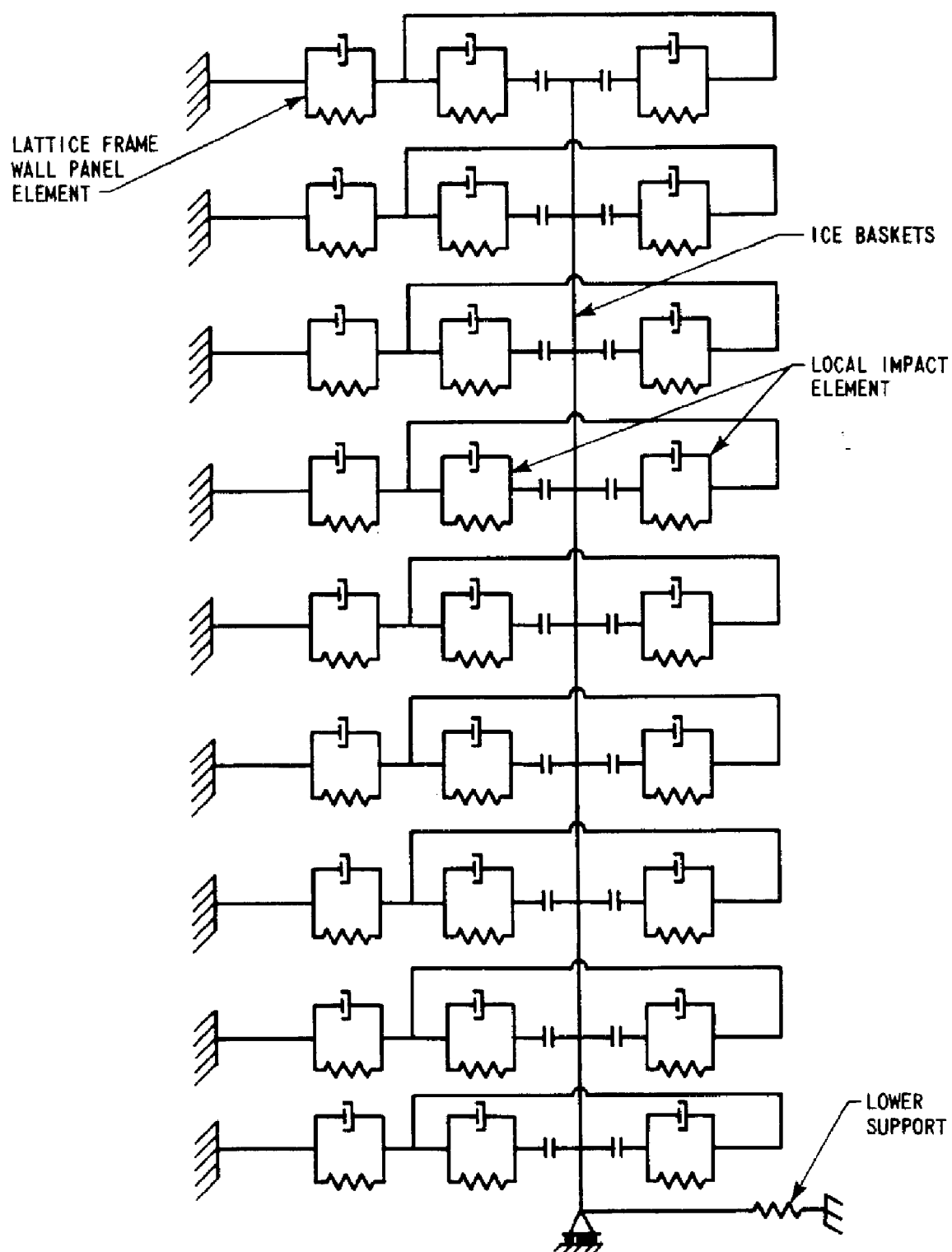


Figure 6-189. Phasing Mass Model of Adjacent Lattice Frame Bays

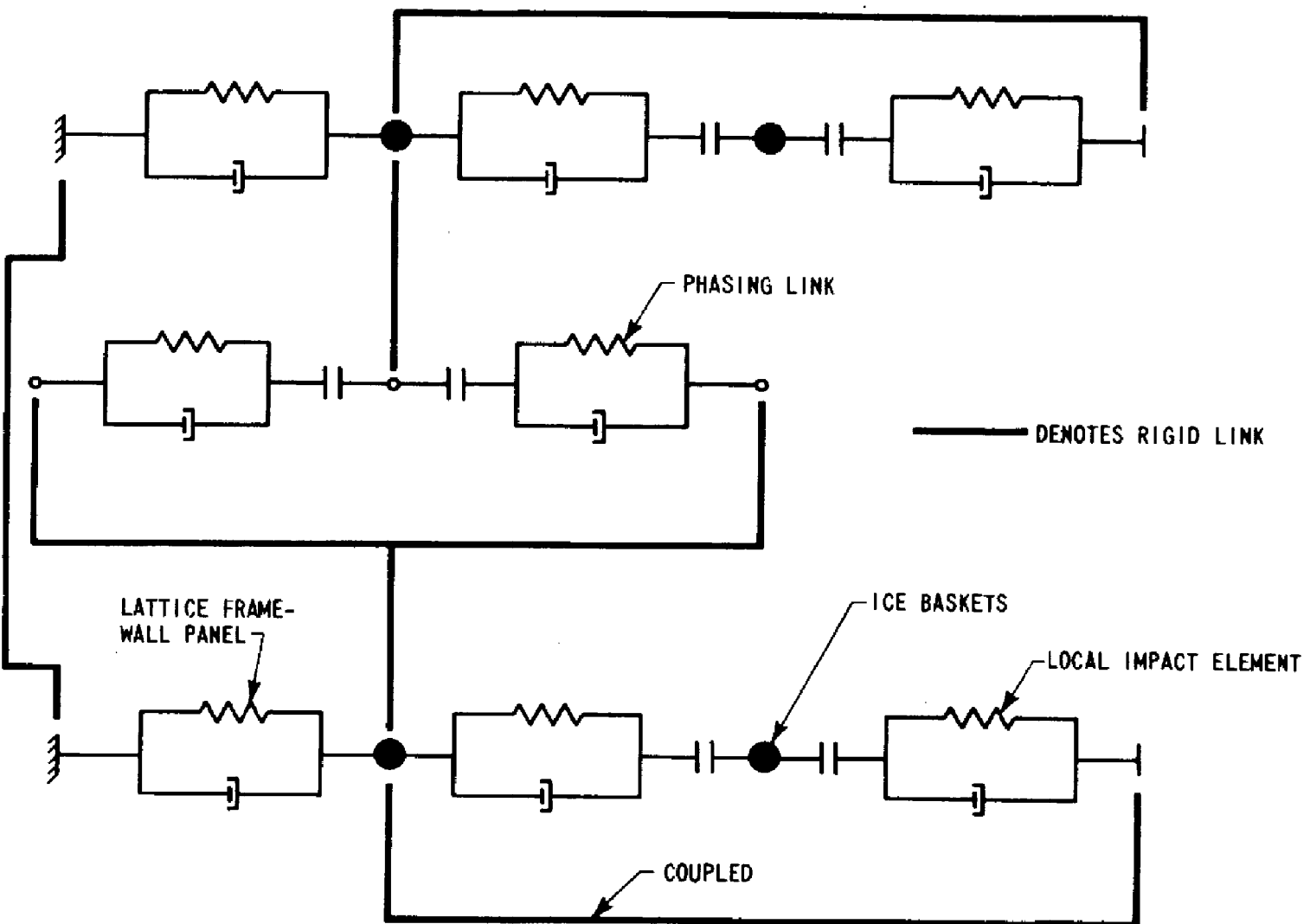


Figure 6-190. Phasing Study Model, 1 Level Lattice Frame 300 Degrees Non-Linear Model

