

## Valve position errors can cause serious incidents

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*Figure 1*

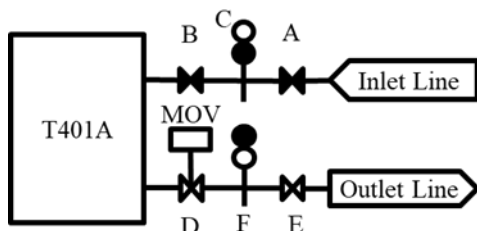
Storage Tank Fires



*Figure 2* Line Blind



*Figure 3* Line Blind after incident



*Figure 4.* Piping Diagram

In October 2009, a release of over 260,000 gal. (984 cubic m.) of gasoline from a storage tank led to a major explosion, killing 11 including both operators. (Figure 1). The official report indicated that the operator made a mistake in the sequence of valve operations when switching from tank filling to tank discharging, using a line blind valve (Figures 2 & 3).

One operator closed Valves A and B, then moved blind C from open to closed. The official report did not reach a conclusion about exactly what happened next, as the operators died in the incident. Shortly after, a different operator moved line blind F from closed to open. Gasoline began leaking quickly out of the opening in the top of the line blind. The manual valve E and the Motor-Operated Valve (MOV) D were both found in the open position after the accident. (Figure 4)

11 people were killed, the fire burned for 11 days and the terminal was a total loss

### Did You Know?

- Manual valves may not be operated often and may not seal for many reasons such as worn seats, debris blocking the sealing surfaces and corrosion.
- There are many configurations for manual valves. If the correct position is not obvious, ask.
- Manual valves that are considered safety critical are often car-sealed or tagged in a given position. They deserve extra caution before operation.
- Line blind can provide a positive shutoff, but in most cases, changing position of line blinds can result in some leakage until completely resealed. Switching blinds should be handled like a line break and using a permit.
- Certain valving operations have a proper order of operation; this should be noted in the operating procedure.

### What Can You Do?

- When changing valve positions, have the procedure and the PID or piping diagram with you to ensure correct operation. If the procedure or diagram does not match the piping in the field. Stop and ask before proceeding. The procedure or diagram may have an error.
- If you need to operate a line blind, ensure that it has been properly isolated and is truly safe to move before changing its position.
- If a valve is car-sealed in a position, the procedure should note this. If it is not called out specifically, verify you have the correct valve before operation.
- When operating any valve, it is important to verify all drains and sample taps are closed before operation. If the operating procedure calls for a specific order of operation for repositioning valves – follow it.
- If a valving operation is done by 2 or more crews, verify all valve positions are correct before proceeding.

**Take extra time to review the situation before operating manual valves.**