



EPA Region 8 Drinking Water Unit Tech Tips Simple Fixes for Wellheads

Region 8 EPA requires wells to be protected from outside water intrusion.

Casing must be at least 12 inches above the floor (indoors) or 18 inches above the natural ground surface (outdoors). The well must be sealed with a watertight neoprene gasket. Air vents must face downward and be covered with #24 mesh non-corrodible screen. Electrical conduits or other entries to the well must be sealed.

WELL CAP

PROPERLY DESIGNED WELL CAPS & SANITARY SEALS

Replace damaged or leaky well caps with vermin-proof, premium, watertight ones. Vents on caps must be screened with #24 mesh. Well caps with set screws on the sides of the cap may not have a gasket. If not, do not use them.



Replace any damaged well cap gaskets and/or the compression seals on the outside diameter of the well casing.

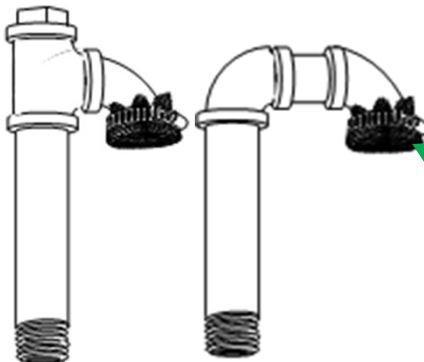
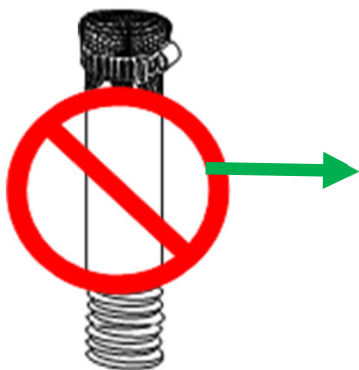


Tighten and replace all missing bolts to ensure the well cap creates a proper sanitary seal.



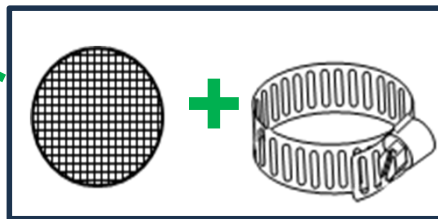
WELL VENT

If the well cap has a vent, it must be at least as high as the well casing or pitless adapter. Replace straight, open well vents with down-turned screened vents such as those below. Cover all vent openings using non-corrodible #24-mesh screen to exclude insects, rodents and other small animals.



#24-MESH SCREEN

Non-corrodible #24-mesh screen (wire diameter 0.014 inches) and a stainless-steel adjustable clamp.



WELL HEIGHT

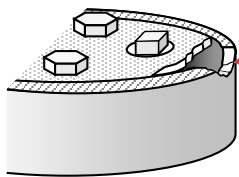
Permanent casing for all groundwater wells must project as least:

- 12 inches above the floor, or
- 18 inches above natural ground surface.



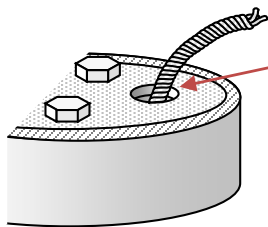
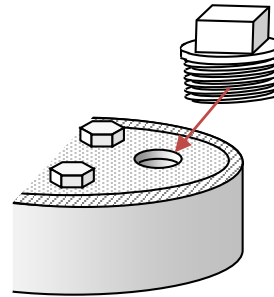
18" above natural ground level

IMPORTANT TIPS: SEALING WELL CAPS & OTHER NOTES



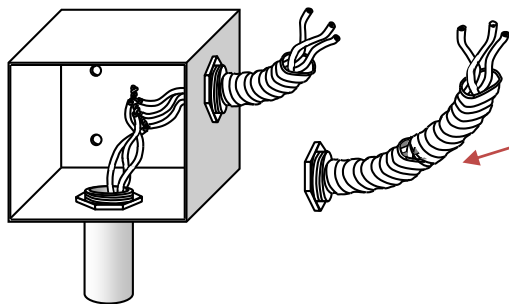
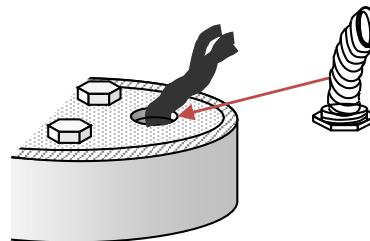
Replace damaged seal and repair casing. The repairs must be durable and watertight. No caulking is acceptable for any well opening deficiencies.