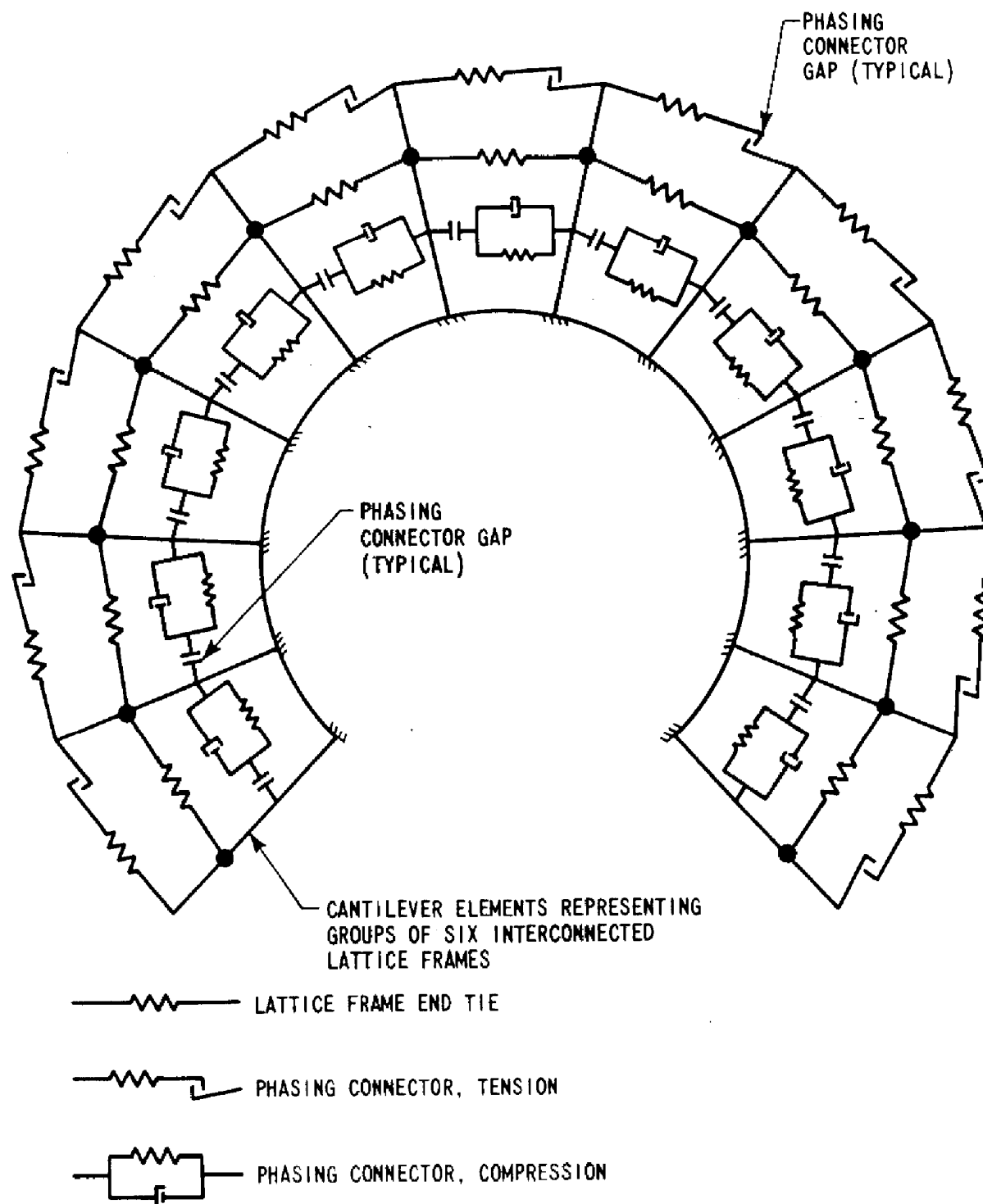


Figure 6-191. Typical Crane Wall Displacement

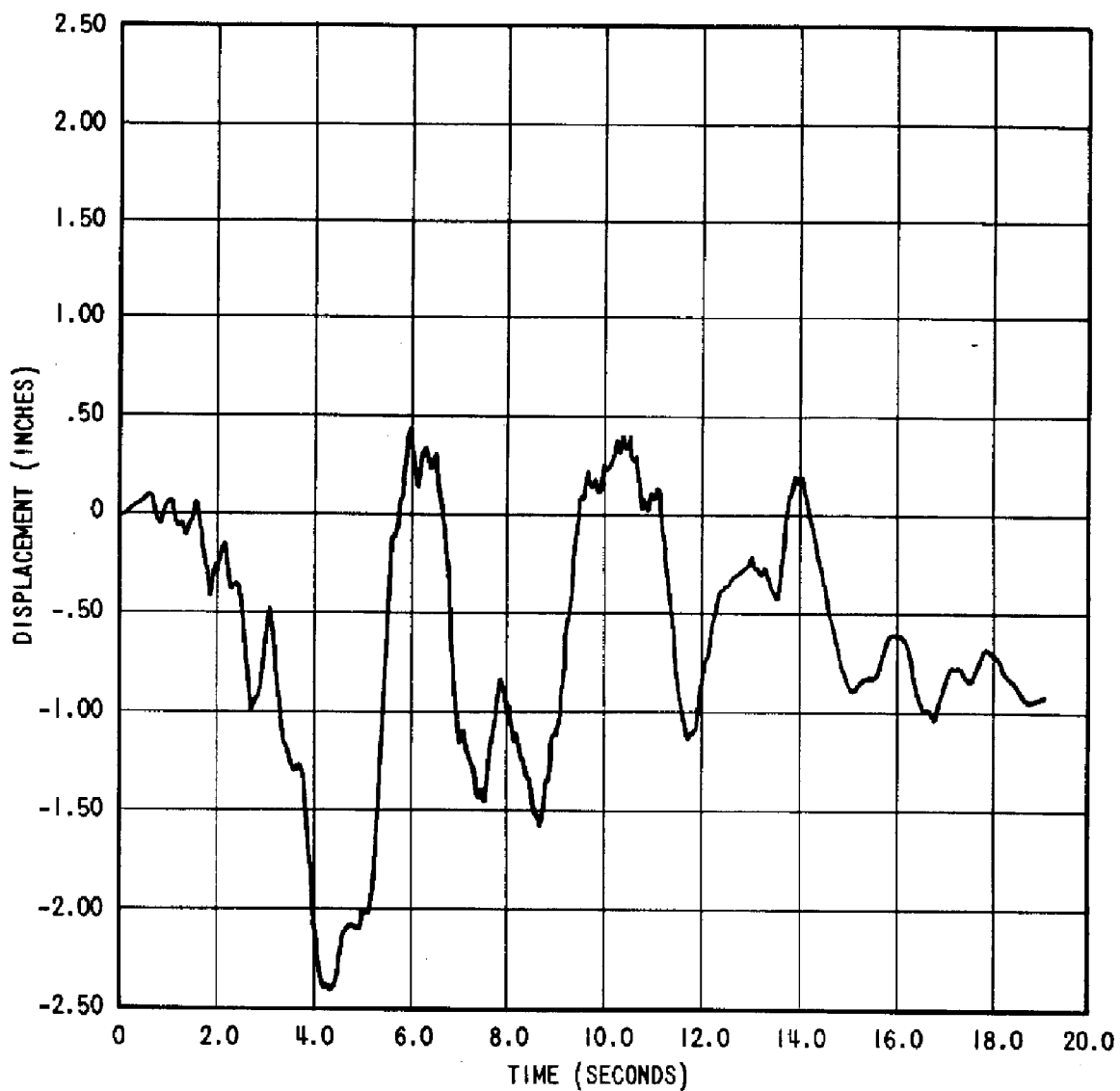
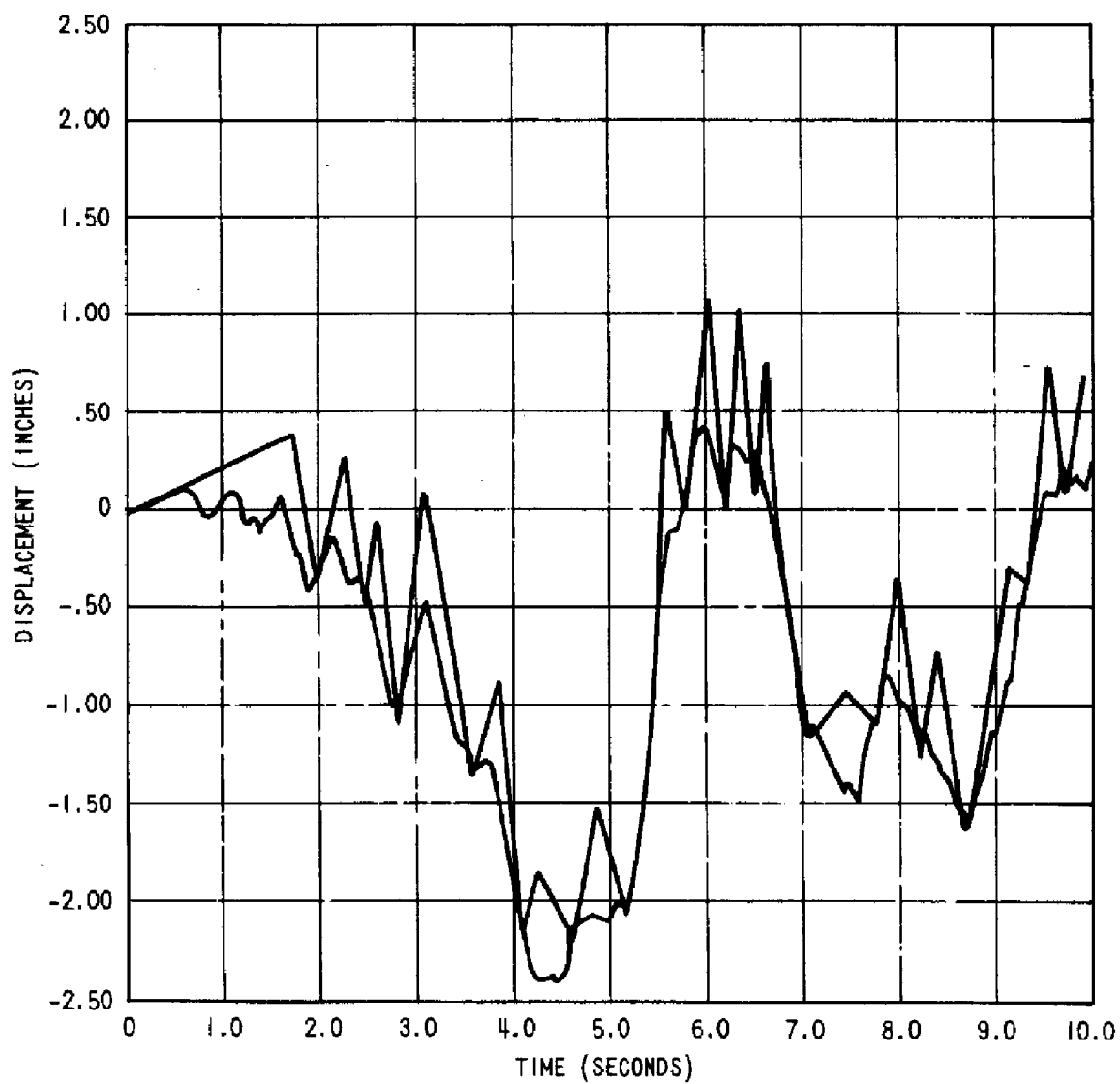
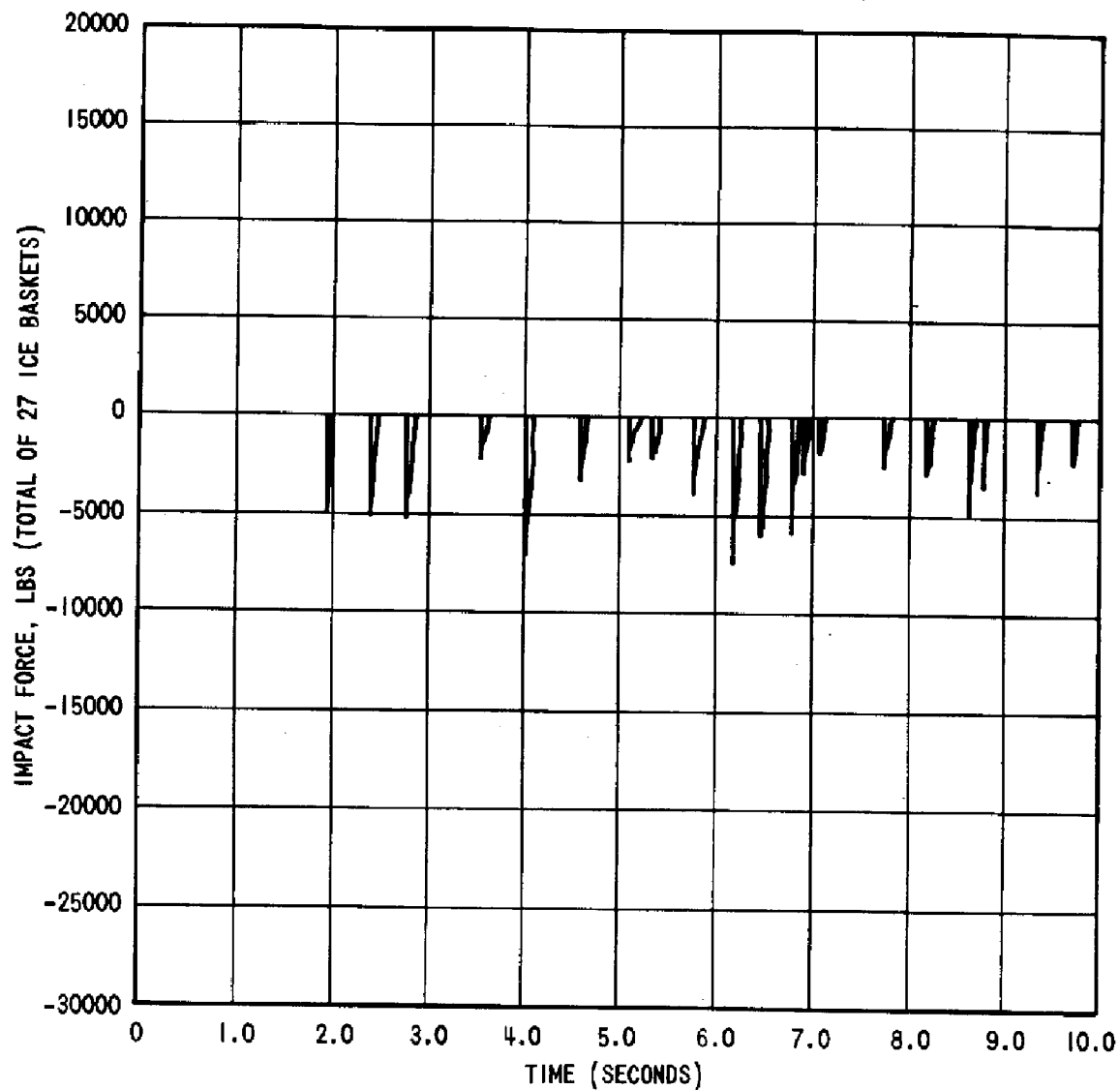


