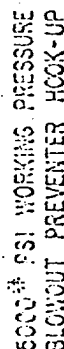


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The blowout preventer assembly shall consist of one single type blind ram preventer and one single type pipe ram preventer, both hydraulically operated, a hybrid "GX" preventer, a ram, a blowout preventer, valves, chokes, and a relief line. If a required drill string is used, a ram preventer must be provided for each size. The blowout preventer must be available as needed. If correct in size, the blowout preventer must be used for connecting to the 4-inch I.D. choke flow line and the 4-inch I.D. relief line, except when air or gas drilling. All preventer connections are to be open-line flanged.

(1) Minimum operating equipment for the preventers and hydraulically operated valves shall be as follows:

- (A) Multiple accumulators shall be provided to ensure sufficient nitrogen precharge pressure during fluid charging of the total accumulator volume from the nitrogen precharge pressure at its rated pressure within _____ minutes. Also, the pumps are to be connected to the accumulators so that they can be recharged with nitrogen gas or liquid nitrogen.
- (B) The accumulators shall be capable of being recharged with nitrogen gas or liquid nitrogen after closure. With recharge of nitrogen of not less than 750 psi and connected so as to receive the aforementioned liquid charge, the accumulators shall be able to operate at their rated pressure without further charging.
- (C) The accumulators shall be designed to contain the full amount of stored energy without leakage of fluid charge. With the accumulator fluid volume at least _____ percent of the original, (3) when reactivated, an additional source of fluid shall be available to provide the required pressure.
- (D) Additional power and seal in performance capabilities.

The electric manifold and remote closing manifold shall have a separate control for each pressure-operated device. Controls are to be labeled, with control handles indicating open and closed positions. A pressure-relief valve and regulator must be provided for operating the Hydral preventer. When required, a second pressure reducer shall be available to limit operating fluid pressures to safe preventer levels. Cull-Lennox No. 33 hydraulic oil, an equivalent or better, is to be used as the fluid to operate the hydraulic equipment.

The choke manifold, choke flow line, relief line, and choke lines are to be supported by metal ladders and adequately anchored. The choke flow line, relief line, and choke lines shall be constructed as straight as possible and without sharp bends. Easy and safe access is to be maintained to the choke manifold. If deemed necessary, walkways and ladders shall be erected in and around the choke manifold. All valves are to be sealed for operation in the presence of oil, gas, and drilling fluids. The choke flow line valves and relief line valves connected to the drilling vessel and all ram type components must be equipped with stem extensions, universal joints if needed, and hand wheels which are to extend beyond the edge of the derrick substructure. All other valves are to be equipped with handles.

• To include deck floor mounted controls.

ADDITIONS - DELETIONS - CHANGES SPECIFY