



EPA Region 8 Drinking Water Unit Tech Tips

Sanitary Protection of Drinking Water Storage Tanks: Vents

Finished Water Storage Sanitary Protection: Vents release air and are a dynamic and integral part of tank operation. The air pressure inside of a tank is always trying to equalize with the air pressure outside as the water level rises and falls in the tank. When the tank is filling with water, displaced air has less space and puts pressure on the tanks. The air is forced out of the tank through the vent and overflow as well, if it is not overflowing with water (see Tech Tip on Overflows). When water is drawn out of the tank, the air has more space and creates a vacuum. Outside air is pulled into the tank through the vent and overflow. Thin walled metal tanks can be protected against excessive pressure and vacuum with a pressure/vacuum relief mechanism. Also, storage tank vents cannot serve as the overflow; tanks must have a vent separate from the overflow.

Downturned vent

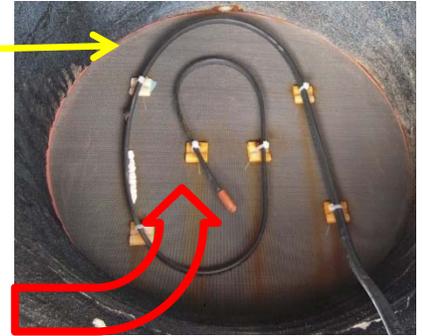


Protection from contamination entering through the vent.

#24 mesh screen is needed to keep out contamination carried by insects, rodents, and birds. (See Tech Tip on #24 Mesh)

Not having a #24 mesh screen on a vent will trigger a significant deficiency

The #24 mesh screen can be installed between two flanges. The flanges allow the #24 mesh screen to set flush, which creates a better seal than wrapping the screen around the pipe and securing it with a band. Also, the flange will place the screen inside the vent to dissuade vandalism. A heating coil can be installed if freezing is a concern.



Protection from contamination being inhaled through the vent

Vents present a pathway for contamination to enter the tank. Having the vent opening at least 24 inches above the nearest horizontal surface protects against the inhalation of contamination (dried feces, dust, etc.). A bird dropping can contain thousands of salmonella.

Vents less than the 24 inches above the roof will trigger a significant deficiency. Also, if vents on buried or partially buried tanks are not downturned or facing the ground, it will trigger a significant deficiency.

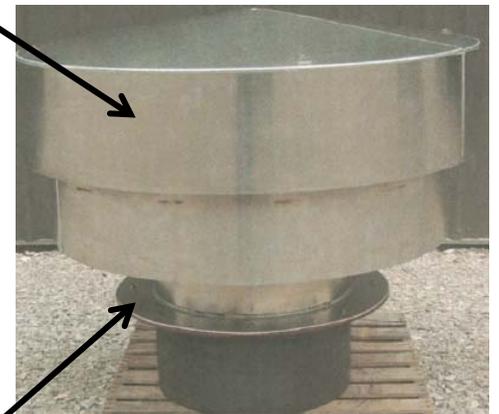
Non-downturned vent (Elevated or Ground Level Tanks Only)



For elevated tanks, having fewer than 8 inches from the bottom of the #24 mesh to a horizontal surface will trigger a significant deficiency

The vent must have a watertight cover that extends down to the bottom of the #24 mesh screen. The cover will prevent the entry of rain and snow as well as minimize the entry of dust.

Not having a solid cover that extends to the bottom of the #24 mesh screen will trigger a significant deficiency



Bird spikes can be added to any intermediate horizontal surfaces. In some cases, the height of the vent should be raised higher than 24 inches to address severe problems with birds or other animals.

Vents not accessible for inspection can trigger a significant deficiency.



Recommendation only: Having the vent opening at least 24 inches above the horizontal surface protects against the inhalation of contamination (dried feces, dust, etc.). In addition to the #24 mesh screen, the vent should also have a bird screen to prevent any birds from nesting on top of a horizontally placed screen.