Figure 6-192. Typical Ice Basket Displacement Response



(22 OCT 2001)

Figure 6-193. Typical Ice Basket Impact Force Response



(22 OCT 2001)

Figure 6-194. Typical Crane Wall Panel Load Response

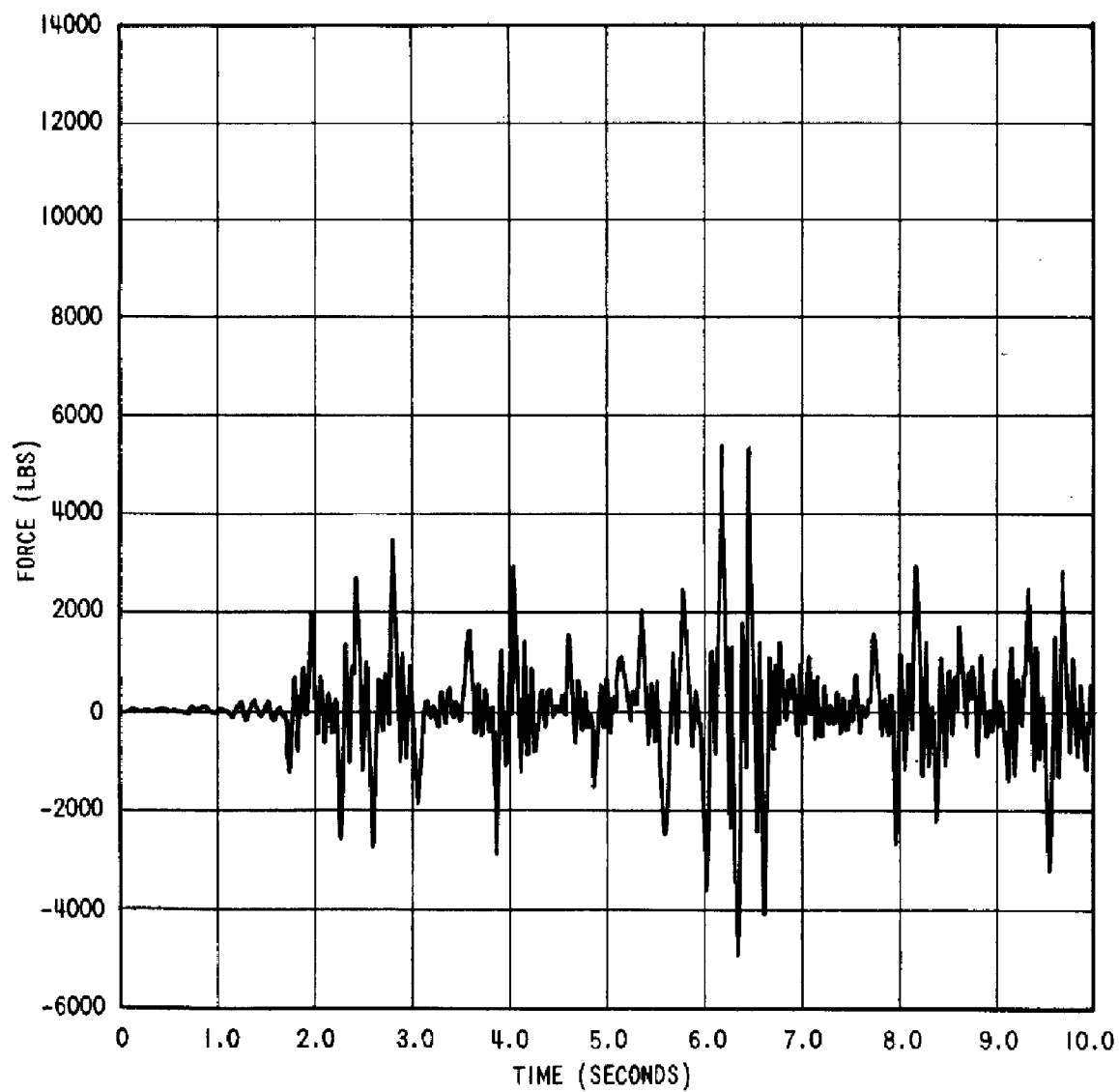
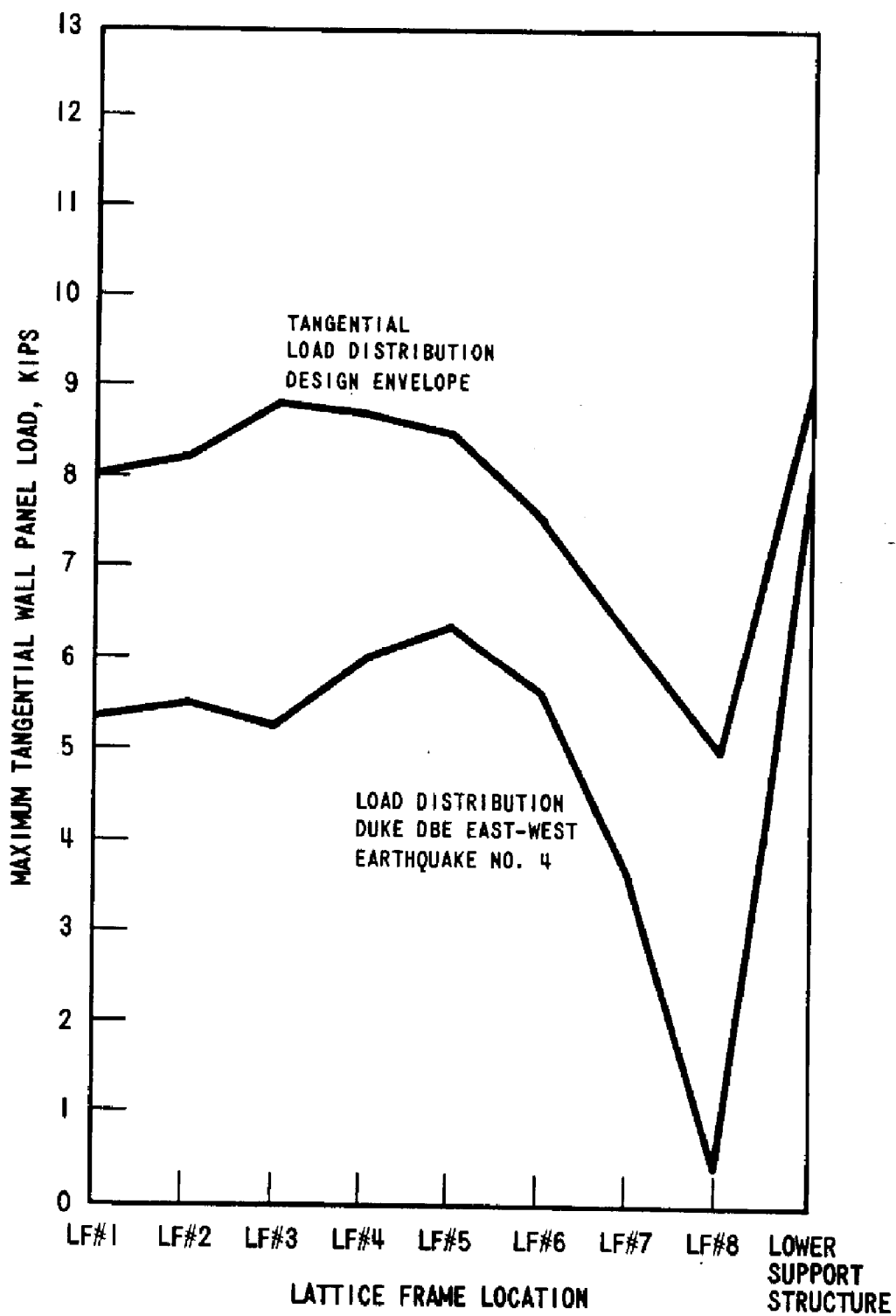


