

The Limit State Analysis of a Prestressed Concrete Containment Vessel for PWR

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The limit state analysis is briefly presented, in which a provision is made for various shapes of dome resting on cylindrical walls. Equilibrium equations for spherical and toro-spherical domes have been derived. A correlation is established between the cylindrical wall and the specific dome shape. The global formulation adopted is then used on two existing containment vessels. A specially developed computer program LIMIT examines this vessel under internal and external loads, and loads caused by aircraft crashes. The above equations are modified to include the empirical formulae developed for impact. Perforation, scabbing and cracking conditions are assessed. A safety margin is given for two vessels under normal cracking conditions.