



Fig. 241 Elastic-plastic analysis of the **optimized unstiffened equivalent ellipsoidal shell with the thick apex with $t(\text{apex}) = 0.61996$ inch; $W_{\text{imp}}=0.2$ inch; the optimum design is listed in Table 93.** Collapse of the imperfect shell with **Case 1** residual dents of various depths. The **Case 1** dents are generated by a load set B (PB) cycle. Load Set B consists of a number of normal, inward-directed concentrated loads applied, in **Case 1**, along row 2 of segment 3 (Figs. 2, 169, 232, and 233) that has a $\cos(\theta)$ circumferential distribution from $\theta = 0$ to 90 degrees. This “ $\cos(\theta)$ ” load distribution is used because it generates a dent that **locally** resembles the negative of the deformation in Figs. 232 and 233, that is, the negative of the linear buckling modal imperfection with $n = 1$ circumferential wave. Compare with Fig. 217.