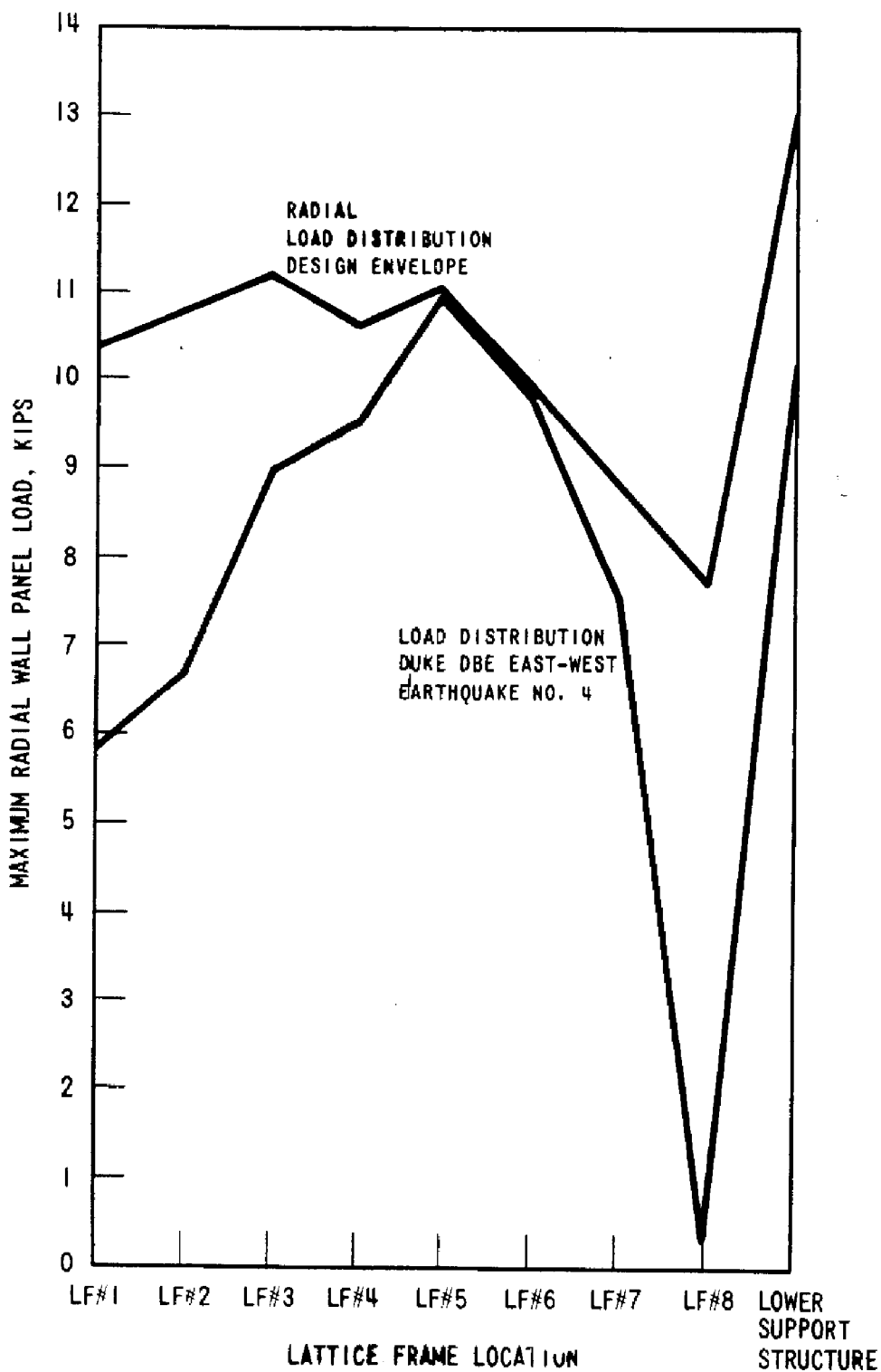
Figure 6-195. Wall Panel Design Load Distribution Obtained Using the 48-Foot Beam Model Tangential Case



(22 OCT 2001)

