

INCREASING OFFSHORE SAFETY: THE UPDATED BLOWOUT PREVENTER SYSTEMS AND WELL CONTROL RULE

Safety is at the core of responsible offshore oil and natural gas development that's critical to America's economy and energy security. The industry is committed to safety through smart regulations that provide the flexibility to work effectively across the varied conditions found in offshore development, while allowing and encouraging innovation and technological advances that enhance safety.

The natural gas and oil industry supports the updated, performance-based Blowout Preventer Systems (BOP) and Well Control Rule, which increases safety for the employees and equipment operating offshore while protecting the environment, under the strict purview of the Bureau of Safety and Environmental Enforcement (BSEE).

The BOP Systems and Well Control Rule is an offshore drilling regulation, established in 2016, that mandated several universal design requirements and operational procedures for critical well control equipment used in natural gas and oil development.

The updated rule follows a more performance-based approach that considers the unique characteristics of every well, from its geology and depth to the pressure and temperature. These revisions will help promote innovation and the implementation of new operational technologies.

Drilling Margin

What is it? A safe drilling margin ensures drilling fluids maintain gas and oil in the formation without exerting so much pressure they fracture the rock itself.

The previous rule listed an arbitrary default margin of .5 ppg. BSEE reviews margin submissions for every well and, in some cases, approves alternative plans when the default margin was not fit for purpose.

The revised rule promotes a performance-based standard where BSEE will continue to approve each well's unique drilling margin.

How does this maintain or improve safety?

- › Drilling margins are based upon data, analysis, sound engineering design and practices for safe operations, and BSEE will continue approving, or denying, all margin submissions for every well section.

Real Time Monitoring

What is it? The real time data transmission of select equipment systems on an offshore rig.

The previous rule stated that operators must describe the onshore location for monitoring select well control equipment systems.

The revised rule shifts the focus of the rule from physical locations to the necessary systems and personnel required to monitor offshore activities.

How does this maintain or improve safety?

- › The revised rule continues to require real time monitoring but promotes innovation and technological advancements. This simpler rule focuses the industry on the most critical aspects of offshore drilling safety.
- › Operators must prepare plans, and make them available to BSEE upon request, that cover these critical systems and equipment and make them available to BSEE upon request.

BSEE-Approved Verification Organizations (BAVO)

What is it? BSEE-Approved Verification Organizations (BAVOs) are a list of organizations that operators use to certify, verify or review certain systems and components on an offshore rig. The criteria for establishing BAVOs has never been promulgated.

The previous rule stated that operators could only use BAVOS to inspect specific systems, like BOPs, on a rig.

The revised rule removes BAVOS and simplifies the execution of BOP certifications and verifications by allowing the use of proven third-party inspectors (TPIs) to confirm that all necessary systems meet BSEE's strict, mandatory regulations.

How does this maintain or improve safety?

- › All TPI certifications, verifications and reviews of systems submitted to BSEE must meet the same strict requirements found under the previous rule.

Blind Shear Ram Testing/Verification Requirements

What is it? A blind shear ram is a BOP component that uses steel blades to cut a well's pipe and simultaneously seal it. To ensure they meet BSEE requirements, shear rams are tested and verified.

The previous rule stated that to verify the effectiveness of a shear ram, operators must demonstrate for 30 minutes that a pipe was sealed and could continue to hold pressure, ignoring decades of industry testing experience.

The revised rule ensures that blind shear ram functionality incorporates historical BSEE and industry performance data.

How does this maintain or improve safety?

- › The industry has developed new best-practice documents to standardize these verifications, pushing compliance forward.

Surface Blowout Preventer Requirements

What is it? A surface blowout preventer is a system of sealing elements, valves and control systems installed on a well to seal on kicks. Surface applications are scenarios where the BOP physically resides on the rig or platform.

The previous rule stated the shearing requirements for surface BOP stacks, including wireline shearing, and the use of alternative cutting devices.

The revised rule extends compliance dates consistent with research and development timelines to develop new solutions.

How does this maintain or improve safety?

- › Continuing the use of the alternative cutting devices allows for the safe execution of drilling programs without suspensions or exceptions.
- › A reasonable compliance date sets a target for industry development of wireline shearing options across the wide range of surface BOPs in use.

Accumulator Systems

What is it? Accumulators are pressure vessels mounted at the surface, or on the BOP stack, that store the hydraulic fluid used to control the BOP systems.

The previous rule stated the minimum design requirements for accumulator systems in terms of 'operating' BOPs.

The revised rule clarifies that 'operating' BOPs in the event of an emergency means 'closing' BOPs.

How does this maintain or improve safety?

- › Clarifying the rule removes the perception that accumulators should be sized for both closing and opening, which would lead to bigger, heavier accumulator systems.
- › In an emergency situation, it is critical that working fluid is available to close BOPs. Opening a BOP is generally done in a controlled format — not a necessary, or even desired, function in an emergency.

Subsea Blowout Preventer Requirements

What is it? A subsea blowout preventer is a system of sealing elements, valves and control systems installed on a well to seal on kicks. Subsea applications are scenarios where the BOP physically resides on the seafloor.

The previous rule defined the shear ram configurations, control system specifications, remotely operated underwater vehicle (ROV) functions, and emergency response functionality that subsea BOPs must have in operation.

The revised rule clarifies the original intent of many of these rules, since they've been clarified by BSEE in forums and on their website, including the minimum number and function of shear rams, ROV access requirements, and testing requirements.

How does this maintain or improve safety?

- › Clarity in the rule language ensures an industry understanding and appropriate application of subsea BOPs at the work site.

Blowout Preventers Pressure Testing

What is it? To verify system integrity and capability, BOPs must be regularly tested for function and pressure integrity.

The previous rule defined the minimum requirements for function (weekly) and pressure (14-day) tests for BOPs. The pressure test requirements were in excess of the proven industry standard used worldwide.

The revised rule maintains weekly function tests and 14-day pressure tests, while also allowing operators to request 21-day pressure tests, consistent with industry standard. For a 21-day test interval, the rule includes additional requirements around health monitoring that exceed industry standard.

How does this maintain or improve safety?

- › It has been demonstrated through industry and governmental research projects that pressure testing BOPs too frequently fatigues the rubber components of the system, reducing overall reliability.
- › 21-Day pressure tests have demonstrated the proven reliability of BOP systems worldwide without over fatiguing systems.
- › Function tests should continue on the weekly schedule to ensure system readiness.