

RISK PREVENTION & RESPONSE MEASURES

INTRODUCTION

To prevent an unwanted oil spill, Eni has defined number of mandatory responses, control and management measures, that will be implemented prior to and during drilling operations. Including:

- Advanced planning of the drilling activity
- Optimization of the well design, geological and drilling programs
- Use of safety devices and reliable drilling tools, (e.g. logs to monitor hydrocarbon presence and drilling parameters)
- Selection of skilled and trained personnel
- Rig crew and relevant personnel will be certified to early detect possible anomalies during the drilling and promptly manage an unwanted hydrocarbon spill event in order to limit its severity and duration, and reduce/mitigate the spill consequences.

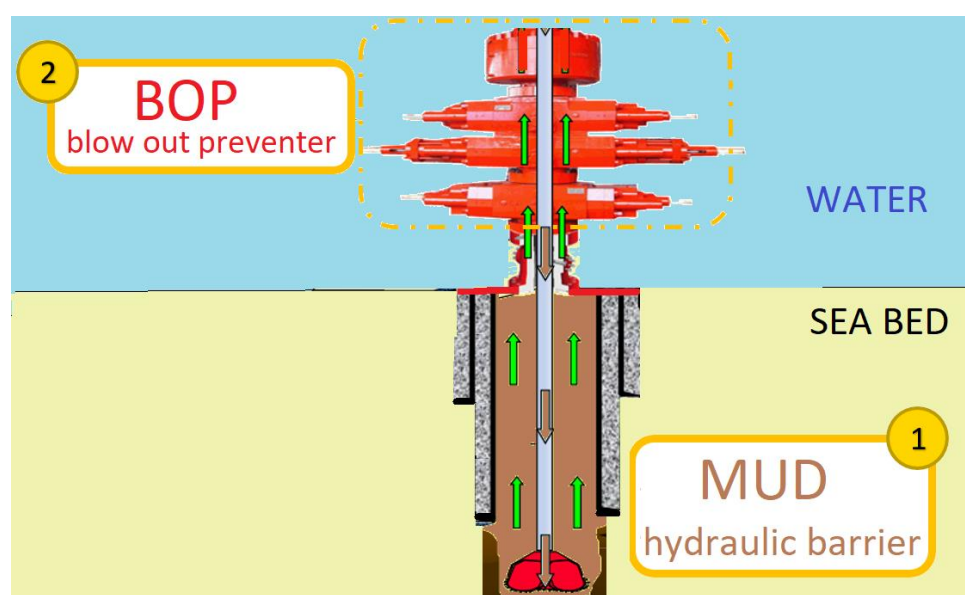
SHUT IN OF WELL IN CASE OF EMERGENCY

In case of an emergency when all prevention and well control actions are not sufficient, different mechanical tools can be used to shut in the well, such as:

- **Flow-back prevention valve** inside the drilling string
- **Subsea BOP** (Blowout Preventer).

The BOP rapidly seals the well (or “shut in”) and its use is mandatory to **avoid an unwanted release of hydrocarbon to surface**, also called “**blowout**”. The BOP will be regularly pressure and function tested as per ISO/API standards.

Recent development of new technologies allows the availability of a back-up tool: the **capping stack system**.



Source:
website WWC,
2018 modified



THE CAPPING STACK WILL BE MOBILISED FROM THE SHORE BASE IN THE VERY UNLIKELY EVENT OF BOP FAILURE TO CLOSE, I.E A BLOWOUT EMERGENCY EVENT

Source: ENI, 2018

AVOIDANCE AND PREVENTATIVE MEASURES

- Eni and its contractors have competent, certified and qualified staff.
- Adoption of **highest industry standard**, for **well design, material and equipment selection, drilling procedures and operations** to guarantee integrity and provide **multiple barriers** (adoption of dual barrier principle). For instance:
 - **Casings and equipment selection** designed to withstand a variety of forces, such as collapse, burst or tensile failure & chemical aggression
 - **Weighted mud properties selection and control**: to guarantee wellbore stability and bottom hole pressure balanced, controlling its properties and using downhole/surface sensors for monitoring
 - **Blowout prevention**: presence of certified safety critical equipment, e.g. BOP Preventer Stack, to control pressure anomalies.
- Drilling program revised by Eni HQ drilling technical authority.
- Preparation and approval of an **Emergency Response and Oil Spill Contingency Plans**

REDUCTION AND RESPONSE MEASURES

- In case of an unwanted emergency, Eni will implement the contingency plans to react immediately and reduce effects. The presence and application of the Oil Spill Contingency Plan is mandatory. It is based on 3 principle components:
 - Crisis management and control;
 - Spill response, containment and clean-up; and
 - Well control.
- BOP immediate closure and sealing of well; in case of BOP failure, mobilisation and installation of capping system.
- Deployment and use of offshore containment equipment including booms, skimmers, tanks, dispersants.
 - Eni will provide primary response equipment on board of vessels; additional will be mobilised from onshore.
- Onshore mobilisation and installation of containment, absorbent and clean-up equipment in case of spill approaching the shore.