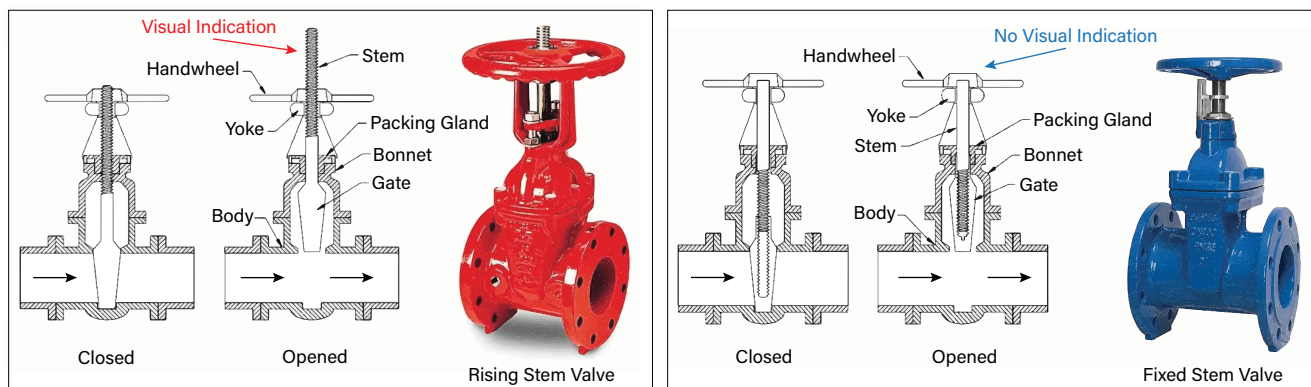


## An Error Trap Can Be Catastrophic

January 2024



▲ **Figure 1.** A rising stem valve (left) offers visual indication of whether it is in the closed or open position, unlike a fixed stem valve (right).

A fuel terminal was offloading a large amount of gasoline from a ship to several storage tanks. The supervisor incorrectly estimated the time to fill one tank, and it overflowed into the containment (dike) area. Unfortunately, the valve to drain rainwater from the containment had been left open, and gasoline flowed out to the retention pond near the wastewater treatment (WWT) area. The pumps in the WWT area were not classified for flammable vapor. The vapors ignited, and the fire spread back toward the overflowing tank. A number of explosions and a facility-wide fire had catastrophic impacts on the plant, community, and sensitive environmental areas around the terminal.

*How did this happen?* The tank farm used both rising stem and fixed stem valves (Figure 1) on the dike drains leading to the stormwater retention pond in the WWT area. Rising stem valves allowed operators to easily see the valve position by observing the stem above the valve wheel. Fixed stem valves do not provide a visual indication of the position since the stem does not rise above the handwheel when the gate is raised. It was difficult for operators to know the actual position of the fixed stem valve on the dike drain without physically turning it.

Poor lighting in the area also made it difficult for operators to see the valve positions. See the U.S. Chemical Safety and Hazard Investigation Board (CSB) Report No. 2010-02-I-PR for more detail.

### Did You Know?

- There are two styles of gate valves that look similar (Figure 1).
- Having two different style valves in the same service can create an error trap — a situation where a mistake is more likely.
- Operating procedures provide instruction on the safe operation of a process. Where valve positions can be confusing, pictures help explain the right valve position.
- Poor lighting in remote areas can make it difficult to see minor differences in equipment.

### What Can You Do?

- If you notice equipment that looks similar but operates differently, tell your supervisor.
- An error trap can be removed in different ways. For example, adding pictures to procedures helps show the correct position or alignment for valves or other equipment. It could also be helpful to replace some valves so that they all operate the same way. This should follow management of change (MOC) procedures.
- Where poor lighting makes operations more difficult, recommend improving the lighting in the area to reduce errors and improve general safety. (Again, following MOC procedures.)
- Some companies consider error traps near-misses and want them reported.
- See the June 2006 Beacon, "Is this Valve Open, or Closed?" for another valve error incident.

**Do not get caught in an error trap!**