

PROJ 0689

Safety Margin Assessment of Davis-Besse Head Wastage Condition

B/6A

**Presented by:
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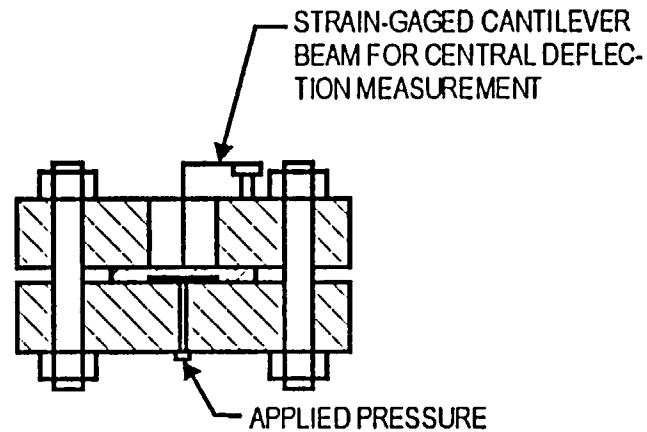
Summary of Analysis (cont'd)

- Predicted failure pressure is 5600 psi (> 2 times normal operating pressure) for average clad thickness of 0.297 in. Predicted failure pressure is 4600 psi for minimum measured clad thickness of 0.24 in.
- Analysis procedure and failure criterion compared against physical disk burst tests to demonstrate that burst pressure predictions are conservative

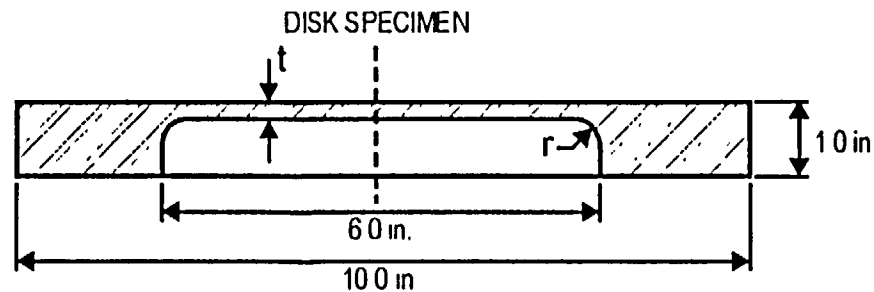
Analysis Cases and Results

Load Case	Predicted Pressure @ 11% Strain	Predicted FEM Instability Pressure
Original footprint with 0.297 in. thick clad (20.5 in ²)	5600 psi	>8000 psi
Original footprint with 0.24 in. thick clad (20.5 in ²)	4600 psi	>4800 psi
Enlarged footprint with 0.24 in. thick clad (self-similar) (41 in ²)	>2750 psi	>4000 psi

PVRC Disk Burst Test Specimens



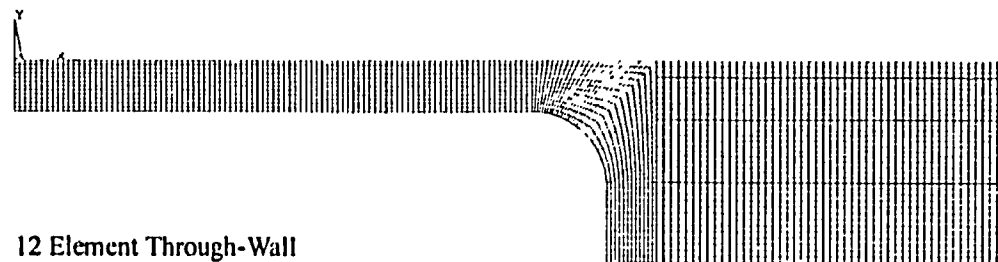
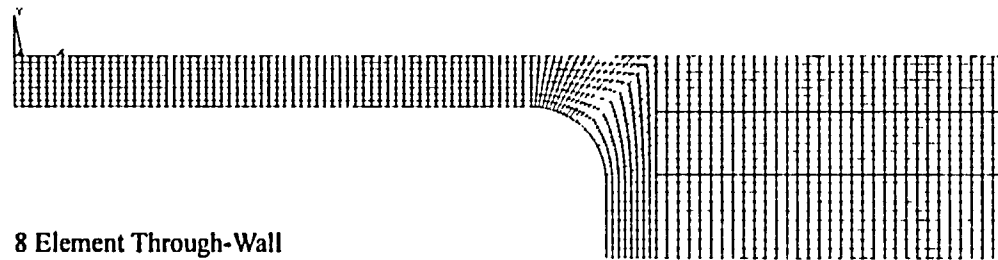
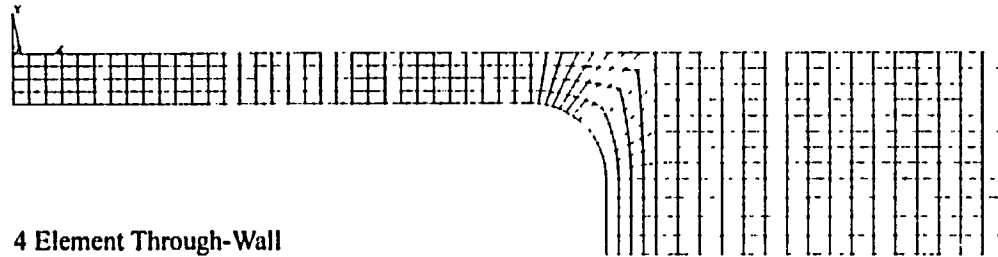
SCHEMATIC ILLUSTRATION OF TEST SETUP



