

# MINIMUM BLOWOUT PREVENTER REQUIREMENTS

10,000 psi Working Pressure

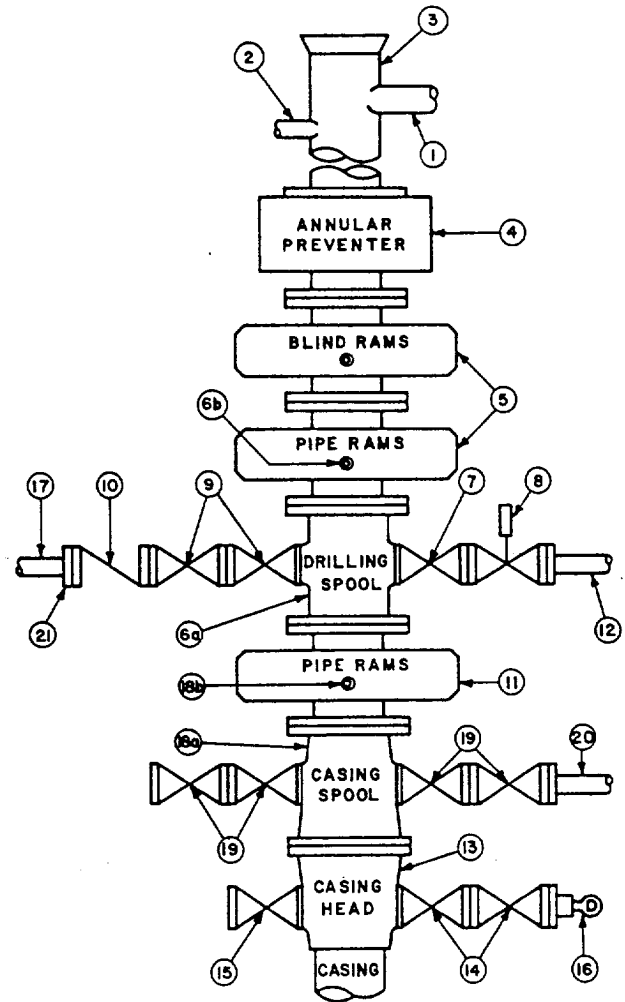
10 MWP

Exhibit #1  
Apache "24" Federal No. 1  
Eddy County, New Mexico

## STACK REQUIREMENTS

| No. | Item                                                                              | Min. I.D. | Min. Nominal |
|-----|-----------------------------------------------------------------------------------|-----------|--------------|
| 1   | Flowline                                                                          |           |              |
| 2   | Fill up line                                                                      |           | 2"           |
| 3   | Drilling nipple                                                                   |           |              |
| 4   | Annular preventer                                                                 |           |              |
| 5   | Two single or one dual hydraulically operated rams                                |           |              |
| 6a  | Drilling spool with 2" min. kill line and 3" min. choke line outlets.             |           |              |
| 6b  | 2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above.) |           |              |
| 7   | Gate valve                                                                        | 3-1/8"    |              |
| 8   | Gate valve—power operated                                                         | 3-1/8"    |              |
| 9   | Gate valves                                                                       | 2-1/16"   |              |
| 10  | Check valve                                                                       | 2-1/16"   |              |
| 11  | Single hydraulically operated ram                                                 |           |              |
| 12  | Line to choke manifold                                                            |           | 3"           |
| 13  | Casing head                                                                       |           |              |
| 14  | Gate valves                                                                       | 1-13/16"  |              |
| 15  | Gate Valve or Flanged Valve w/Control Plug                                        | 1-13/16"  |              |
| 16  | Pressure gauge with needle valve                                                  |           |              |
| 17  | Kill line to rig mud pump manifold                                                |           | 2"           |

| OPTIONAL |                                       |         |    |
|----------|---------------------------------------|---------|----|
| 18a      | Casing spool with 2" outlet           | or      |    |
| 18b      | 2" outlet in ram preventer            |         |    |
| 19       | Gate valves                           | 2-1/16" |    |
| 20       | Auxiliary choke line (emergency only) |         | 2" |
| 21       | Roadside connection to kill line      |         | 2" |
| 22       | Shear ram blocks for blind rams       |         |    |



## CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead.
2. Automatic accumulator (80 gallon, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, including control for hydraulically operated wing valve, to be located near drillers position with remote controls located away from rig floor.
4. Kelly equipped with Kelly cock and Hydril Kelly valve, or its approved equivalent.
5. Hydril Kelly valve or its approved equivalent and approved inside blow-out preventer to fit drill pipe in use on derrick floor at all times.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Extra set of pipe rams to fit pipe being used on location.
8. Plug type blowout preventer tester.
9. Type RX ring gaskets in place of Type R.

10. Outlet for Halliburton on kill line.

## MEC TO FURNISH:

1. Bradenhead or casinghead and side valves.
2. Wear bushing, if required.

## GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers. Valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position.
4. Chokes will be positioned so as not to hamper or delay changing of choke

beans. Replaceable parts for adjustable choke, other bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.

5. All valves to be equipped with handwheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (3000 psi working pressure) to have flexible joints to avoid stress. Approved hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Do not use kill line for routine fill-up operations.
12. Rig pumps ready for hook-up to BOP control manifold for emergency use only.