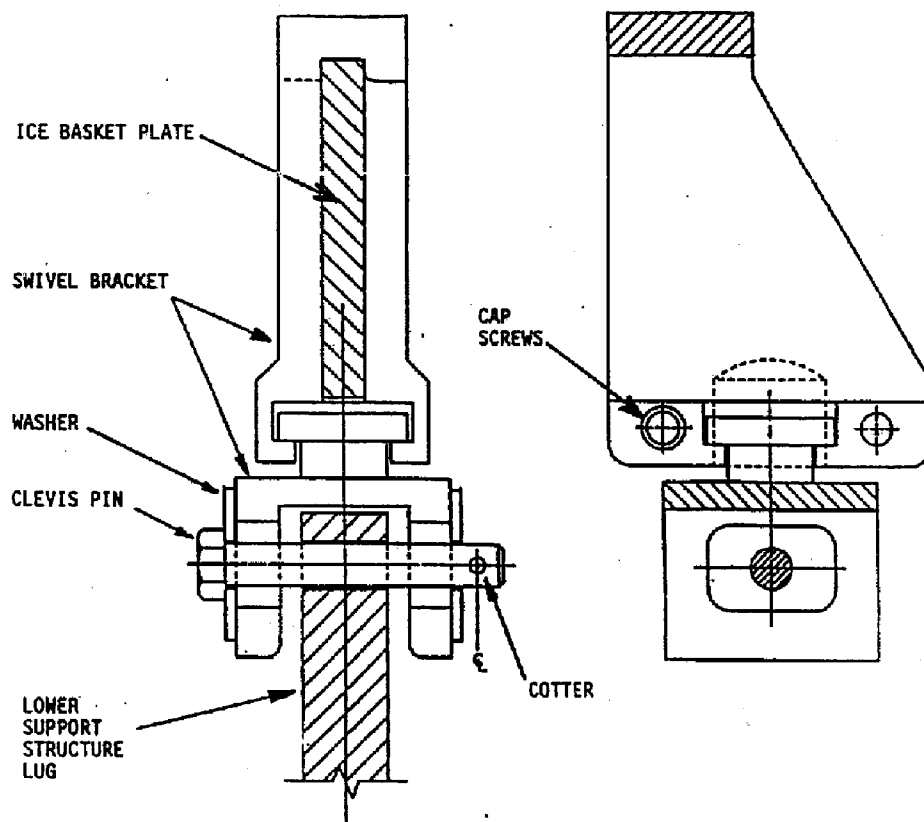


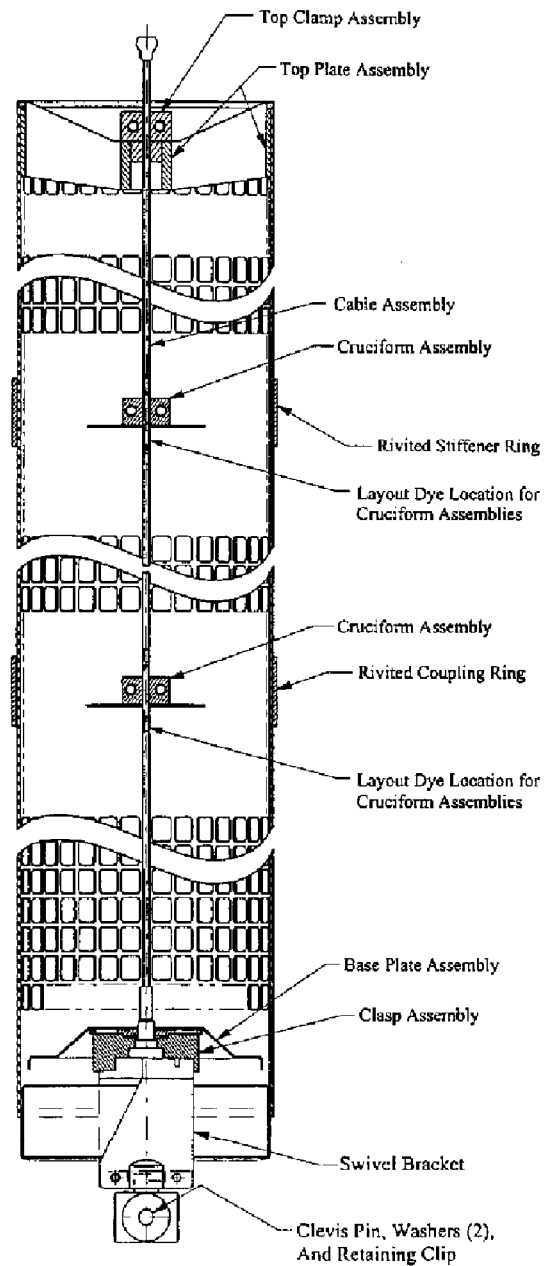
Figure 6-196. Wall Panel Design Load Distribution Obtained Using the 48-Foot Beam Model Radial Case



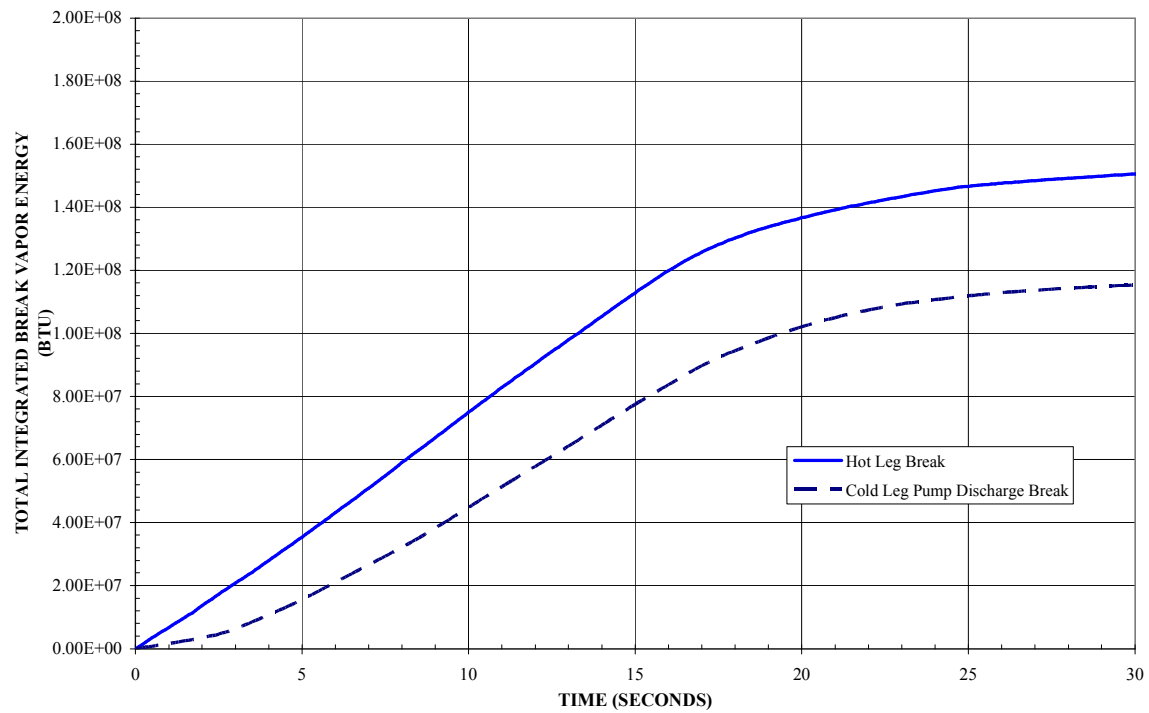
(22 OCT 2001)

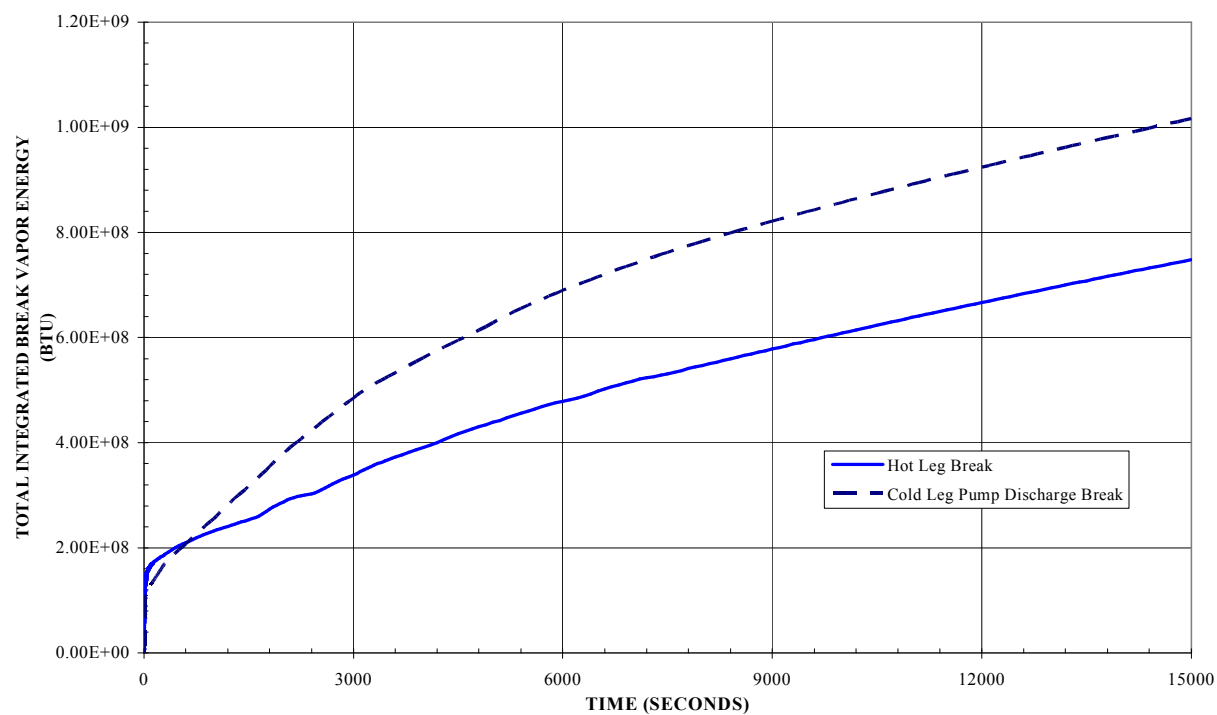
Figure 6-197. Ice Basket Swivel Bracket Assembly

