Do You Have Tank Overfill Prevention?

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Do you have adequate overfill prevention in all of your underground tanks? Do you know what kind of overfill prevention you have? And does it work properly? There are three acceptable methods of overfill prevention in the industry today: overfill alarm, ball float valve and shut-off overfill valve.

If you drop more than 25 gallons of fuel into your tank at one time, you are required by regulation to have one of these three overfill prevention methods functioning in that tank. Any one of these methods can be disabled or wear out over time, therefore leaving you in a very vulnerable situation. All of these devices should be checked routinely to confirm proper operation.

The overfill alarm generally operates though an automatic tank gauge (ATG). With this method, the probe in the tank is set to alarm once the fuel level reaches 90% tank capacity. This external signaling device must be located outside near the tank fill, so the fuel transporter is alerted with adequate time to shut off the flow into the tank. To be an effective alarm, industry standards recommend that the alarm provide a visual and audible signal, as well as being clearly marked so it is easily identified. It is a good idea to have your service company routinely check the alarm for properly operation. In the mean time, you can check the condition and location of the external alarm to make sure that it is adequate. If the alarm operation is inadequate, the tank can be overfilled and force fuel through the vent lines or any other part of the tank system that is not sealed tight (i.e. tank probe cap).

The ball float valve is another acceptable method of overfill prevention; however, there are several installations that it should not be used with. This device operates as a flow restrictor, rather than stopping the flow once the tank is full. The ball valve hangs inside the tank below the vent line. The float blocks the vent line once the fuel level reaches 90% tank capacity, and significantly slows the flow of fuel into the tank. The transporter has to be very tentative with this method of overfill prevention, because a very dangerous situation can ensue if your tank system was not installed correctly for this method. For example, once the vent line becomes blocked by the float, any other part of the tank system that is not sealed tight will become the vent and fuel may be released from that opening. Industry standards warn against using this method when your fuel delivery system is suction. In this instance, once the float closes off the vent line, fuel may be forced through the suction delivery line and released through the air eliminator at the pump. They also warn against pumping fuel into the tank with a ball float, because the tank may become over-pressurized and rupture if the vent is blocked. It is also not advised to install a ball float valve if you have a remote tank fill pipe, or if the tank is used for an emergency generator or boiler.

Ball float valves can be an effective method of overfill prevention; however, they do require proper use and routine inspections. Most of the ball floats are constructed from metal and are susceptible to corrosion. There have been instances where the cage that the ball float hangs in has rusted to the point that it fell off into the tank. There have also been instances were the ball rusted to the cage in the “open” position. In both of these

instances, the tank is susceptible to overfilling. Unfortunately, many of the installations during the federal tank upgrade deadline in the early 1990's were installed without access to this device. The only way to physically confirm that it is in place is by digging down the tank or running a scope down the fill pipe. Either one of these methods can be very expensive. At a minimum, you will want to make sure that you have documentation that a ball float was installed in the tank. Installations today include access to the ball float from ground level through a riser pipe. This makes it much easier to inspect the presence and condition of the ball float valve.

The last acceptable method of overfill prevention is the shut-off valve installed in the tank fill pipe. This is sometimes referred to as the "flapper" valve. The drop tube valve must be installed to trigger at 95% of the tank capacity, and can only be used with gravity fuel deliveries with a liquid-tight connection between the fill adaptor and delivery hose. This is a very common method used in Iowa today, and can be easily installed at any time if there are any complications with either of the other two methods of overfill prevention. The shut-off valve is not 100% problem free, though. These valves can be disabled with tank measuring sticks, wired open to prevent the flapper from closing, or just completely removed from the fill pipe. In many of the instances were the valves have been disabled, it was caused by the fuel transporter. Usually they disable the valve because it was not working properly, and it was closing while they were trying to drop fuel into the tank. If you find that the shut-off valve in your tank has been disabled or is worn out, you should contact a licensed service company to either replace or assess the condition of the valve. The other call you need to make is to your fuel supplier. If the shut-off valve is not working properly, they should make you aware of the problem, rather than putting your facility at risk of a fuel release.

Make it part of your weekly routine to check on your overfill prevention. The few minutes that it takes to you to inspect these devices will seem well worth it when you prevent a release from your tank because the overfill prevention.