

SONAT EXPLORATION**West ~~SONAT~~ TEXAS BUSINESS UNIT**

Minimum Requirements for a 3,000 psi BOP
Stack Manifold & Closing System

BOPS AND ALL
REMOTE CONTROL VALVES
CONTROLLED FROM RIG FLOOR.

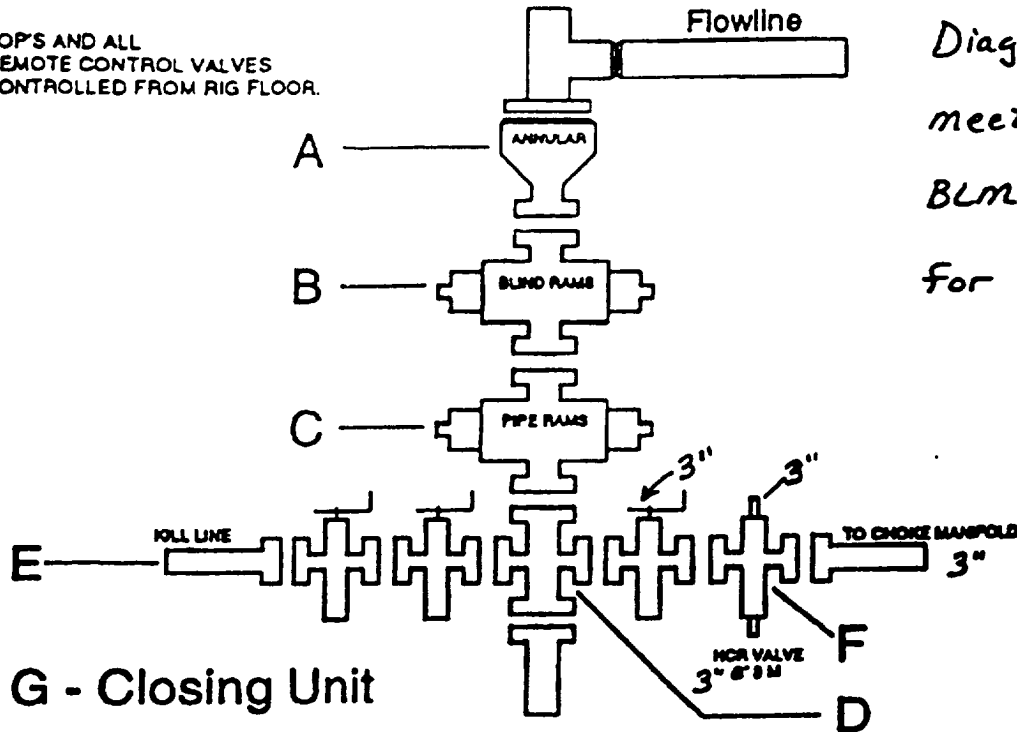


Diagram as shown
meets the minimum
BLM requirements
for a 3M stack.

- G - Closing Unit**
- A. Annular BOP Must be 3000 psi Working Pressure.
 - B. Blind Rams Between Annular & Pipe Rams w/ 3000 psi Working Pressure.
 - C. Pipe Rams Below Blind Rams w/ 3000 psi Working Pressure.
 - Note: All Rams & Spools Must Meet Required I.D. for Hole Size.
 - D. Drilling Spool w/ 2 Outlets for Choke Line & Kill Line
 - E. Kill Line 2" 3 M w/ 2 Manual Valves Bolted & Flanged Below Bottom Pipe Rams. Either a Drilling Spool or the Outlet on the BOP Stack can be Used to Accommodate Kill Line and Choke Line.
 - F. Choke Line w/ 3" 3 M Valves. Inside Valve can be Manual but the Outside Valve Must be Hydraulic (HCR). Choke Line Must be 3" 3 M.
 - G. Closing Unit (Kookey) w/ a Primary & Secondary Pressure Supply to Operate the BOP Stack. Also a N₂ Supply will be Provided as a Final Source of Operation to Close the BOP Stack. This Unit is Required to Contain a minimum of 1 1/2 Times the Needed Volume to Operate the BOP Stack at All Times. The Precharge of N₂ will be Checked Prior to Commencing Work for SONAT.