(b) Your surface BOP stack must include at least four remote-controlled, hydraulically operated BOPs consisting of an 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 the drill pipe that is in the hole.

(c) You must install an accumulator system that provides 1.5 times the volume of fluid capacity necessary to close and hold closed all BOP components. The system must perform with a minimum pressure of 200 psi above the precharge pressure without assistance from a charging system. If you supply the accumulator regulators by rig air and do not have a secondary source of pneumatic supply, you must equip the regulators with manual overrides or 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 system 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
(a) Have at least four remote-controlled, hydraulically operated BOPs.	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 in the hole under maximum anticipated surface pressures.
(b) Have an operable dual-pod control system to ensure proper and independent operation of the BOP system.	
(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.	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.
(d) Have a subsea BOP stack equipped with remotely operated vehicle (ROV) intervention capability.	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.
(e) Maintain an ROV and have a trained ROV crew on each floating drilling rig on a continuous basis. 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.	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.
(f) Provide autoshear and deadman systems for dynamically positioned rigs.	(1) *Autoshear system* 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 the shear rams. This is considered a ''rapid discharge'' system. (2) *Deadman System* means a safety system that is designed to automatically close the wellbore 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. (3) You may also have an acoustic system.
(g) Have operational or physical barrier(s) on BOP control panels to prevent accidental disconnect functions.	Incorporate enable buttons on control panels to ensure two-handed operation for all critical functions.
(h) Clearly label all control panels for the subsea BOP system	Label other BOP control panels such as hydraulic control panel.
(i) Develop and use a management system for operating the BOP system, including the prevention of accidental or unplanned disconnects of the system.	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.
(j) Establish minimum requirements for personnel authorized to operate critical BOP equipment.	Personnel must have: (1) Training in deepwater well control theory and practice according to the requirements of 30 CFR 250, subpart O; and (2) A comprehensive knowledge of BOP hardware and control systems.

When drilling with a subsea BOP system, you must:	Additional requirements
(k) Before removing the marine riser, displace the fluid in the riser with seawater.	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.
(l) Install the BOP stack in a glory hole when in ice-scour area	Your glory hole must be deep enough to ensure that the top of the stack is below the deepest probable ice-scour depth.

§ 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 surface pressure.

§ 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;