

Backup Calculations for Dresden Shroud Repair

Shroud Stress Report

for

Commonwealth Edison

Dresden Nuclear Power Station

Units 2 and 3

May 1995

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SECTION 1: GENERAL ASSUMPTIONS AND APPROACH

SECTION 2: THE FINITE ELEMENT MODEL

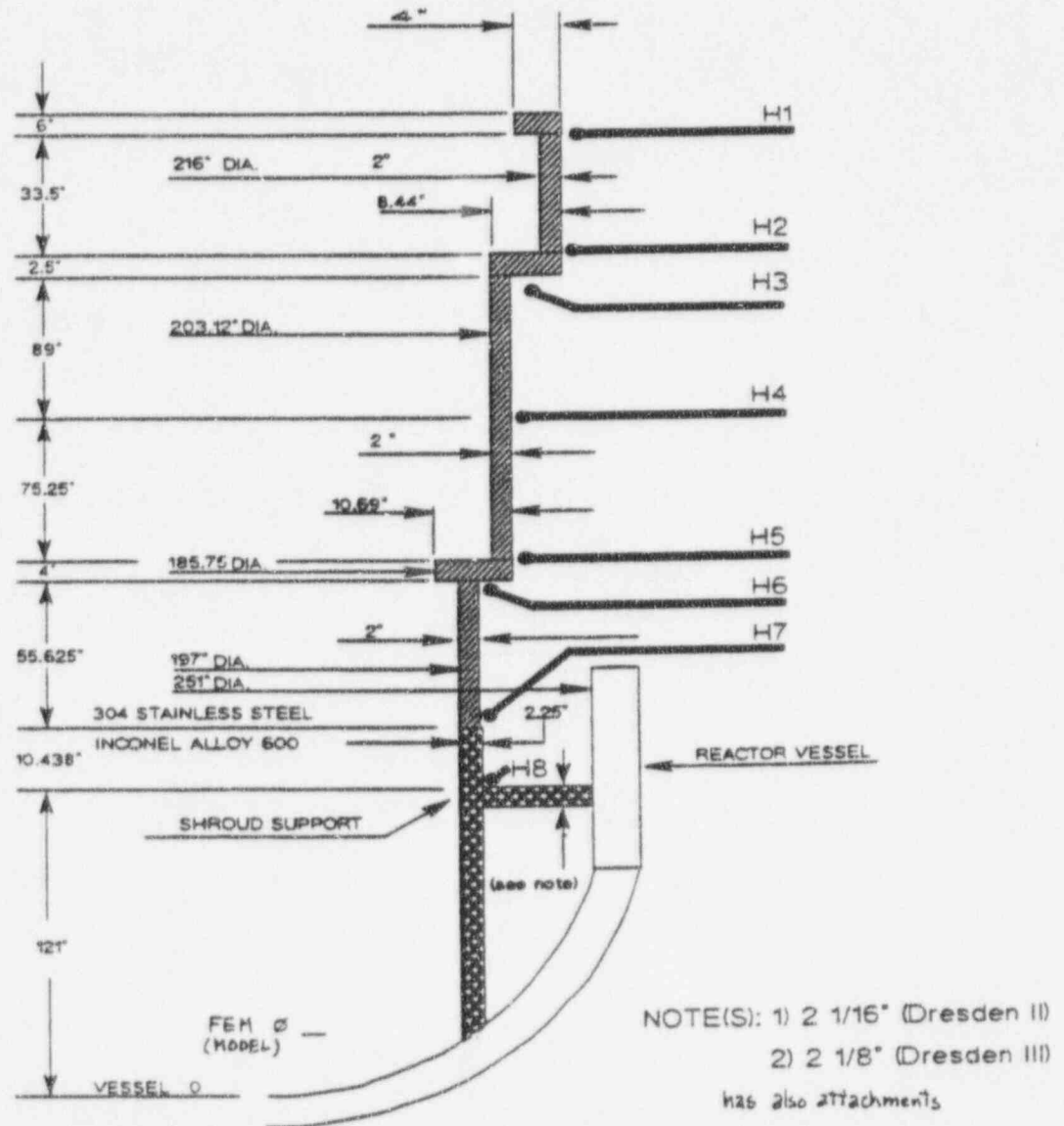
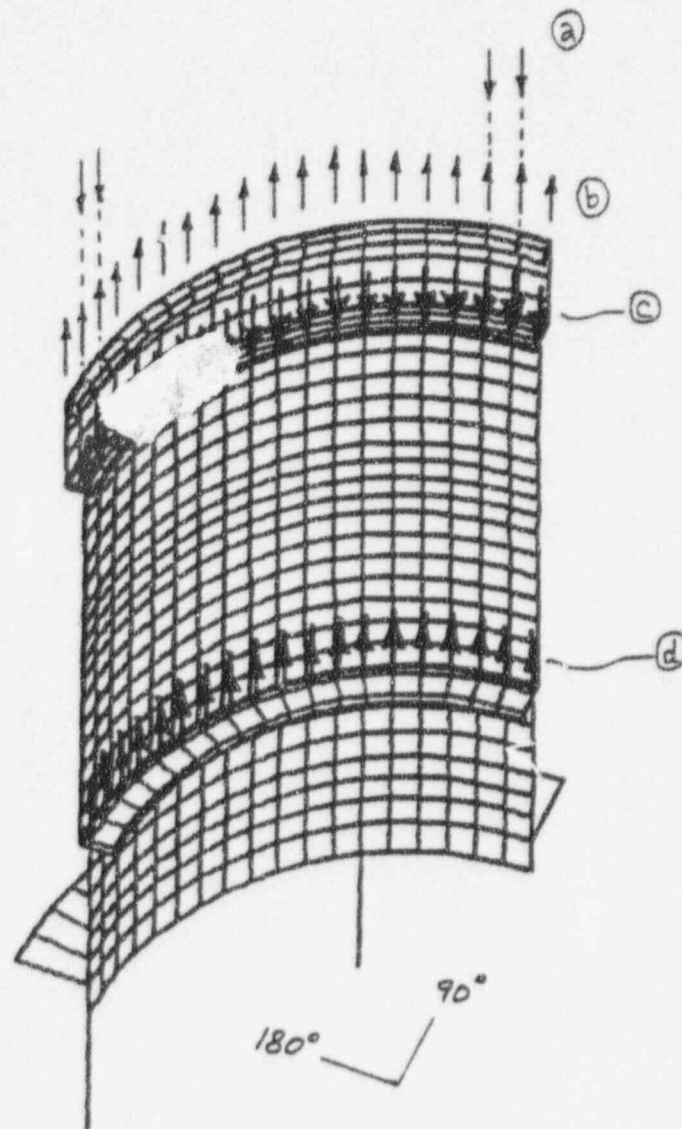


