

## Worker Fatally Struck by Object

### Description:

A well servicing crew finished pumping water down the casing side of the well and was preparing to conduct a stump test. They connected the Kelly hose to the stump testing apparatus and blowout preventor (BOP), which were mounted on a vehicle.

The casing vacuum had sucked all the water out of the line pipe and the pump, so the rig pump operator attempted to fill the BOP stack with water to conduct a pressure test. Both sets of rams were open and there was no pup joint in the BOP stack.

A low-pressure transfer pump was used to pump water to the stump testing apparatus; however, no water came out of the BOP stack. The crew believed the pump was not primed because the casing vacuum had sucked all the water out of the line pipe and pump and the rig tank was nearly empty.

Another crew member was positioned at the BOP to watch for water and looked down into the BOP when hydraulic fitting caps dislodged, fatally striking him in the head.

All hydraulic fitting caps for that rig were accounted for, and it is unknown how or when they got into the test stump apparatus and BOP.



The pair of screwed-together hydraulic fitting caps that fatally struck a worker

### What Went Wrong:

- Crew members did not realize the pump was primed and that air was being compressed in the piping.
- The hydraulic fitting caps were lodged into the bottom of the test stump apparatus, creating trapped pressure.
- The worker did not realize he was positioned in the line of fire.

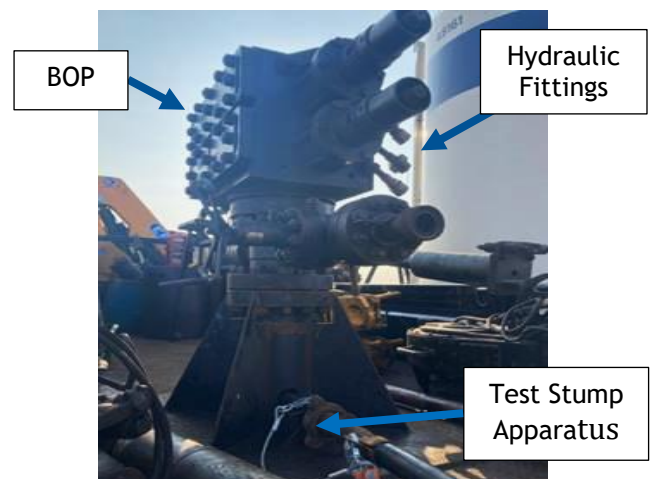
### Life Saving Rule | Line of Fire

Related to the following excerpts from the rule:



 [Watch the video.](#)

- Keep yourself and others out of the line of fire
- I position myself to avoid pressure releases and moving objects
- Establish and obey barriers and exclusion zones



View of example BOP on test stump apparatus

## Actions Taken/Recommendations:

- Educate crews that even a BOP installed on the test stump is a potential line of fire hazard.
- Recognize that even relatively low pressures, such as 45 psi (310 kPa), have the potential to store a lot of energy, especially when trapped gas is present.
- Keep a BOP hole cover installed when the BOP is not in use. Through the course of the investigation, it was verified that the caps could not have been pumped through the BOP stump and entered the stump from the top.
- Prior to use, conduct a visual inspection to verify there are no foreign objects inside the BOP.
- Consider the installation of bar-stock collars to prevent objects from falling into and becoming lodged in the test stump apparatus and the associated BOP.

## Energy Safety Canada Resources:

- [Life Saving Rules](#)
- [Building Capacity to Manage Pressure Program and Online Course](#)
- [Are You in the “Line of Fire?” Program](#)
- [Process Safety Management Awareness Course](#)
- [Process Safety: A Barrier Focused Approach](#)



View of bar-stock collar above test stump apparatus

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