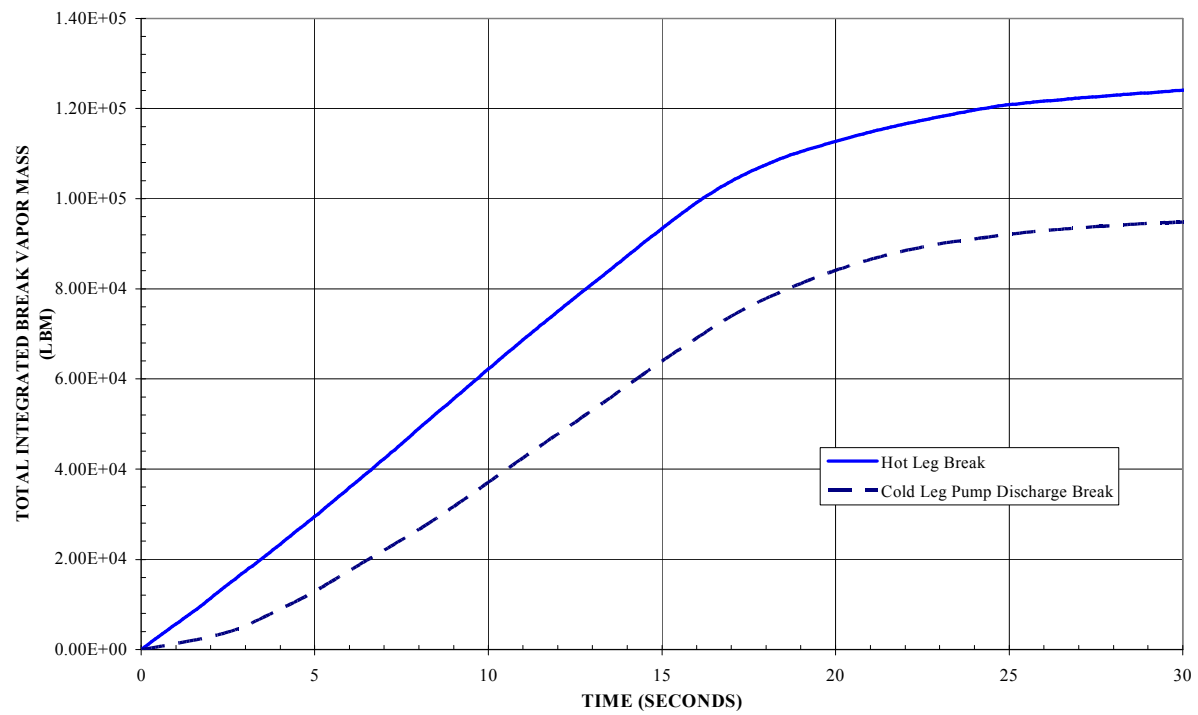


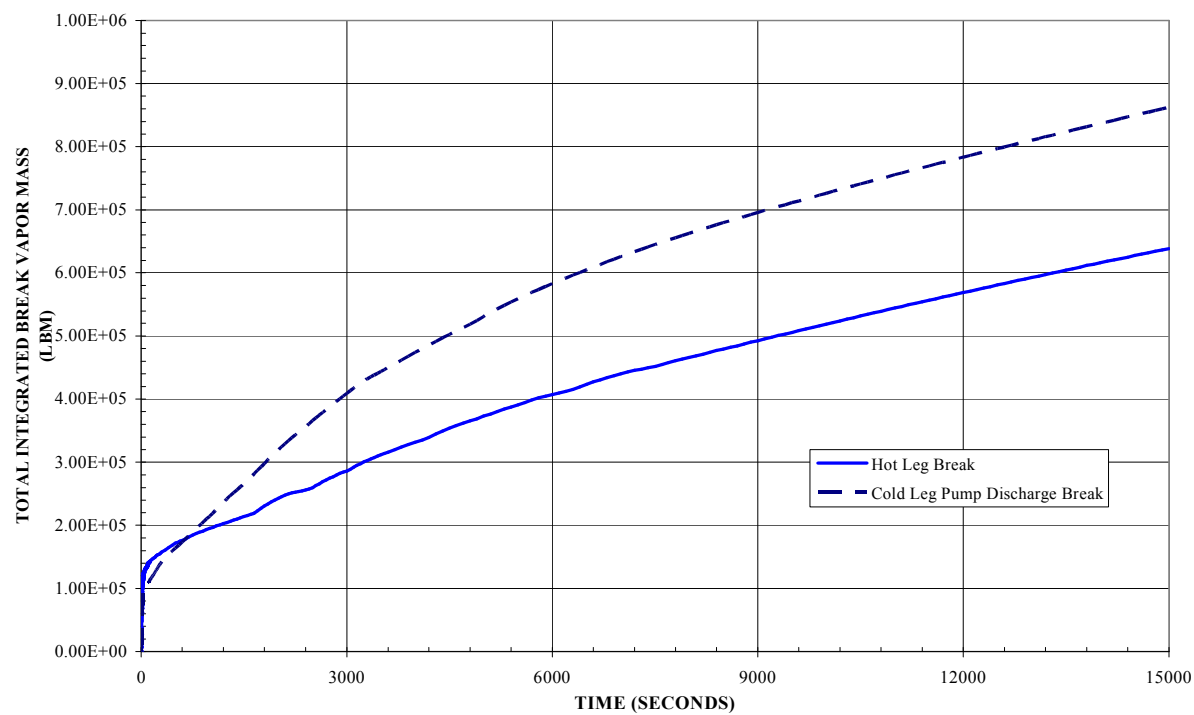
**Figure 6-198. Block Ice Minimum Restriction Basket Assembly**

(22 OCT 2001)

**Figure 6-199. CNS-1 Double-Ended LBLOCA Mass and Energy Release Analyses**

**Figure 6-200. CNS-1 Double-Ended LBLOCA Mass and Energy Release Analyses**

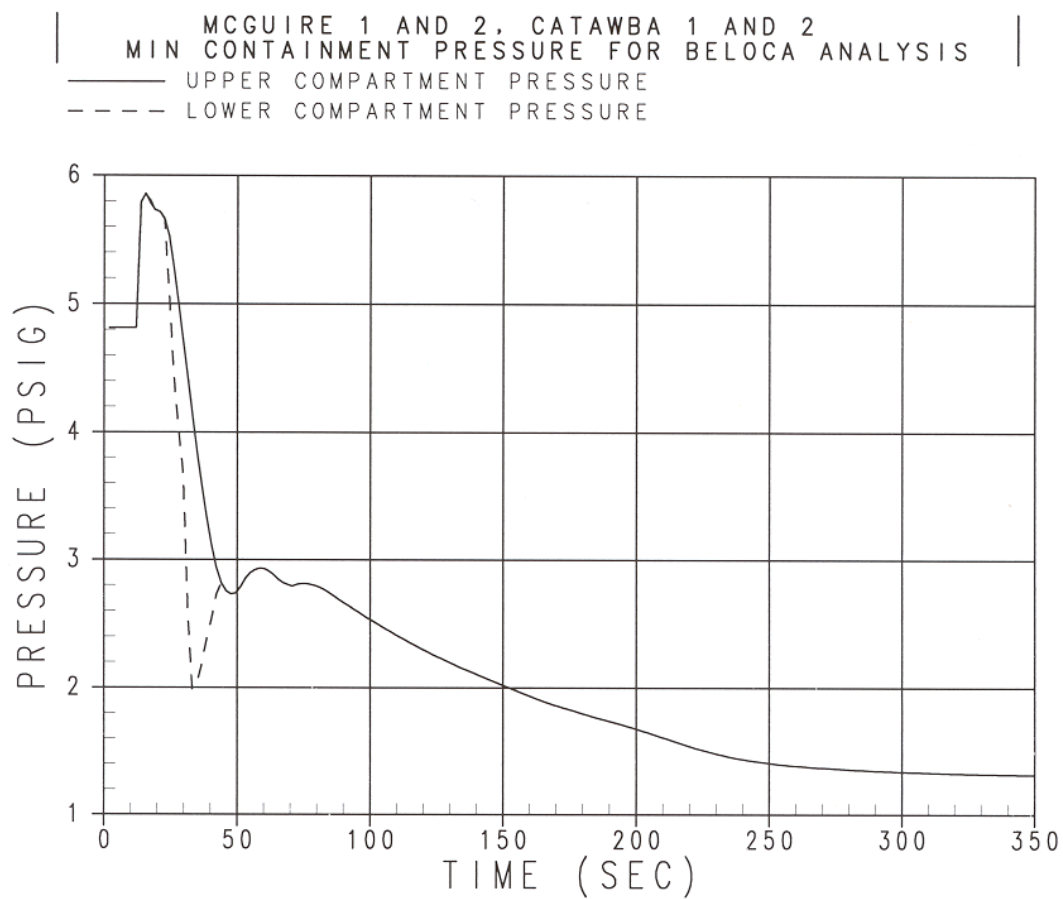
**Figure 6-201. CNS-1 Double-Ended LBLOCA Mass and Energy Release Analyses**