FIGURE 2.1 Basic shroud geometry and weld designations.

SECTION 3: LOADING CASES & THEIR APPLICABLE LOADS



Symmetric Half of the model

Figure 3.2 Application of Tie Rod Forces (at 4 nodes per tie rod), and Uniform Vertical Forces at the Shroud Head (distributed equally among the nodes shown), Top Guide (distributed equally among the nodes shown) and Core Plate (distributed equally among the nodes shown) Flanges.

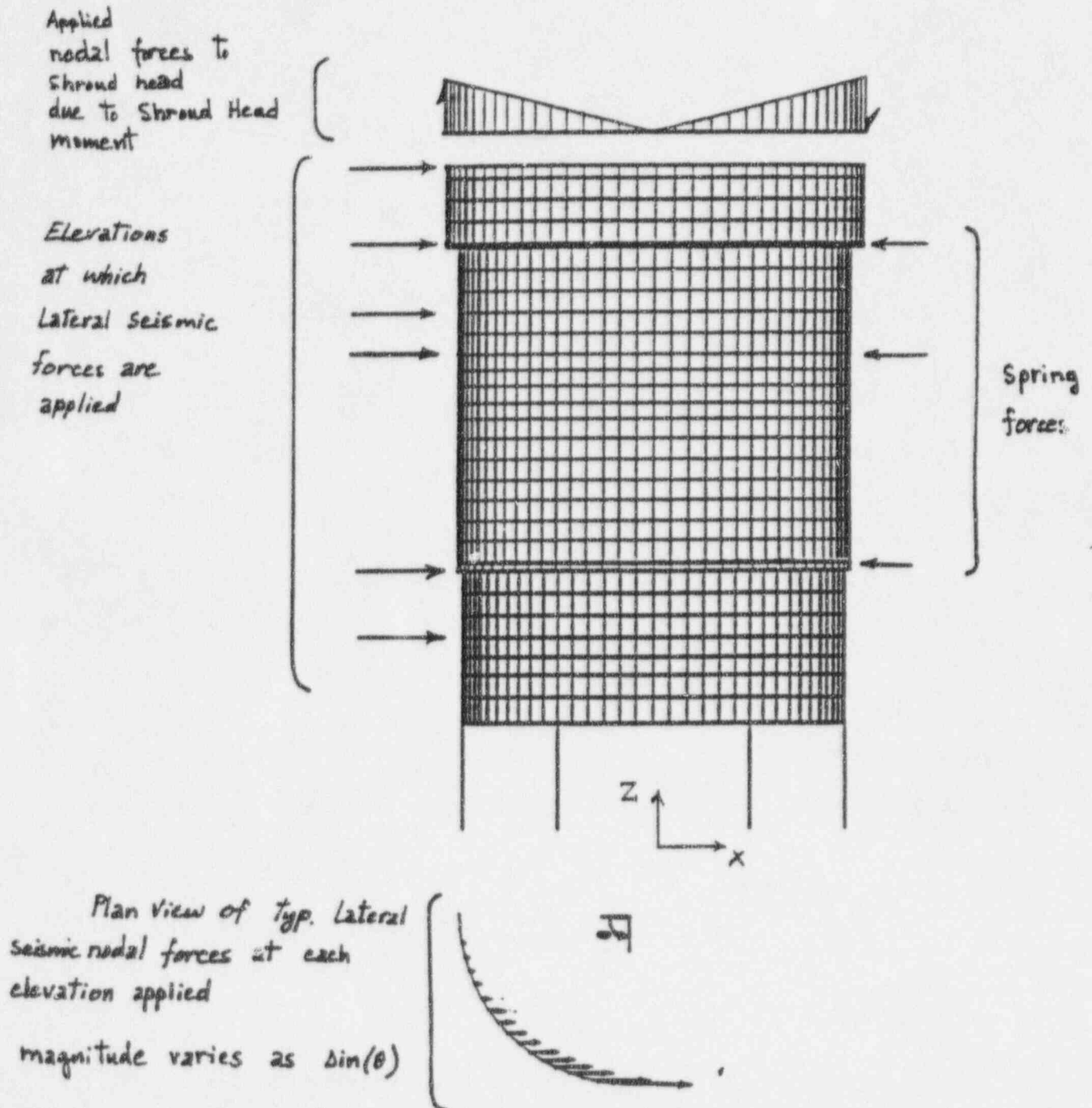


Figure 3.3 Application of Seismic Lateral Forces and Moment of Shroud Head

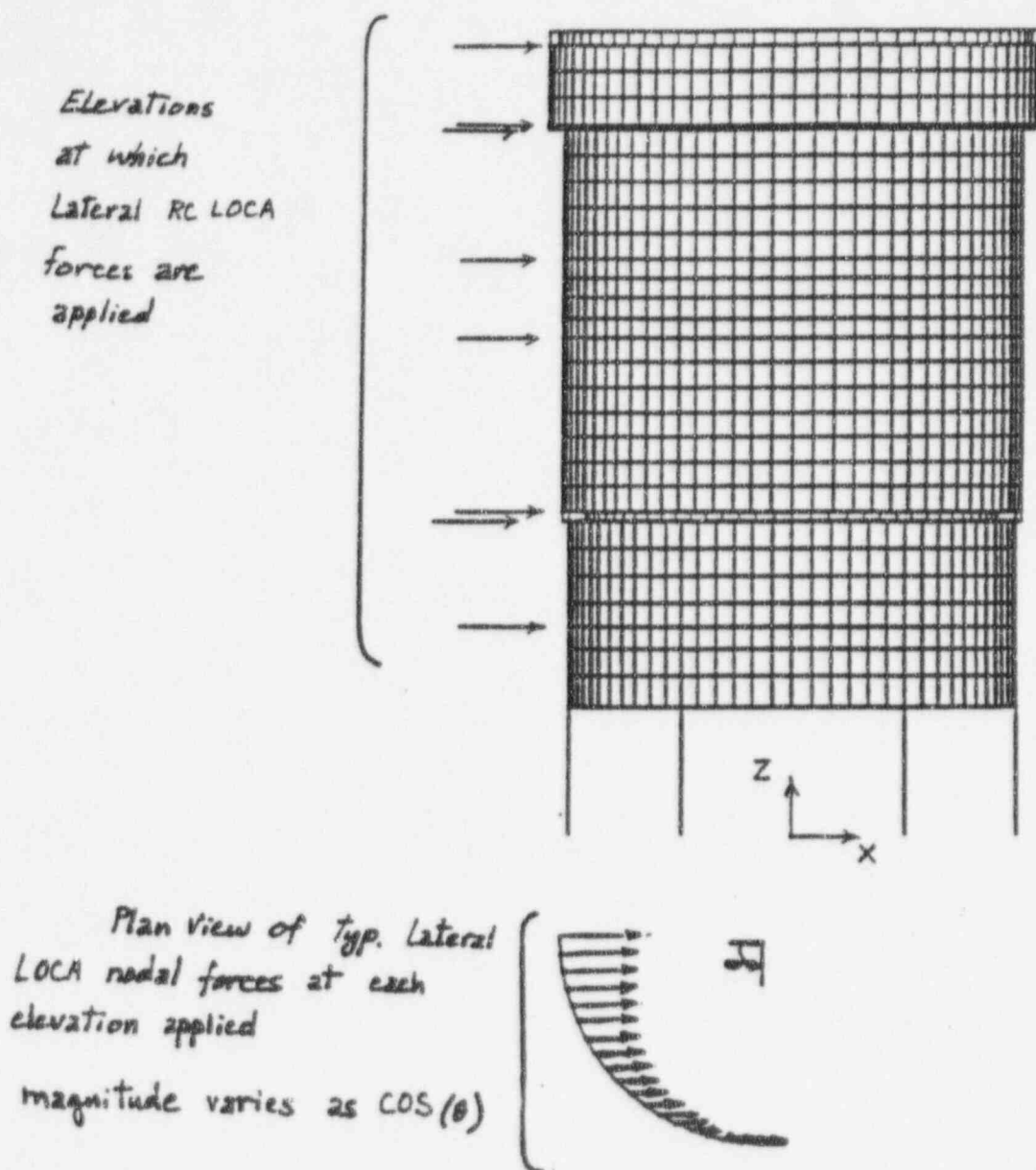


Figure 3.4 Application of RC LOCA Lateral Forces.

SECTION 4: NORMAL & UPSET SEISMIC

SECTION 5: EMERGENCY 1

SECTION 6: EMERGENCY 2 & 3

(Emergency 2 is the limiting case due to its higher loads)

SECTION 7: FAULTED 1 & 2

(Faulted 1 is the limiting case due to its higher loads)

SECTION 8: UPSET THERMAL

APPENDIX I: EFFECTIVE STIFFNESS
FOR COMBINED
SHROUD (SHELL) & MIDDLE SPRING

APPENDIX II: CORE-PLATE WEDGE DESIGN

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APPENDIX III: ANALYSIS RUN IDENTIFICATIONS

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APPENDIX IV: H8 WELD ANALYSIS

APPENDIX V: SHROUD FLANGE SUPPORTING TIEROD

APPENDIX VI: GAP AT A CRACKED H6 WELD

REFERENCES

1. DRF B13-01749, Section E.1, 1995.
2. "Dresden Nuclear Power Station Units 2 & 3 Shroud and Shroud Repair Hardware Analysis for the repair of Welds H1 through H7", Vol. II: Shroud, Stress Report for Commonwealth Edison Co., GENE-771-81-1194, Rev. 1, May 1995.

Enclosure 8

GENE-771-83-1194, Revision 1

Commonwealth Edison Company
Dresden Nuclear Power Plant Units 2 & 3
Shroud and Shroud Repair Hardware Analysis
Shroud Repair Hardware Backup Calculation

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