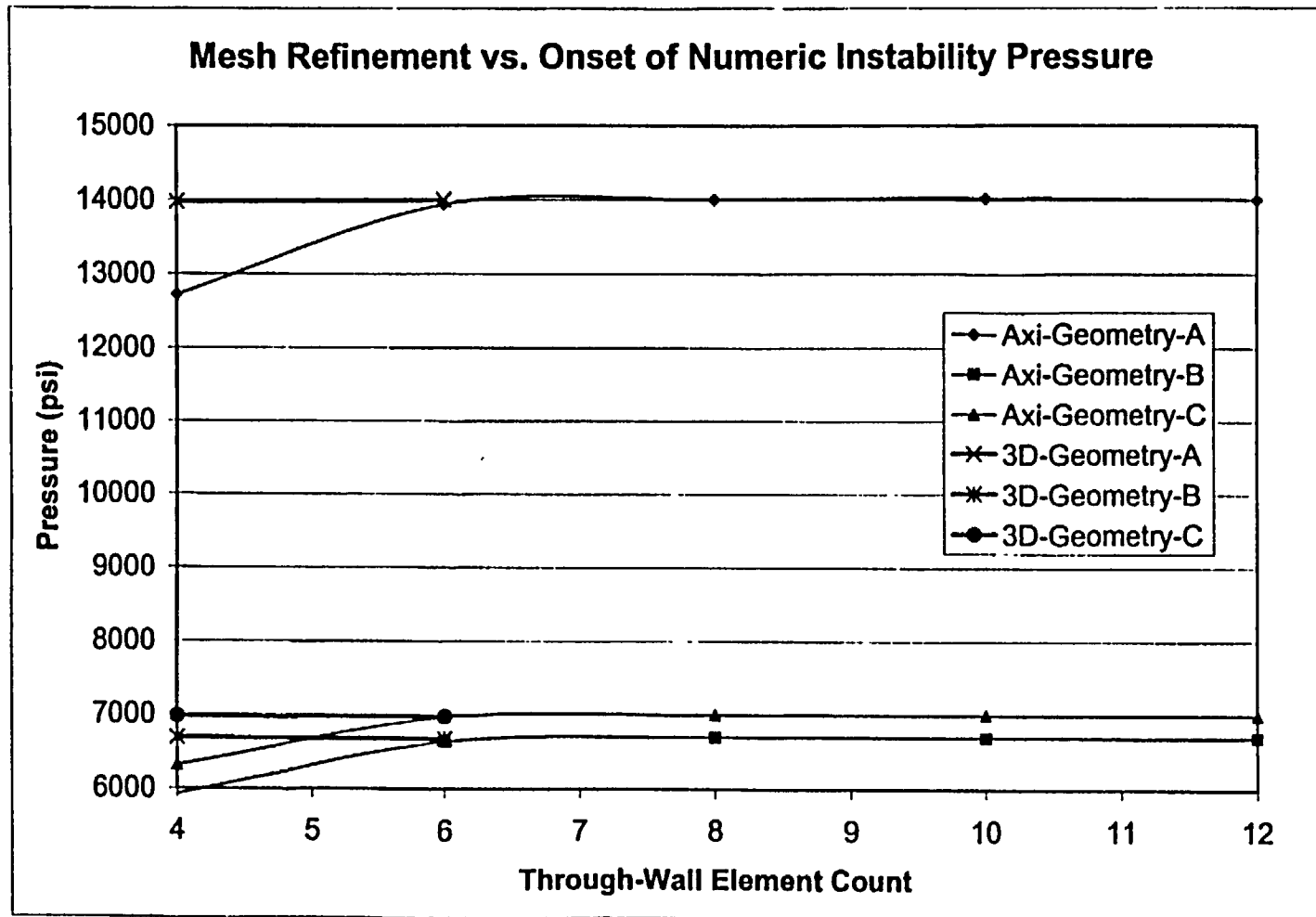
GEOMETRY	THICKNESS (t)	FILLET RADIUS ϕ
A	0.25 in	0.375 in
B	0.125 in.	0.125 in.
C	0.125 in.	0.375 in.