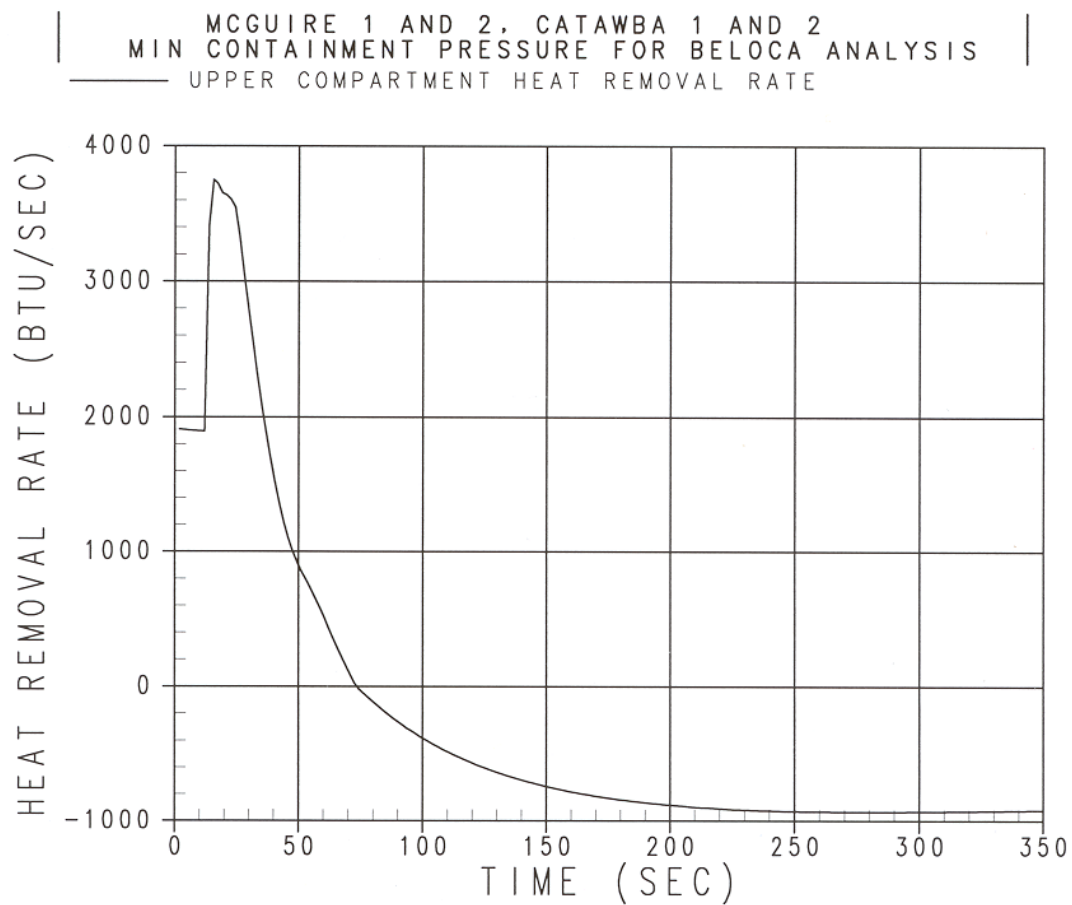
**Figure 6-202. CNS-1 Double-Ended LBLOCA Mass and Energy Release Analyses**

(18 APR 2009)

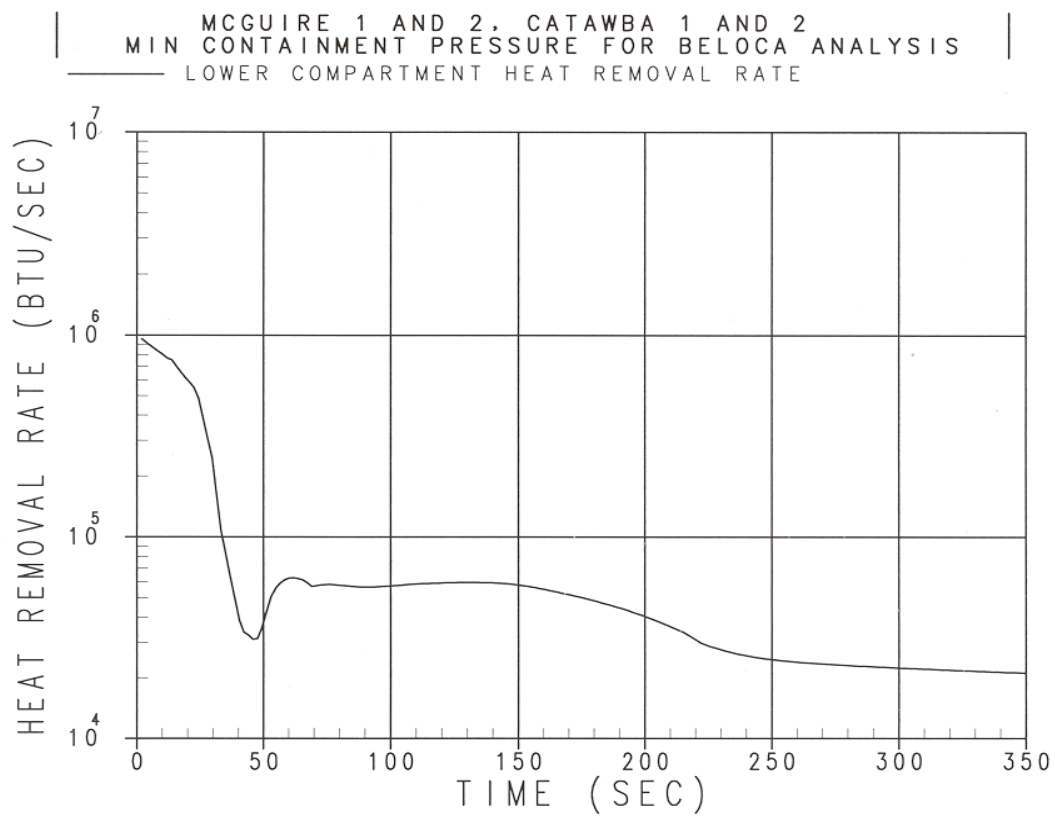
**Figure 6-203. Deleted Per 2000 Update.**



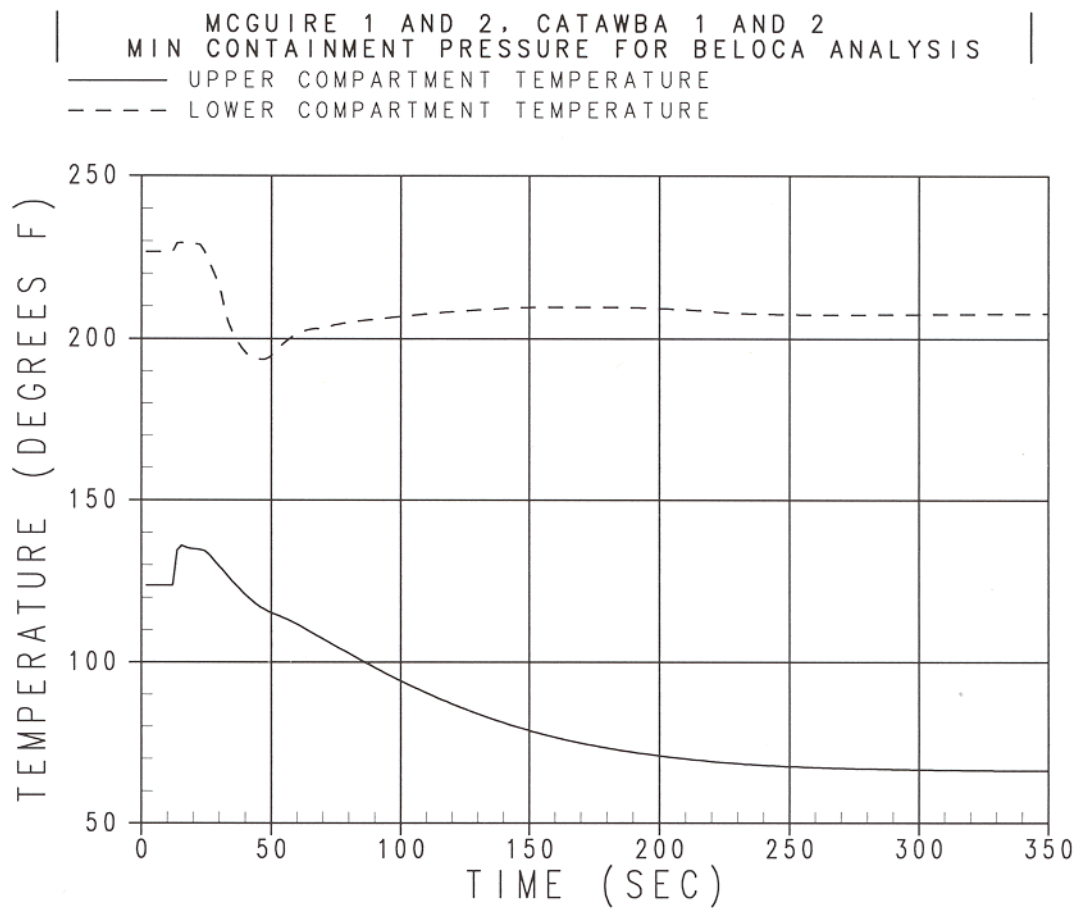
**Figure 6-204. Upper and Lower Compartment Pressure, Min. Pressure Analysis**

**Figure 6-205. Upper Compartment Heat Removal Rate, Min. Pressure Analysis**

(27 MAR 2003)

