High Energy Forming Facility

The problem:
To design and construct a watertight, high-explosive forming facility 25 feet in diameter, 15 feet deep and capable of withstanding repeated explosions of 10 pounds of TNT equivalent.

The solution:
A cylindrical shell of high-strength steel fabricated according to statically determined calculations to allow various structural elements to deform or move elastically and independently while retaining structural integrity. The design is based on shock-wave energy absorption with the shell pulsating in hoop tension and rebound. The forming vessel remains watertight as a result of a bituminous seal located between a reinforced concrete footing and the steel shell. This seal is retained by a special double-curvature, pressure-spring cove plate connected to the floor plate (footing) at one edge only.

Notes:
1. The explosive forming facility permits drawing or forming exceptionally large metal sections as well as relatively small, extra-thick sections to precision tolerances.
2. Inquiries concerning this invention may be directed to:
   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama 35812
   Reference: B67-10588

**Patent status:**
Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: B. Ciurlionis of North American Aviation, Inc. under contract to Marshall Space Flight Center (MFS-14026)