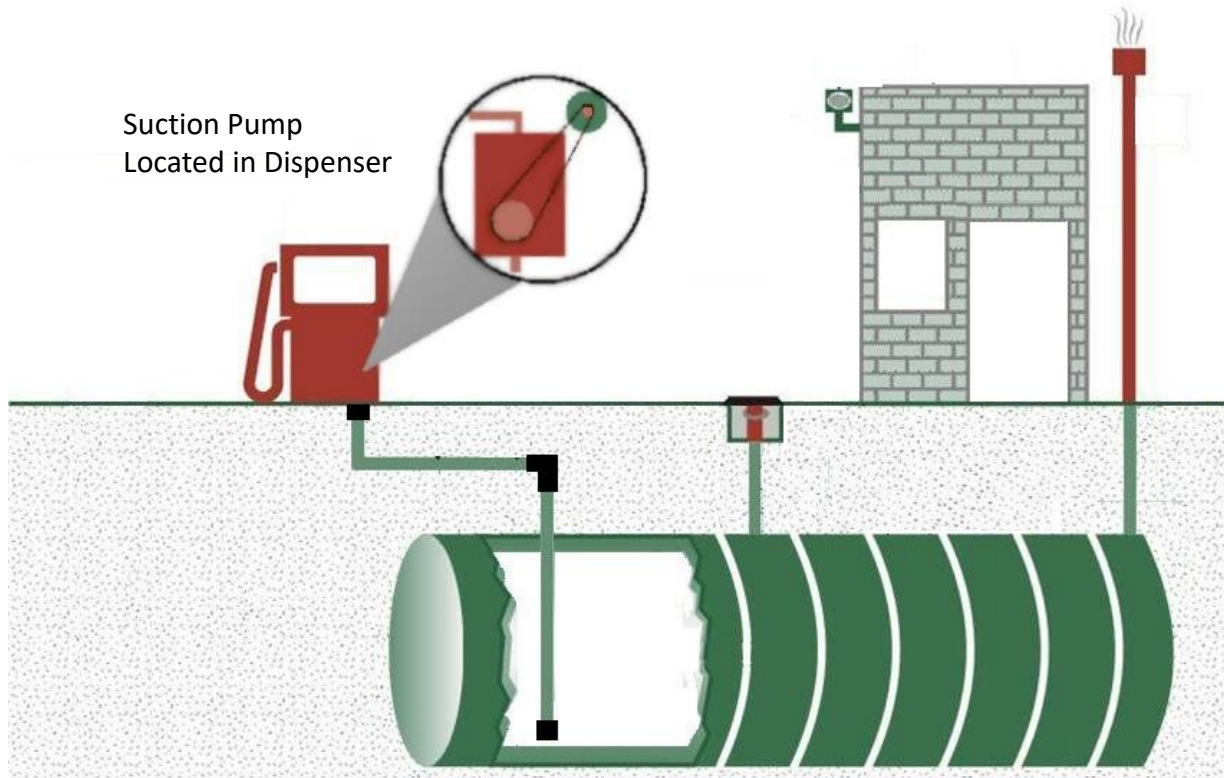


There are two types of systems used to pump fuel through UST product lines: Pressurized pumping systems and suction pumping systems. In a pressurized system, the pump is in or on top of the tank and moves fuel through the piping under pressure. In a suction pumping system, the pump is inside the dispenser cabinet, and the fuel is drawn from the tank by suction.



Check Valves

Suction pumping systems have check valves that keep the piping full of liquid when the pump is turned off. The check valve opens whenever liquid is flowing toward the nozzle, and closes automatically whenever liquid tries to flow back toward the tank. It operates wherever it is located in the piping run.