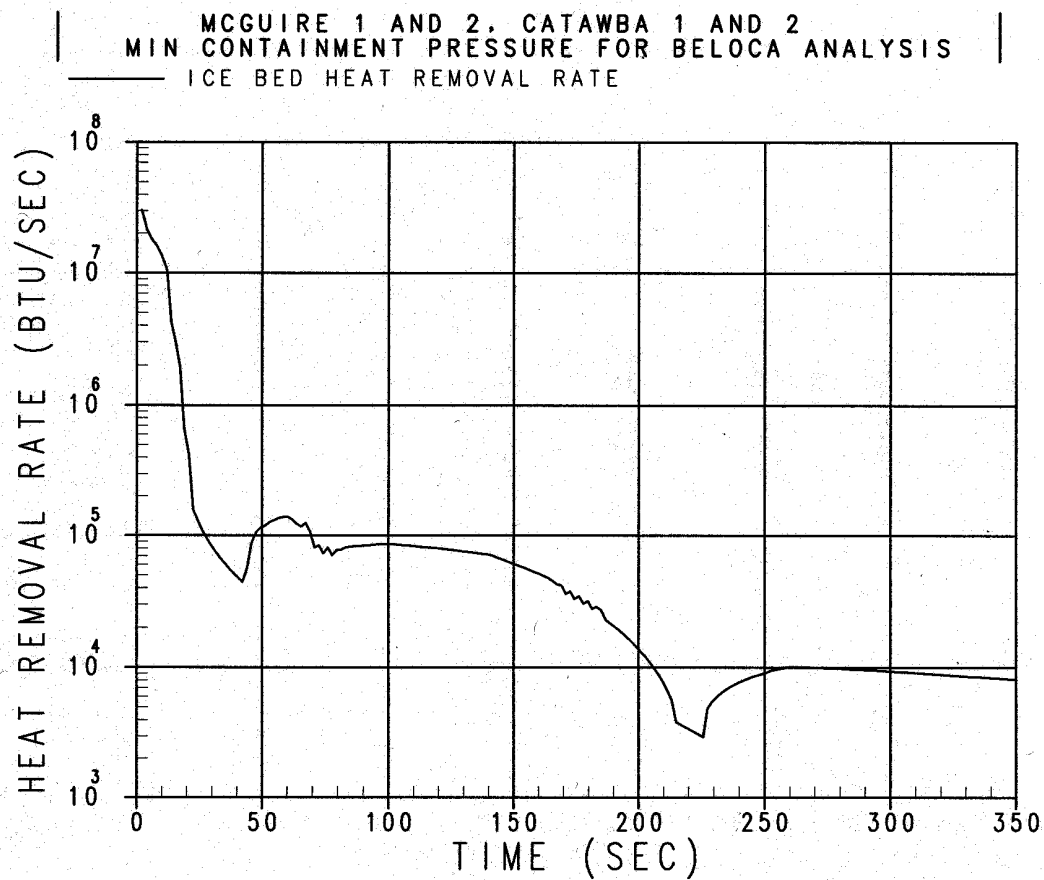
**Figure 6-206. Lower Compartment Heat Removal Rate, Min. Pressure Analysis**

(27 MAR 2003)

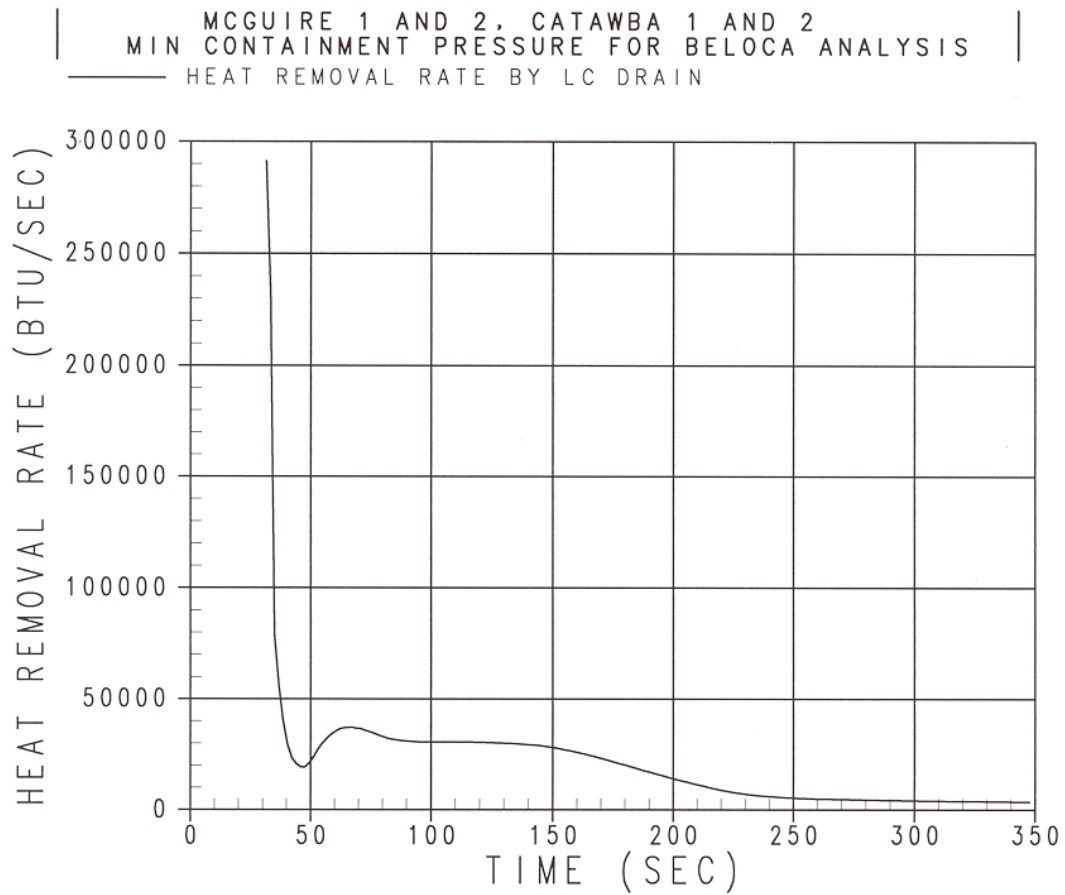
**Figure 6-207. Upper and Lower Compartment Temperature, Min. Pressure Analysis**

(27 MAR 2003)

Figure 6-208. Ice Bed Heat Removal Rate, Min. Pressure Analysis

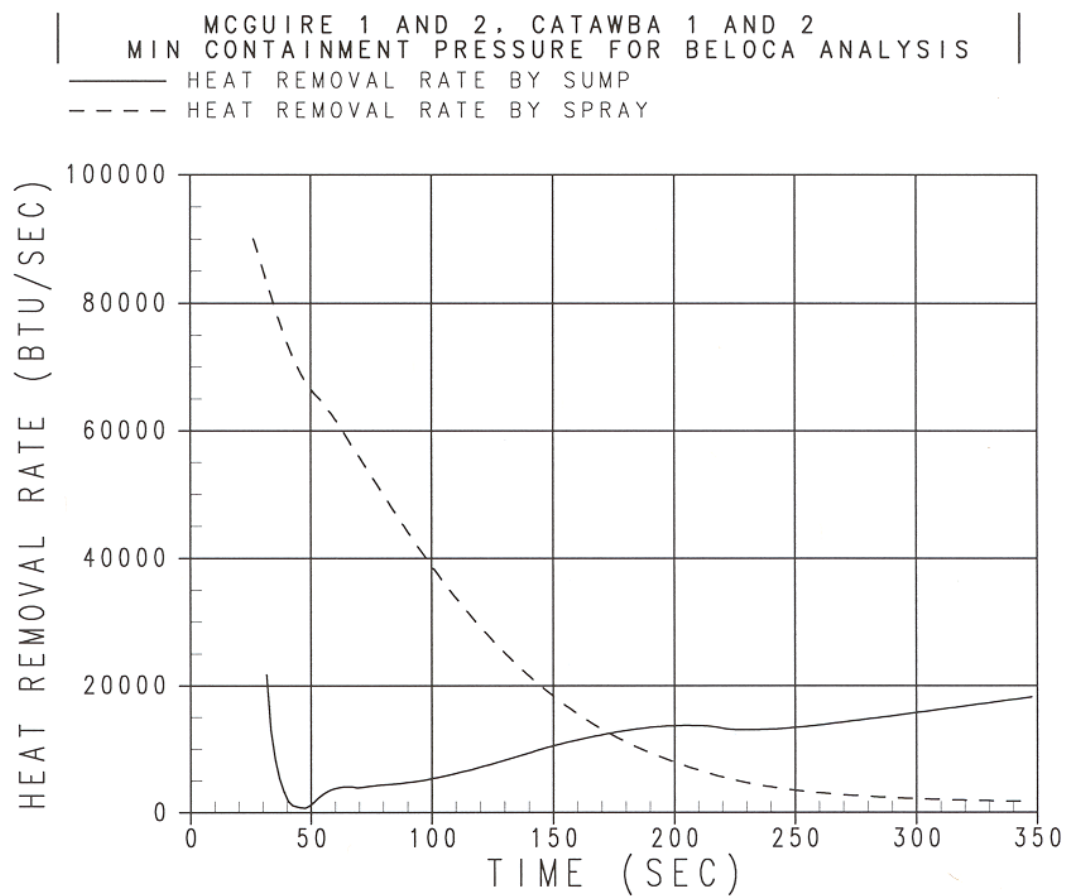


(27 MAR 2003)

**Figure 6-209. Heat Removal Rate by Lower Compartment Drain, Min. Pressure Analysis**

(27 MAR 2003)

Figure 6-210. Heat Removal Rate by Sump and Spray, Min. Pressure Analysis



(27 MAR 2003)