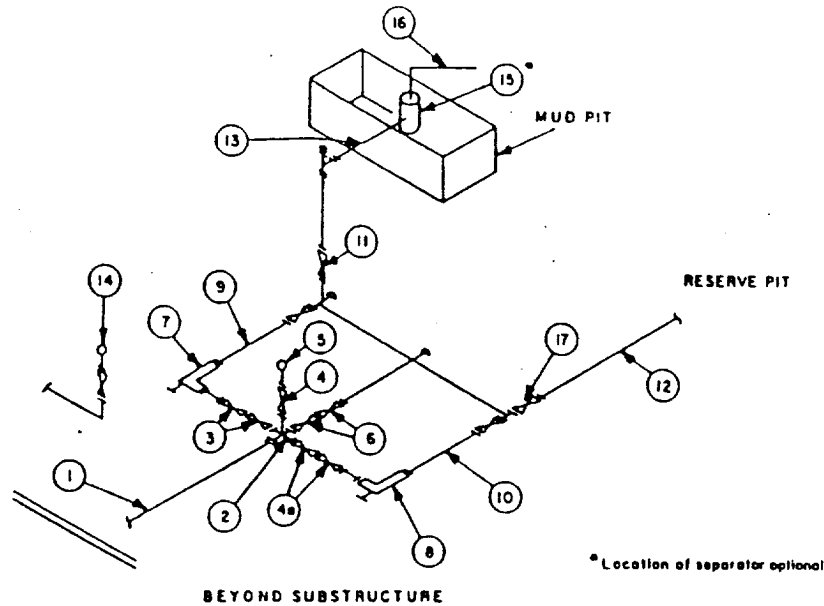


**MINIMUM CHOKE MANIFOLD**  
3,000, 5,000 and 10,000 PSI Working Pressure

3 MWP - 5 MWP - 10 MWP

EXHIBIT # 1



| MINIMUM REQUIREMENTS |                                                                              |           |         |        |           |         |        |            |         |        |
|----------------------|------------------------------------------------------------------------------|-----------|---------|--------|-----------|---------|--------|------------|---------|--------|
| No                   |                                                                              | 3,000 MWP |         |        | 5,000 MWP |         |        | 10,000 MWP |         |        |
|                      |                                                                              | I.D.      | NOMINAL | RATING | I.D.      | NOMINAL | RATING | I.D.       | NOMINAL | RATING |
| 1                    | Line from drilling spool                                                     |           | 3"      | 3,000  |           | 3"      | 5,000  |            | 3"      | 10,000 |
| 2                    | Cross 3"x3"x3"x2"                                                            |           |         | 3,000  |           |         | 5,000  |            |         |        |
|                      | Cross 3"x3"x3"x3"                                                            |           |         |        |           |         |        |            |         | 10,000 |
| 3                    | Valves(1) Gate <input type="checkbox"/><br>Plug <input type="checkbox"/> (2) | 3-1/8"    |         | 3,000  | 3-1/8"    |         | 5,000  | 3-1/8"     |         | 10,000 |
| 4                    | Valve Gate <input type="checkbox"/><br>Plug <input type="checkbox"/> (2)     | 1-13/16"  |         | 3,000  | 1-13/16"  |         | 5,000  | 1-13/16"   |         | 10,000 |
| 4a                   | Valves(1)                                                                    | 2-1/16"   |         | 3,000  | 2-1/16"   |         | 5,000  | 3-1/8"     |         | 10,000 |
| 5                    | Pressure Gauge                                                               |           |         | 3,000  |           |         | 5,000  |            |         | 10,000 |
| 6                    | Valves Gate <input type="checkbox"/><br>Plug <input type="checkbox"/> (2)    | 3-1/8"    |         | 3,000  | 3-1/8"    |         | 5,000  | 3-1/8"     |         | 10,000 |
| 7                    | Adjustable Choke(3)                                                          | 2"        |         | 3,000  | 2"        |         | 5,000  | 2"         |         | 10,000 |
| 8                    | Adjustable Choke                                                             | 1"        |         | 3,000  | 1"        |         | 5,000  | 2"         |         | 10,000 |
| 9                    | Line                                                                         |           | 3"      | 3,000  |           | 3"      | 5,000  |            | 3"      | 10,000 |
| 10                   | Line                                                                         |           | 2"      | 3,000  |           | 2"      | 5,000  |            | 3"      | 10,000 |
| 11                   | Valves Gate <input type="checkbox"/><br>Plug <input type="checkbox"/> (2)    | 3-1/8"    |         | 3,000  | 3-1/8"    |         | 5,000  | 3-1/8"     |         | 10,000 |
| 12                   | Lines                                                                        |           | 3"      | 1,000  |           | 3"      | 1,000  |            | 3"      | 2,000  |
| 13                   | Lines                                                                        |           | 3"      | 1,000  |           | 3"      | 1,000  |            | 3"      | 2,000  |
| 14                   | Remote reading compound<br>standpipe pressure gauge                          |           |         | 3,000  |           |         | 5,000  |            |         | 10,000 |
| 15                   | Gas Separator                                                                |           | 2'x5'   |        |           | 2'x5'   |        |            | 2'x5'   |        |
| 16                   | Line                                                                         |           | 4"      | 1,000  |           | 4"      | 1,000  |            | 4"      | 2,000  |
| 17                   | Valves Gate <input type="checkbox"/><br>Plug <input type="checkbox"/> (2)    | 3-1/8"    |         | 3,000  | 3-1/8"    |         | 5,000  | 3-1/8"     |         | 10,000 |

(1) Only one required in Class 3M.

(2) Gate valves only shall be used for Class 10M.

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

**EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS**

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored.
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. Choke manifold pressure and standpipe pressure gauges shall be available at the choke manifold to assist in regulating chokes. As an alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
6. Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90° bends using bull plugged tees.
7. Discharge lines from chokes, choke bypass and from top of gas separator should vent as far as practical from the well.