

**§ 250.442**

**30 CFR Ch. II (7–1–14 Edition)**

other devices to ensure capability of hydraulic operations if rig air is lost.

(d) In addition to the stack and accumulator system, you must install the associated BOP systems and equipment required by the regulations in this subpart.

**§ 250.442 What are the requirements for a subsea BOP system?**

When you drill with a subsea BOP system, you must install the BOP sys-

tem before drilling below the surface casing. The District Manager may require you to install a subsea BOP system before drilling below the conductor casing if proposed casing setting depths or local geology indicate the need. The table in this paragraph outlines your requirements.

When drilling with a subsea BOP system, you must:	Additional requirements
<p>(a) Have at least four remote-controlled, hydraulically operated BOPs.</p> <p>(b) Have an operable dual-pod control system to ensure proper and independent operation of the BOP system.</p> <p>(c) Have an accumulator system to provide fast closure of the BOP components and to operate all critical functions in case of a loss of the power fluid connection to the surface.</p> <p>(d) Have a subsea BOP stack equipped with remotely operated vehicle (ROV) intervention capability.</p> <p>(e) Maintain an ROV and have a trained ROV crew on each drilling rig on a continuous basis once BOP deployment has been initiated from the rig until recovered to the surface. The crew must examine all ROV related well-control equipment (both surface and subsea) to ensure that it is properly maintained and capable of shutting in the well during emergency operations.</p> <p>(f) Provide autoshear and deadman systems for dynamically positioned rigs.</p>	<p>You must have at least one annular BOP, two BOPs equipped with pipe rams, and one BOP equipped with blind-shear rams. The blind-shear rams must be capable of shearing any drill pipe (including workstring and tubing) in the hole under maximum anticipated surface pressures.</p> <p>The accumulator system must meet or exceed the provisions of Section 13.3, Accumulator Volumetric Capacity, in API RP 53, Recommended Practices for Blowout Prevention Equipment Systems for Drilling Wells (as incorporated by reference in §250.198). The District Manager may approve a suitable alternate method.</p> <p>At a minimum, the ROV must be capable of closing one set of pipe rams, closing one set of blind-shear rams and unlatching the LMRP.</p> <p>The crew must be trained in the operation of the ROV. The training must include simulator training on stabbing into an ROV intervention panel on a subsea BOP stack.</p>
<p>(g) Have operational or physical barrier(s) on BOP control panels to prevent accidental disconnect functions.</p> <p>(h) Clearly label all control panels for the subsea BOP system</p> <p>(i) Develop and use a management system for operating the BOP system, including the prevention of accidental or unplanned disconnects of the system.</p> <p>(j) Establish minimum requirements for personnel authorized to operate critical BOP equipment.</p> <p>(k) Before removing the marine riser, displace the fluid in the riser with seawater.</p>	<p>(1) <i>Autoshear system</i> means a safety system that is designed to automatically shut in the wellbore in the event of a disconnect of the LMRP. When the autoshear is armed, a disconnect of the LMRP closes, at a minimum, one set of blind-shear rams. This is considered a “rapid discharge” system.</p> <p>(2) <i>Deadman System</i> means a safety system that is designed to automatically close, at a minimum, one set of blind-shear rams in the event of a simultaneous absence of hydraulic supply and signal transmission capacity in both subsea control pods. This is considered a “rapid discharge” system.</p> <p>(3) You may also have an acoustic system as a secondary control system. If you intend to install an acoustic control system, you must demonstrate to BSEE as part of the information submitted under §250.416 that the acoustic system will function in the proposed environment and conditions.</p> <p>Incorporate enable buttons on control panels to ensure two-handed operation for all critical functions.</p> <p>Label other BOP control panels such as hydraulic control panel.</p> <p>The management system must include written procedures for operating the BOP stack and LMRP (including proper techniques to prevent accidental disconnection of these components) and minimum knowledge requirements for personnel authorized to operate and maintain BOP components.</p> <p>Personnel must have:</p> <p>(1) Training in deepwater well control theory and practice according to the requirements of 30 CFR 250, subpart O; and</p> <p>(2) A comprehensive knowledge of BOP hardware and control systems.</p> <p>You must maintain sufficient hydrostatic pressure or take other suitable precautions to compensate for the reduction in pressure and to maintain a safe and controlled well condition.</p>

[76 FR 64462, Oct. 18, 2011, as amended at 77 FR 50893, Aug. 22, 2012]

**§ 250.443 What associated systems and related equipment must all BOP systems include?**

All BOP systems must include the following associated systems and related equipment:

(a) An automatic backup to the primary accumulator-charging system. The power source must be independent from the power source for the primary accumulator-charging system. The independent power source must possess sufficient capability to close and hold closed all BOP components.

(b) At least two BOP control stations. One station must be on the drilling floor. You must locate the other station in a readily accessible location away from the drilling floor.

(c) Side outlets on the BOP stack for separate kill and choke lines. If your stack does not have side outlets, you must install a drilling spool with side outlets.

(d) A choke and a kill line on the BOP stack. You must equip each line with two full-opening valves, one of which must be remote-controlled. For a subsea BOP system, both valves in each line must be remote-controlled. In addition:

(1) You must install the choke line above the bottom ram;

(2) You may install the kill line below the bottom ram; and

(3) For a surface BOP system, on the kill line you may install a check valve and a manual valve instead of the remote-controlled valve. To use this configuration, both manual valves must be readily accessible and you must install the check valve between the manual valves and the pump.

(e) A fill-up line above the uppermost BOP.

(f) Locking devices installed on the ram-type BOPs.

(g) A wellhead assembly with a rated working pressure that exceeds the maximum anticipated wellhead pressure.

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**§ 250.444 What are the choke manifold requirements?**

(a) Your BOP system must include a choke manifold that is suitable for the anticipated surface pressures, anticipated methods of well control, the surrounding environment, and the corrosiveness, volume, and abrasiveness of drilling fluids and well fluids that you may encounter.

(b) Choke manifold components must have a rated working pressure at least as great as the rated working pressure of the ram BOPs. If your choke manifold has buffer tanks downstream of choke assemblies, you must install isolation valves on any bleed lines.

(c) Valves, pipes, flexible steel hoses, and other fittings upstream of the choke manifold must have a rated working pressure at least as great as the rated working pressure of the ram BOPs.

**§ 250.445 What are the requirements for kelly valves, inside BOPs, and drill-string safety valves?**

You must use or provide the following BOP equipment during drilling operations:

(a) A kelly valve installed below the swivel (upper kelly valve);

(b) A kelly valve installed at the bottom of the kelly (lower kelly valve). You must be able to strip the lower kelly valve through the BOP stack;

(c) If you drill with a mud motor and use drill pipe instead of a kelly, you must install one kelly valve above, and one strippable kelly valve below, the joint of drill pipe used in place of a kelly;

(d) On a top-drive system equipped with a remote-controlled valve, you must install a strippable kelly-type valve below the remote-controlled valve;

(e) An inside BOP in the open position located on the rig floor. You must be able to install an inside BOP for each size connection in the drill string;

(f) A drill-string safety valve in the open position located on the rig floor. You must have a drill-string safety valve available for each size connection in the drill string;

(g) When running casing, you must have a safety valve in the open position