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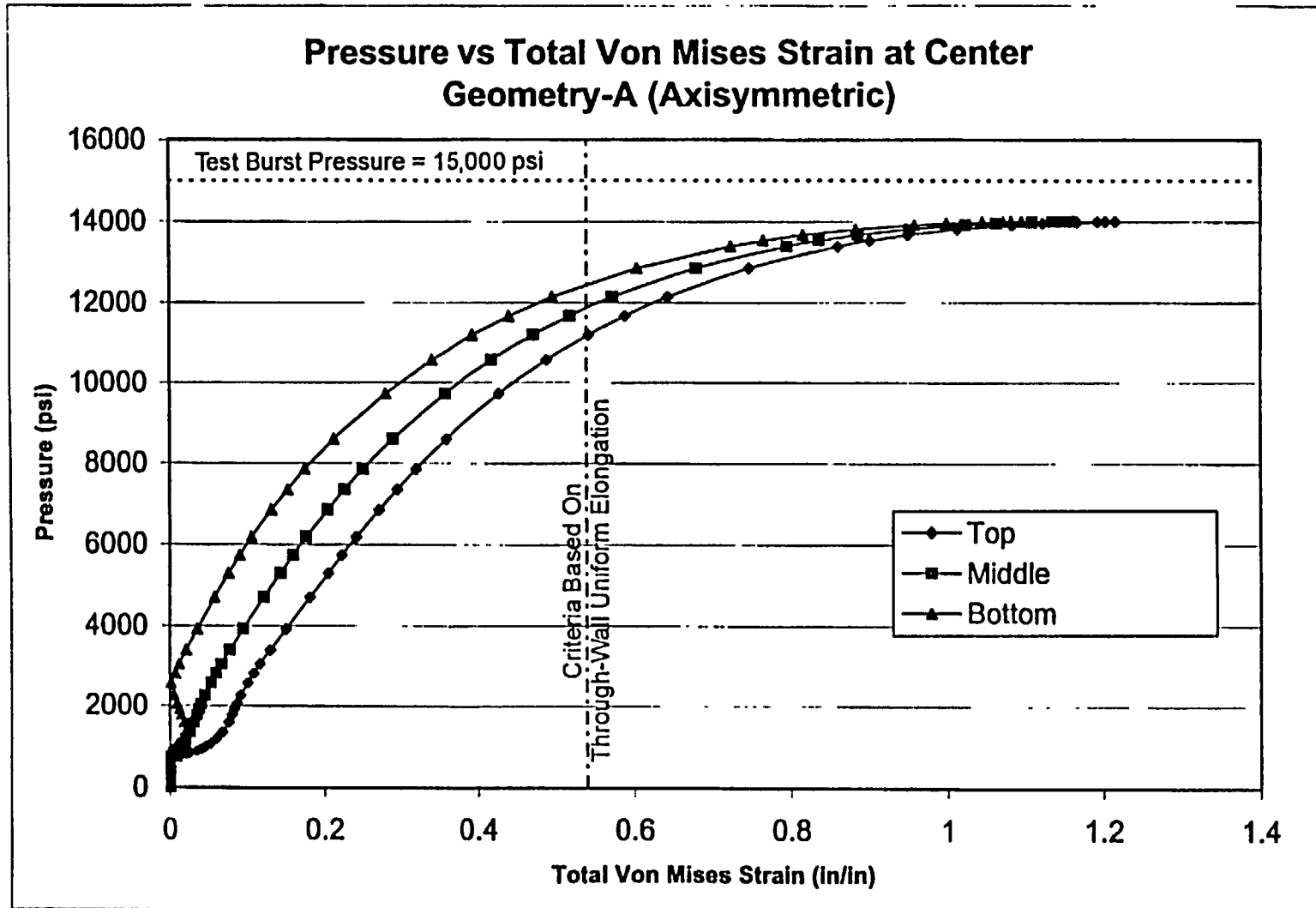
Axisymmetric FEMs of Disk Burst Specimens



Demonstration of FEM Convergence on Disk Burst Specimens



Demonstration of Failure Criterion on Disk Burst Specimens



Conclusion

The analysis procedure and failure criterion used in the Davis-Besse RPV head wastage evaluation is conservative compared with physical burst test results.