Replace access plug or install an inverted screened well vent if the cap doesn't have one. No caulk is acceptable for any well opening deficiencies.



To seal this opening, remove the rope or attach it to an eyebolt on the sanitary seal bottom or drop pipe, and use an access plug. No caulk is acceptable for any well opening deficiencies. Remove pump hoists (rope, chain, etc.) that extend through the cap as it is difficult to achieve an adequate seal. Use manufacturer's recommendations for pump removal, and afterwards, seal the opening with an access plug.

To seal openings around submersible pump wires, install a conduit with an electrical grommet. No caulk is acceptable for any well opening deficiencies.



Electrical junction boxes and any conduits attached to the well casing must be watertight. No caulk is acceptable for any well opening deficiencies. Replace damaged flexible conduit.



AVOID HANTAVIRUS:

If your well is housed in a building:

Avoid contracting the Hantavirus pulmonary syndrome by properly cleaning mice-infested areas.

Refer to the Center for Disease Control (CDC) Website:

www.cdc.gov/ncidod/diseases/hanta/hps/noframes/prevent3.htm

WELL IN A PIT OR VAULT

The pit or vault should be watertight. When a well is in a pit or vault that is not watertight, it must be constructed with proper drainage or be equipped with an appropriately sized permanent or portable pump. Wells in pits are not appropriate in areas prone to flooding or with elevated water tables.

QUICK GUIDE TO WELL CAP SANITARY SEALS

ARTESIAN WELL COMPLETIONS



Example of an artesian well completion. Could use other types of well caps or pitless adapters. The well's own water pressure will indicate adequate seal. If the well isn't leaking water, the seal is most likely intact.

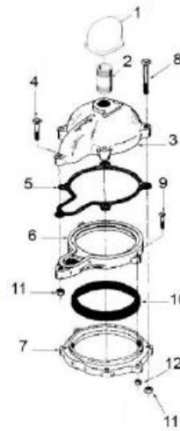
“BAKER”-TYPE WATERTIGHT CAST IRON WELL CAP



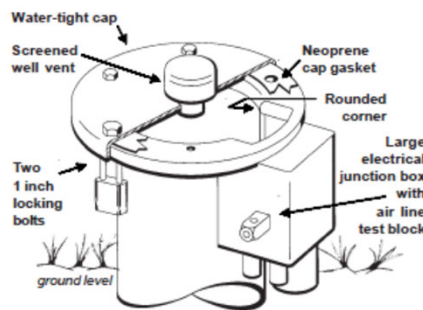
Screened air vent

Gasket should be visible

O-ring – probably OK if well cap assembly is tight to the casing



“BASKI PITLESS UNIT” COMPLETION



Some well caps are designed with an internal seal. Determine gasket condition by removing a bolt to view it and check to be sure the well cap is tight.

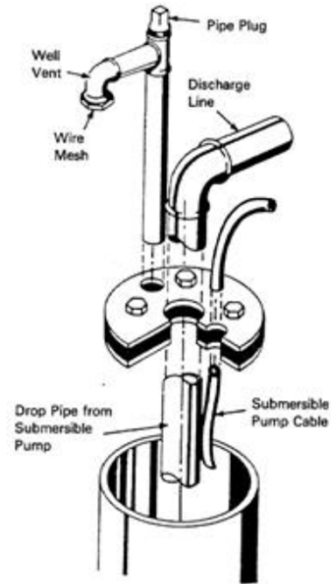
WELL CAPS NOT DESIGNED FOR A SANITARY SEAL



A well cap that isn't designed for a seal is a contamination risk. It may be possible to modify it. If it is properly sealed with a neoprene rubber gasket and the electrical conduit is properly sealed to the cap, it may be acceptable.

“Split Plate” and “Non-Split Plate” Compression Seal Well Caps: Piping exits the Well Cap top

Checking/repairing the seal may require a trained professional. Incorrectly over-loosening the bolts could damage the seal or result in parts falling into the well itself.



The Split cap is made up of 4 individual pieces plus 4 bolts and a neoprene rubber gasket:



TOP VIEW



BOTTOM VIEW



SIDE VIEW



Split plate & Non-Split Plate Compression Seal caps have holes through the neoprene rubber gasket for pipes, wires, conduits.



Can thread the holes in the top for plugs or bushings.



Tightening the bolts compresses the gasket against the well casing sides & the piping & conduits that penetrate through the top.



With a split cap, a feeler gauge can be inserted into the slot to confirm the gasket.