EStB – Surface and Subsea BOP Systems

Surface and Subsea BOP Systems

An assembly of barrier elements, mitigators and other components designed to prevent the uncontrolled flow of wellbore fluids.

Parts and Components (Barrier Elements), *i.e., Description of pressure containing parts and components that serve as part of a primary or secondary barrier envelope when required.*

Sealing Ram(s) – Components that close on the wellbore or tubular to isolate fluid (e.g., blind shear ram).

Valves – Components that close to isolate fluids.

Annular – Doughnut-shaped elements with steel-reinforced packing that seals around pipe or open hole to isolate fluids/pressure from the environment.

Body - Provides structural support for the associated components and sealing elements (e.g., valves, rams, etc.).

Seals – Components used to close off or secure against fluid (e.g. elastomeric, metal-to-metal, gaskets).

Spools – Pressure-containing pipe with end connectors (e.g. flanges) and potentially side outlets used to connect between barrier elements (e.g., drilling, spacer, or adapter spools).

Parts and Components (Mitigators), *i.e., Description of fluid wet components or components used to directly prevent escalation of events required for system to work as a mitigator. These are components that apply mitigation directly to the hazard. This should not include control systems.*

Choke Manifold – Series of pressure valves and at least two chokes used to manage fluids and pressure from a wellbore.

High Pressure Fluid Pump – Equipment utilized to inject fluid into a wellbore.

Non-Sealing Ram(s) - Components that close on the wellbore or tubulars that perform functions other than sealing (e.g., shear, grip and slip operations with pipe rams).

Scope

Analysis on surface and subsea BOP systems will be limited to the period in which the equipment must perform as a barrier, from installation until removal from service. The scope of the analysis is defined as:

- Any well construction or well modification operation (e.g., drilling, initial completion, well interventions, abandonment, decommissioning, or containment activity).

Assumptions

- The equipment is field proven.

- The equipment is,
  - Manufactured according to specification
  - Installed as per Original Equipment Manufacturer guidelines
  - Maintained as required
  - Functioning properly
  - Verified as needed
  - Regularly tested
- Throughout the equipment's lifecycle, the equipment is utilized within its prescribed applicable performance envelope (e.g., pressure, longevity, environment) and operated within design limits.

Performance Requirements for Public Comments

Barriers	
Part/Component	**Performance Requirement**
BOP system	Must contain and control pressure under any conditions that it may encounter during operations.
Sealing Ram(s)	Seals the area between the inner string and wellbore cavity or the entire wellbore cavity.
Valves	Seals either upstream tubulars or the environment from wellbore fluids.
Annulars	Seals wellbore cavity.
Body	Must contain wellbore fluids from the environment.
Seals	Must contain wellbore fluids from the environment.
Spools	Must contain wellbore fluids from the environment.

Mitigators	
Part/Component	**Performance Requirement**
Choke Manifold	Contains wellbore fluids and adjusts direction and rate of flow during a well control event.
High Pressure Fluid Pump	Injects fluids into the wellbore or annulus via the tree without leaking to the environment.
Non-Sealing Rams	Components that close on the wellbore or tubulars that perform functions other than sealing (e.g., shear, grip and slip operations with pipe rams).