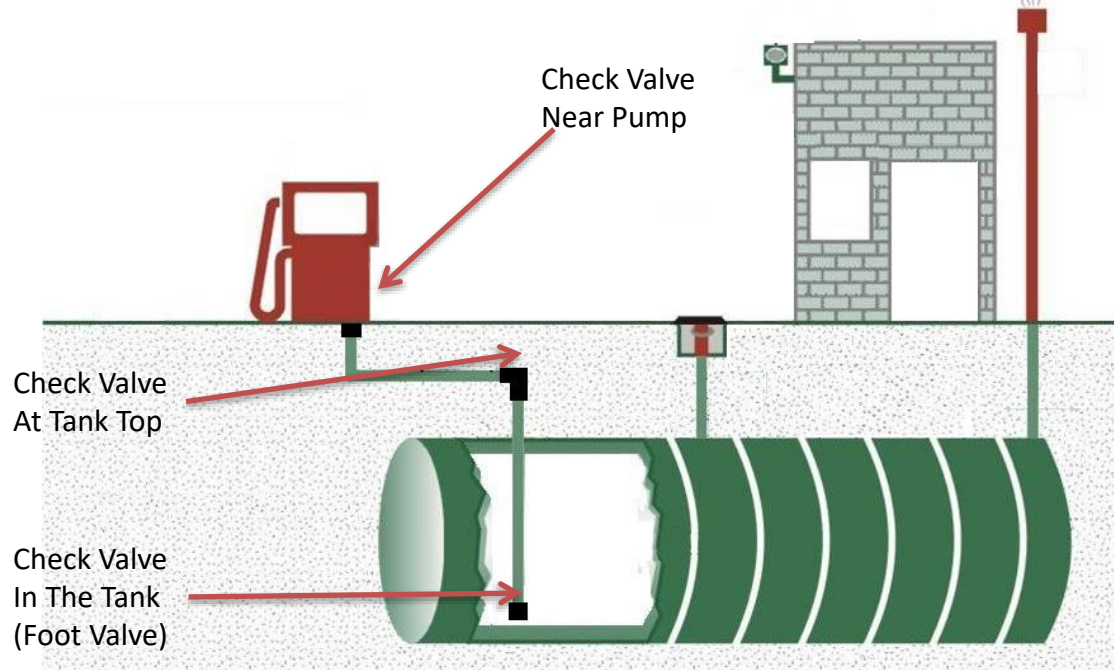


Check Valve for
Suction Piping

Check Valve Locations

The location of the check valve in the fuel piping makes a difference with regard to leak detection. When the check valve is located at the top of the piping, just below the suction pump, the suction piping requires no leak detection. This type of installation is referred to as a “safe” or “European” suction system. If a hole develops in the piping, air will be drawn into the pipe and the fuel will fall back into the tank.

When the check valve is located at the top of the tank, or within the tank (i.e., foot valve), the suction piping is known as “American or U.S.” suction system and requires leak detection.



Detecting Leaks In A Suction Pump System

If there is a hole in the piping, air will enter the pipe. The pump will make strange noises when it is turned on and it will take longer than normal for fuel to come out of the nozzle. These are indications that there may be a leak, and the facility operator should call a service technician to investigate the problem. If a possible release has occurred, call the North Dakota Department of Environmental Quality at 701.328.5166.

Even if a facility has safe-suction piping, any product above the check valve in the dispenser piping or the pump itself cannot drain back to the tank and could leak into the environment. For this reason, the dispenser cabinet cover should be removed and the facility operator should look inside for signs of leaks as part of the monthly *UST operator inspection*.

Leak Detection Requirements For Suction Piping Systems

Safe suction piping requires no leak detection. The facility operator, however, should have documentation (usually from the installer) that states that there is only one check valve in the piping system and it is located immediately below the pump. It should also be documented that the pump is higher than the tank and the piping slopes uniformly from the pump back to the tank.

Suction piping with the check valve located at the top or inside the tank requires either a line tightness test conducted every three years, or the use of a monthly monitoring method that meets the requirements of the North Dakota Underground Storage Tank Rules.